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

FORM 10-K

(Mark One)

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

For the fiscal year ended June 30, 2023

or

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

For the transition period from ____________________ to ____________________

Commission file number: **001-38029**

AKOUSTIS TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**33-1229046**
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification No.)
9805 Northcross Center Court, Suite A Huntersville, NC	**28078**
(Address of principal executive offices)	(Postal Code)

Registrant's telephone number, including area code: **1-704-997-5735**

Securities registered under Section 12(b) of the Act:

Title of Each Class:	Trading Symbol	Name of each exchange on which registered:
Common Stock, $0.001 par value	**AKTS**	**The Nasdaq Stock Market LLC (Nasdaq Capital Market)**

Securities registered under Section 12(g) of the Act:

None

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

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

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

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

Large Accelerated Filer	☐	Accelerated Filer	☐
Non-Accelerated Filer	☒	Smaller reporting company	☒
		Emerging growth company	☐

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

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

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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

The aggregate market value of the registrant's common stock, par value $0.001 per share ("Common Stock"), held by non-affiliates on December 31, 2022 was approximately $148.2 million. For purposes of this computation, shares of Common Stock held by all officers, directors, and any beneficial owners of 10% or more of the outstanding Common Stock were excluded because such persons may be deemed to be affiliates of the registrant. Such determination should not be deemed an admission that such persons are, in fact, affiliates of the registrant.

As of September 01, 2023, there were 72,351,827 shares of Common Stock issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant intends to file a definitive proxy statement pursuant to Regulation 14A within 120 days after the end of the fiscal year ended June 30, 2023. Portions of such proxy statement are incorporated by reference into Part III of this Form 10-K.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This Annual Report on Form 10-K (this "Report") contains forward-looking statements that relate to our plans, objectives, estimates, and goals. Any and all statements contained in this report that are not statements of historical fact may be deemed to be forward-looking statements. Terms such as "may," "will," "might," "would," "should," "could," "project," "estimate," "predict," "potential," "strategy," "anticipate," "attempt," "develop," "plan," "help," "seek," "believe," "continue," "intend," "expect," "future," and terms of similar import (including the negative of any of the foregoing) may identify forward-looking statements. However, not all forward-looking statements may contain one or more of these identifying terms. Forward-looking statements in this report may include, without limitation, statements regarding (i) the plans and objectives of management for future operations, including plans or objectives relating to the development of commercially viable radio frequency ("RF") filters, (ii) projections of income (including income/loss), earnings (including earnings/loss) per share, capital expenditures, dividends, capital structure or other financial items, (iii) our future financial performance, including any such statement contained in the management's discussion and analysis of financial condition or in the results of operations included pursuant to the rules and regulations of the Securities and Exchange Commission (the "SEC"), (iv) our ability to efficiently utilize cash and cash equivalents to support our operations for a given period of time, (v) our ability to engage customers while maintaining ownership of our intellectual property, and (vi) the assumptions underlying or relating to any statement described in (i), (ii), (iii), (iv) or (v) above.

Forward-looking statements are not meant to predict or guarantee actual results, performance, events or circumstances and may not be realized because they are based upon our current projections, plans, objectives, beliefs, expectations, estimates and assumptions and are subject to a number of risks and uncertainties and other influences, many of which are beyond our control. Actual results and the timing of certain events and circumstances may differ materially from those described by the forward-looking statements as a result of these risks and uncertainties. Factors that may influence or contribute to the inaccuracy of the forward-looking statements or cause actual results to differ materially from expected or desired results may include, without limitation,

- our limited operating history,
- our inability to generate revenues or achieve profitability,
- the impact of the COVID-19 pandemic, Russian-Ukrainian conflict and other sources of volatility on our operations, financial condition and the worldwide economy, including our ability to access the capital markets,
- increases in prices for raw materials, labor, and fuel caused by rising inflation,
- our inability to obtain adequate financing and sustain our status as a going concern,
- the results of our research and development ("R&D") activities,
- our inability to achieve acceptance of our products in the market,
- general economic conditions, including upturns and downturns in the industry,
- existing or increased competition,
- our inability to successfully scale our New York wafer fabrication facility and related operations while maintaining quality control and assurance and avoiding delays in output,
- contracting with customers and other parties with greater bargaining power and agreeing to terms and conditions that may adversely affect our business,
- the possibility that the anticipated benefits from our business acquisitions (including the acquisitions of RFM Integrated Device, Inc. ("RFMi") and Grinding and Dicing Services, Inc. ("GDSI")) will not be realized in full or at all or may take longer to realize than expected,
- the possibility that costs or difficulties related to the integration of acquired businesses' (including RFMi and GDSI's) operations will be greater than expected and the possibility of disruptions to our business during integration efforts and strain on management time and resources,

- risks related to doing business in foreign countries, including rising tensions between the United States and China,
- any cybersecurity breaches or other disruptions compromising our proprietary information and exposing us to liability,
- our limited number of patents,
- failure to obtain, maintain and enforce our intellectual property rights,
- claims of infringement, misappropriation or misuse of third-party intellectual property, including the lawsuit filed by Qorvo, Inc. in October 2021, that, regardless of merit, could result in significant expense and negatively impact our business results,
- our inability to attract and retain qualified personnel,
- results of any arbitration or litigation that may arise,
- our reliance on third parties to complete certain processes in connection with the manufacture of our products,
- product quality and defects,
- our ability to market and sell our products,
- our failure to innovate or adapt to new or emerging technologies, including in relation to our competitors,
- our failure to comply with regulatory requirements,
- stock volatility and illiquidity,
- our failure to implement our business plans or strategies,
- our failure to maintain effective internal control over financial reporting
- our failure to obtain or maintain a Trusted Foundry accreditation or our New York fabrication facility, and
- shortages in supplies needed to manufacture our products, or needed by our customers to manufacture devices incorporating our products.

A description of the risks and uncertainties that could cause our actual results to differ materially from those described by the forward-looking statements in this Report appears in the section captioned "Risk Factors" and elsewhere in this Report.

Readers are cautioned not to place undue reliance on forward-looking statements because of the risks and uncertainties related to them and to the risk factors. Except as may be required by law, we do not undertake any obligation to update the forward-looking statements contained in this Report to reflect any new information or future events or circumstances or otherwise.

DEFINITIONS

When used in this Report, the terms, "we," "Akoustis," the "Company," "our," and "us" refers to Akoustis Technologies, Inc., a Delaware corporation, and its wholly owned consolidated subsidiaries, Akoustis, Inc., also a Delaware corporation, RFM Integrated Device, Inc., a Texas corporation ("RFMi"), and Grinding and Dicing Services, Inc., a California corporation ("GDSI").

Glossary

The following is a glossary of technical terms used herein:

- **Acoustic wave** — a mechanical wave that vibrates in the same direction as its direction of travel.
- **AlN** — Aluminum Nitride.
- **Acoustic wave filter** — an electromechanical device that provides radio frequency control and selection, in which an electrical signal is converted into a mechanical wave in a device constructed of a piezoelectric material and then back to an electrical signal.
- **Band, channel or frequency band** — a designated range of radio wave frequencies used to communicate with a mobile device.
- **Bulk acoustic wave (BAW)** — an acoustic wave traveling through a material exhibiting elasticity, typically vertical or perpendicular to the surface of a piezoelectric material.
- **Digital baseband** — the digital transceiver, which includes the main processor for the communication device.
- **Duplexer** — a bi-directional device that connects the antenna to the transmitter and receiver of a wireless device and simultaneously filters both the transmit signal and receive signal.
- **Filter** — a series of interconnected resonators designed to pass (or select) a desired radio frequency signal and block unwanted signals.
- **Group III element nitrides** — a dielectric material comprised of group IIIA element, such as boron (B), aluminum (Al) or gallium (Ga), combined with group 5A (or VA nitrogen) to form a compound semiconductor nitride such as BN, AlN, or GaN. For resonators, the dielectric is typically chosen based upon the piezoelectric constant of the material in order to generate the highest electromechanical coupling.
- **Insertion Loss** — the power losses associated with inserting a BAW filter into a circuit.
- **Lossy** — resistive losses that result in heat generation.
- **Metrology** — techniques used to evaluate materials, devices and circuits.
- **Monolithic topology** — a description of an electrical circuit whereby all the elements of the circuit are fabricated at the same time using the same process flow.
- **Power Amplifier Duplexer (PAD)** — an RF module containing a power amplifier and duplex filter components for the RFFE of a smartphone.
- **Piezoelectric materials** — certain solid materials (such as crystals and certain ceramics) that produce a voltage in response to applied mechanical stress, or that deform when a voltage is applied to them.
- **Quality factor, or Q** — energy stored divided by the energy dissipated per cycle. Higher Q represents a higher caliber of resonance and implies mechanical and electrical factors responsible for energy dissipation are minimal. For a given amount of energy stored in a resonator, Q represents the number of cycles resonance will continue without additional input of energy into the system.

- **Resonator** — a device whose impedance sharply changes over a narrow frequency range and is characterized by one or more 'resonance frequency' due to a standing wave across the resonator's electrodes. The vibrations in a resonator can be characterized by mechanical "acoustic" waves which travel without a characteristic sound velocity. Resonators are the building blocks for RF filters used in mobile wireless devices.
- **RF** — radio frequency.
- **RF front-end (RFFE)** — the circuitries in a mobile device responsible for processing the analog radio signals; located between the device's antenna and the digital baseband.
- **RF spectrum** — a defined range of frequencies.
- **Surface acoustic wave (SAW)** — an acoustic sound wave traveling horizontally along the surface of a piezoelectric material.
- **TDD LTE** — Time Division Duplex- Long-Term Evolution or a wireless standard which shares the bandwidth between transmit and receive.
- **Tier one** — a supplier or OEM with substantial market share.
- **Tier two** — a supplier or OEM with an established but not substantial market share.
- **Wafer** — a thin slice of semiconductor material used in electronics for the fabrication of integrated circuits.

PART I

ITEM 1. BUSINESS

Overview

Akoustis Technologies, Inc., a Delaware corporation, was incorporated in 2013. The Company is an emerging commercial product company focused on developing, designing, and manufacturing innovative RF filter solutions for the wireless industry, including for products such as smartphones and tablets, network infrastructure equipment, Wi-Fi Customer Premise Equipment ("CPE"), and defense applications. Filters are critical in selecting and rejecting signals, and their performance enables differentiation in the modules defining the RF front-end ("RFFE"). Located between the device's antenna and its digital backend, the RFFE is the circuitry that performs the analog signal processing and contains components such as amplifiers, filters and switches. We have developed a proprietary microelectromechanical system ("MEMS") based bulk acoustic wave ("BAW") technology and a unique manufacturing process flow, called "XBAW®", for our filters produced for use in RFFE modules. Our XBAW® filters incorporate optimized high purity piezoelectric materials for high power, high frequency and wide bandwidth operation. We are developing RF filters for 5G, Wi-Fi and defense bands using our proprietary resonator device models and product design kits ("PDKs"). As we qualify our RF filter products, we are engaging with target customers to evaluate our filter solutions. Our initial designs target UHB, sub-7 GHz 5G, Wi-Fi and defense bands. We expect our RF filter solutions will address problems (such as loss, bandwidth, power handling, and isolation) created by the growing number of frequency bands in the RFFE of mobile devices, infrastructure and premise equipment to support 5G, and Wi-Fi. We have prototyped, sampled and begun commercial shipment of our single-band low loss BAW filter designs for 5G frequency bands and 5 GHz and 6 GHz Wi-Fi bands which are suited to competitive BAW solutions and historically cannot be addressed with low-band, lower power handling surface acoustic wave ("SAW") technology. Additionally, through our wholly owned subsidiary, RFMi, of which we acquired majority ownership in October 2021 and full ownership in April 2023, we operate a fabless business whereby we make sales of complementary SAW resonators, RF filters, crystal ("Xtal") resonators and oscillators, and ceramic products — addressing opportunities in multiple end markets, such as automotive and industrial applications. We also offer back-end semiconductor supply chain services through our wholly owned subsidiary, GDSI, which we acquired in January 2023.

We own and/or have filed applications for patents on the core resonator device technology, manufacturing facility and intellectual property ("IP") necessary to produce our RF filter chips and operate as a "pure-play" RF filter supplier, providing discrete filter solutions direct to Original Equipment Manufacturers ("OEMs") and aligning with the front-end module manufacturers that seek to acquire high performance filters to expand their module businesses. We believe this business model is the most direct and efficient means of delivering our solutions to the market.

> *Technology.* Our device technology is based upon bulk-mode acoustic resonance, which we believe is superior to surface-mode resonance for high-band and ultra-high-band ("UHB") applications that include 4G/LTE, 5G, Wi-Fi, and defense applications. Although some of our target customers utilize or manufacture the RFFE module, they may lack access to critical UHB filter technology that we produce, which is necessary to compete in high frequency applications.
>
> *Manufacturing.* We currently manufacture Akoustis' high-performance RF filter circuits, using our first generation XBAW® wafer process, in our 125,000-square foot wafer-manufacturing facility located in Canandaigua, New York (the "New York Facility"), which we acquired in June 2017. Our SAW-based RF filter products are manufactured by a third party and sold either directly or through a sales distributor.
>
> *Intellectual Property.* As of August 25, 2023, our IP portfolio included 104 patents, including a blocking patent that we have licensed from Cornell University. Additionally, as of August 25, 2023, we have 108 pending patent applications. These patents cover our XBAW® RF filter technology from raw materials through the system architectures. Given the significance of the Company's intellectual property to its business, the Company enforces its intellectual property rights and protects its patent portfolio, which may include filing lawsuits against companies that the Company believes are infringing upon its patents. The Company considers protecting its intellectual property rights to be central to its business model and competitive position in the RF filter industry.

By designing, manufacturing, and marketing our RF filter products to mobile phone OEMs, defense OEMs, network infrastructure OEMs, and Wi-Fi CPE OEMs, we seek to enable broader competition among the front-end module manufacturers.

Since we own and/or have filed applications for patents on the core technology and control access to our intellectual property, we expect to offer several ways to engage with potential customers. First, we intend to engage with multiple wireless markets, providing standardized filters that we design and offer as standard catalog components. Second, we expect to deliver unique filters to customer-supplied specifications, which we will design and fabricate on a customized basis. Finally, we may offer our models and design kits for our customers to design their own filters utilizing our proprietary technology.

We expect to continue to incur substantial costs for commercialization of our technology on a continuous basis because our business model involves materials and solid-state device technology development and engineering of catalog and custom filter design solutions. To succeed across our combined portfolio of Akoustis, XBAW, and RFMi products, we must convince customers in a wide range of industries including mobile phone OEMs, RFFE module manufacturers, network infrastructure OEMs, Wi-Fi CPE OEMs, medical device makers, automotive and defense customers to use our products in their systems and modules. For example, since there are two dominant BAW filter suppliers in the industry that have high-band technology, and both utilize such technology as a competitive advantage at the module level, we expect customers that lack access to high-band filter technology will be open to engage with our company for XBAW filters.

To help drive our XBAW filter business, we plan to continue to pursue RF filter design and R&D development agreements and potentially joint ventures with target customers and other strategic partners, although we cannot guarantee we will be successful in these efforts. These types of arrangements may subsidize technology development costs and qualification, filter design costs, and offer complementary technology and market intelligence and other avenues to revenue. However, we intend to retain ownership of our core XBAW technology, intellectual property, designs, and related improvements. Across our combined portfolio of Akoustis, XBAW, and RFMi products, we expect to continue development of catalog designs for multiple customers and to offer such catalog products in multiple sales channels.

Impact of COVID-19 on our Business

The COVID-19 pandemic has significantly impacted business activity across the globe. In particular, COVID-19 contributed to delays we observed in certain suppliers' shipment of materials necessary for us to manufacture our products and in certain vendors' ability to deliver equipment for installation at our facilities. Although the effects of COVID-19 and its impact on our supply chain have eased since the peak of the pandemic and related lock-down protocols imposed by local governments, including China, we will continue to actively monitor the situation and may take further actions altering our business operations that we determine are in the best interests of our employees, customers, partners, suppliers, and stakeholders, or as required by federal, state, or local authorities. The effect that any such alterations or modifications may have on our business, including the effects on our customers, employees, and prospects, or on our financial results for fiscal year 2024 or beyond is unclear.

Recent Developments

On July 11, 2022, we announced that we had named Kamran Cheema as our new Chief Product Officer.

On August 9, 2022, we announced that we had shipped a second 5G mobile design in a new wafer-level-package to our first foundry customer.

On August 24, 2022, we announced that we had received a development order for two new XBAW® diplexers from a Fortune 100 Internet company.

On September 6, 2022, we announced that Senate Majority Leader Charles E. Schumer toured our New York fabrication facility.

On September 8, 2022, we announced that we entered the gaming market with two design wins in Wi-Fi with two new customers.

On September 14, 2022, we announced that we received a development order for a new XBAW® 5G mobile filter solution for a tier-1 RF module maker.

On September 28, 2022, we announced that we received our fourth design win for a 5G network infrastructure filter.

On October 4, 2022, we announced that we had started sampling two new Wi-Fi 6E and Wi-Fi 7 filter solutions.

On October 6, 2022, we announced that we had become a charter member of the Semiconductor Industry Association.

On October 26, 2022, we announced that we had received three new Wi-Fi 6E design wins for carrier-class applications.

On November 21, 2022, we announced that we had joined the Wi-Fi NOW industry association as an official filter partner.

On December 21, 2022, we announced the completion of qualification of our internally developed wafer-level-packaging (WLP) technology for the 5G mobile, Wi-Fi, timing control, and other markets.

On December 28, 2022, we announced our first design win in 5G mobile from a Tier-1 RF component company customer.

On January 4, 2023, we announced the acquisition of GDSI, a U.S.-based, trusted supplier of semiconductor back-end supply chain services.

On January 18, 2023, we announced that we had received our first high-volume 5G mobile XBAW filter order from a Tier-1 RF component company.

On January 25, 2023, we announced the closing of a public offering of common stock and full exercise of the underwriters' option to purchase additional shares.

On March 23, 2023, we announced the appointment of Michelle L. Petock, CEO of W Greig & Company to our Board of Directors.

On April 4, 2023, we announced that we received a development order for Wi-Fi 6E/7 from a new RF module maker customer.

On April 11, 2023, we introduced a new C-V2X XBAW® filter for the automotive market.

On April 26, 2023, we announced a volume purchase order for Wi-Fi 6E filters for a new, advanced, high-speed line of Wi-Fi 6E fixed infrastructure products.

On May 3, 2023, we announced that we had received our first Wi-Fi 7 design win from a leading enterprise-class customer.

On May 24, 2023, we announced that we had received two new Wi-Fi 6E design wins.

On June 1, 2023, we introduced two new advanced BAW RF filters for Wi-Fi 6E and Wi-Fi 7.

One June 5, 2023, we announced that we would be hosting a booth at the IEEE MTT-S International Microwave Symposium.

On June 13, 2023, we launched our new, state-of-the-art XBAW® foundry services and AI-enabled engineering design services.

On July 20, 2023, we announced that we had shipped two new BAW filters using the XBAW® foundry process to a 5G mobile and Wi-Fi router RF front-end module customer.

On July 27, 2023, we introduced a new, advanced, single-crystal AlScN on Si wafer XBAW® technology.

Financing

We have not yet achieved profitability from operations, and so have funded our operations largely with issuances of equity and debt securities, as well as development contracts, RF filter and production orders, government grants, MEMS foundry services (which we exited in 2021) and engineering services. We have historically incurred losses which are primarily the result of material and processing costs associated with developing and commercializing our technology, as well as personnel costs, professional fees (primarily accounting and legal), and other general and administrative ("G&A") expenses. We expect to continue to incur substantial costs for the commercialization of our technology on a continuous basis because our business model involves materials and solid-state device technology development and engineering of catalog and custom filter design solutions.

The Company expects that its current cash and cash equivalents are sufficient to fund its operations beyond the next twelve months from the date of filing of this Form 10-K. These funds will be used to fund the Company's operations, including capital expenditures, R&D, commercialization of our technology, development of our patent strategy and expansion of our patent portfolio, as well as to provide working capital and funds for other general corporate purposes. Except for the $48.0 million of Common Stock remaining available to be sold under its ATM Sales Agreement with Oppenheimer & Co. Inc., Craig-Hallum Capital Group LLC, and Roth Capital Partners, LLC, the Company has no commitments or arrangements to obtain any additional funds, and there can be no assurance such funds will be available on acceptable terms or at all.

In the future, if the Company is unable to obtain additional financing in a timely fashion and on acceptable terms when such financing is needed, its financial condition and results of operations may be materially adversely affected, and it may not be able to continue operations or execute its stated commercialization plan.

Recent Financing Activity

Equity Offering Program

On May 2, 2022, the Company entered into an ATM Sales Agreement with Oppenheimer & Co. Inc., Craig-Hallum Capital Group LLC, and Roth Capital Partners, LLC pursuant to which the Company may sell from time-to-time shares of its common stock having an aggregate offering price of up to $50,000,000 (the "2022 Equity Offering Program"). On May 25, 2022, the Company announced that it was suspending sales under the 2022 Equity Offering Program. If, in the future, the Company determines to resume sales pursuant to the 2022 Equity Offering Program, it intends to notify investors by the filing of a Current Report on Form 8-K or other filing with the SEC, or other public announcement.

Convertible Note Offering

On June 9, 2022, the Company issued $44.0 million aggregate principal amount of its 6.0% Convertible Senior Notes due 2027 (the "Notes") guaranteed by its wholly-owned subsidiary, Akoustis, Inc. The Notes were issued pursuant to an indenture (the "Indenture"), dated June 9, 2022, among the Company, the Guarantor and The Bank of New York Mellon Trust Company, N.A., as trustee. The Notes bear interest at a rate of 6.0% per year until maturity on June 15, 2027, payable semi-annually beginning on December 15, 2022. At the Company's option, interest may be paid in cash and/or shares of Common Stock. The initial conversion rate for the Notes is 212.3142 shares of Common Stock (subject to adjustment as provided in the Indenture) per $1,000 principal amount of the Notes, which is equal to an initial conversion price of approximately $4.71 per share.

Underwritten Offering of Common Stock

On January 19, 2023, the Company closed a public offering of 12,545,454 shares of Common Stock at a price to the public of $2.75 per share pursuant to an underwriting agreement with B. Riley Securities, Inc., as representative of the several underwriters named therein. The shares of Common Stock issued at closing included 1,636,363 shares issued pursuant to the underwriters' over-allotment option, which was exercised in full. Gross proceeds totaled $34.5 million before deducting the underwriting discount and offering expenses of approximately $2.5 million, resulting in net proceeds from the offering of approximately $32.0 million. Certain of the Company's directors and officers participated in the offering by purchasing shares on the same terms and conditions as other investors.

Our XBAW Filter Technology and Business

Current RF acoustic wave filters utilize piezoelectric material physical properties, the resonator device structure and the manufacturing process technology. Existing BAW filters use an "acoustic wave ladder" that is based on a monolithic topology approach using polycrystalline materials.

XBAW technology encompasses cutting-edge polycrystalline, single-crystal and other high purity piezoelectric materials, which are fabricated into bulk-mode, acoustic wave resonators and RF filters. Our innovative piezoelectric materials contain high-purity Group III element nitride materials and possess a unique signature, which can be detected by conventional material metrology tools. We utilize analytical modeling techniques to aid in the design and internal manufacturing of our materials, whereby the raw substrate materials utilized in our XBAW process are sourced from a third party. Once our filter designs are simulated and ready to manufacture, we supply the NY Facility raw materials, a mask design file, and a unique process sequence to fabricate our resonators and filters. We hold many issued and pending patents on our XBAW wafer process flow, which is compatible with wafer level packaging (WLP) that allows for low-profile, cost- effective filters to be produced.

Technological Challenges Facing the Mobile Device Industry

Rising consumer demand for always-on wireless broadband connectivity creates an unprecedented need for high performance RFFE modules for mobile devices. Mobile devices such as smartphones, tablets and wearables are quickly becoming the primary means of accessing the Internet and driving the Internet of Things (IoT). Rapid growth in mobile data traffic tests the limits of existing wireless bandwidth. Carriers and regulators have responded by opening new spectrums of RF frequencies, driving up the number of frequency bands in mobile devices. This substantial increase in frequency bands has created a demand for more filters, as well as a demand for filters with higher selectivity. The global transition to LTE and adoption of LTE-Advanced with more sophisticated carrier aggregation and multiple-input, multiple-output (MIMO) techniques has continued to push the requirements for increased supply of high-performance filters. Furthermore, the introduction of 5G mobile technologies and their associated frequencies has created an even greater need for high-performance, high-frequency filters as the bands being auctioned have primarily been in the 3-6 GHz range, well above the frequencies of current networks.

The new spectrum introduced by 4G/LTE and 5G is driving spectrum licensing at higher frequencies than previous 3G smartphone models. For example, new TDD LTE frequencies allocated for 5G wireless cover frequencies nearly twice as high as those covered in previous generation phones. As a result, the demand for filters represents the single largest opportunity in the RFFE industry, according to a Mobile Experts 2022 report. For traditional “low band” frequencies, SAW filters have been the primary choice, while high band solutions have utilized BAW filters due to their performance and yield. While there are multiple sources of supply for SAW technology, the source of supply for BAW filters is more limited and essentially dominated by two manufacturers worldwide. See “Competition” below.

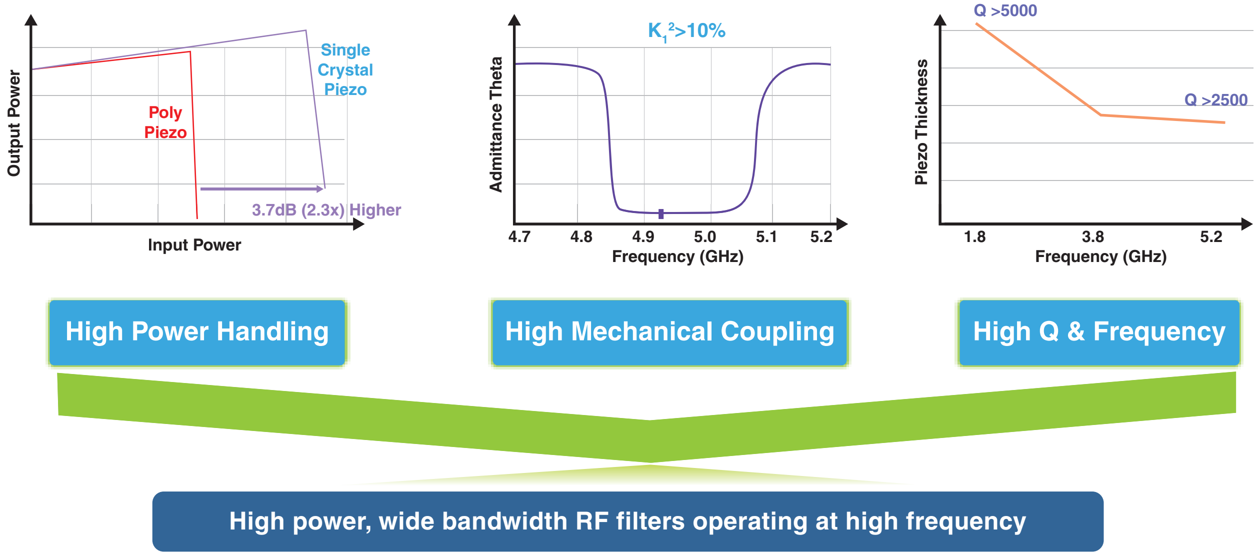
In addition, signal loss of current generation acoustic wave filters is excessively high, and up to half of the transmit power is wasted as heat, which ultimately constrains battery life. Another challenge is that the allocated spectrum for mobile communication bands requires high bandwidth RF filters, which, in turn, requires wide bandwidth core resonator technology. In addition, filters with inferior selectivity either reduce the number or bandwidth of operating bands the mobile device can support or increase the noise in the operating bands. Each of these problems negatively impacts the end-user’s experience when using the mobile device.

The RFFE must meet growing data demands while reducing cost and improving battery life. Our solution involves a new approach to RFFE component manufacturing, enabled by XBAW technology. We expect our XBAW technology to produce filters that will reduce the overall system cost and improve performance of the RFFE.

Our XBAW Filter Solutions

Our XBAW filter business is focused on the commercialization of wide bandwidth RF filters operating in the high frequency spectrum known as the sub 8 GHz bands. Using our XBAW technology, we believe these filters enable new power amplifier duplexer (PAD) module or RFFE competition for high band modules as well as performance-driven low band applications. Initially, we expect to target select strategic RFFE market leaders as well as tier two mobile phone OEMs and/or RFFE module suppliers. Longer term, the focus of our XBAW filter business will be to expand our market share by engaging with additional mobile phone OEMs and RFFE module manufacturers. We manufacture our XBAW wafers in our Canandaigua, NY fabrication facility where we continue to focus on the commercialization of our filters using our XBAW technology. We plan to continue develop a series of filter designs to be used in the manufacturing of discrete filters, duplexers or more complex multiplexers targeting the 4G/LTE, 5G, Wi-Fi, automotive and defense frequency bands. We believe our filter designs will create an alternative for, and replace, filters currently manufactured using materials with fundamentally inferior performance. Figure 1 below illustrates characterization plots that represent the high power, high bandwidth and high frequency capability of our high purity piezoelectric materials.

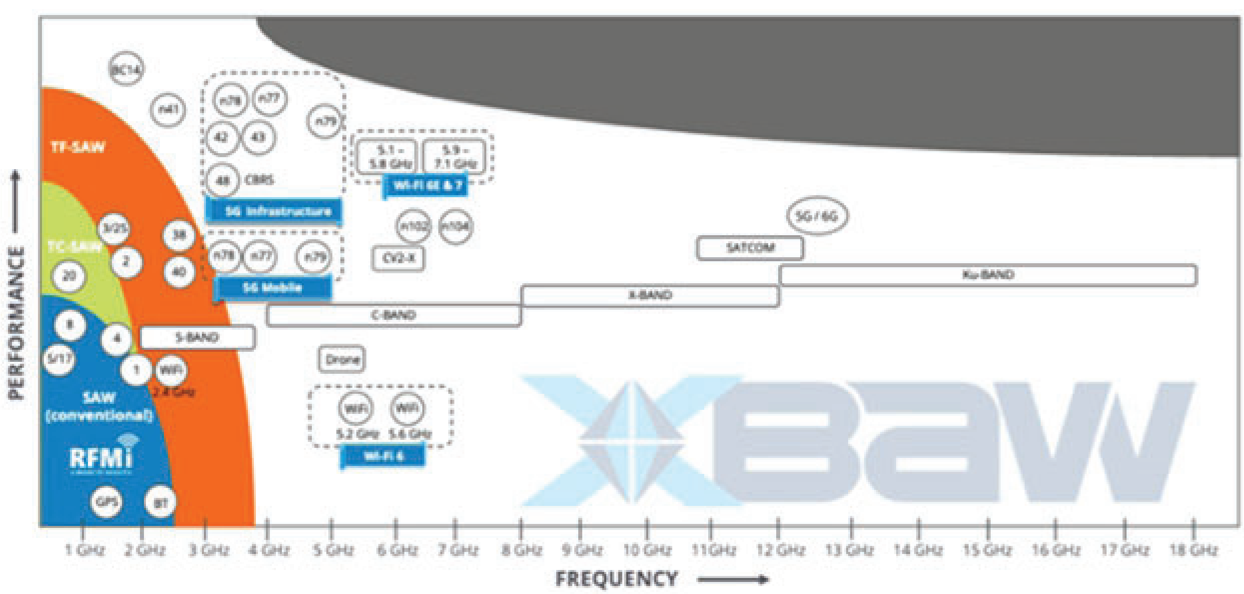
Figure 1 — Characteristics of our high purity piezoelectric materials used to fabricate our BAW RF filters.



Single-Band Discrete Designs, Duplexers and Multiplexers

SAW filters are generally desired in modern RFFE because of their performance, small size and low cost. However, traditional SAW ladder designs do not perform well in high frequency bands or bands with closely spaced receive and transmit channels, typical of many new bands. Therefore, BAW filters are preferred for these bands. In the NY Facility, we fabricate BAW resonators, the building block of BAW filters, that offer high frequency, wide bandwidth and high-power performance. We believe the improved efficiency provided by BAW filters will reduce the total cost of RFFE modules, offer efficient use of shared frequency spectrum as well as reduce the battery demand of mobile devices. Additionally, we believe that our XBAW technology will allow for a single manufacturing method that will support all of the BAW filter band range and a significant portion of the SAW band range. Figure 2 below illustrates what we believe will be the frequency range of our XBAW technology.

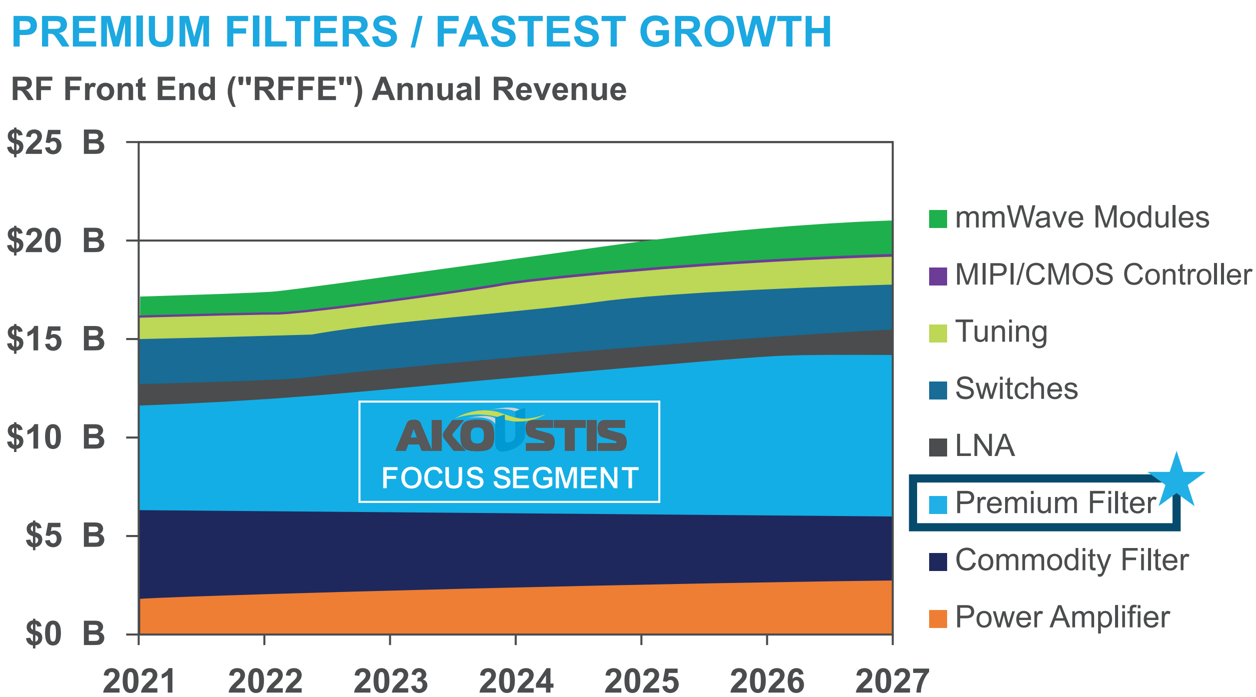
Figure 2 — The potential range of our technology.



Pure-Play Filter Provider Enables New Module Competition

Our XBAW technology allows for a wide range of frequency coverage, and we plan to supply XBAW filters that will support frequency bands from 2 to 20 GHz for 4G/LTE, 5G, Wi-Fi, automotive and defense applications. We have successfully demonstrated resonators that will support the design and fabrication of 4G/LTE filters, Wi-Fi filters and defense filters, with frequencies adjacent to the emerging 5G mobile auctions. We have transitioned our XBAW technology to high volume manufacturing and aim to be a pure-play filter supplier that will address the increasing RF complexity placed on RFFE manufacturers supporting 4G/LTE 5G, and Wi-Fi. Figure 3 illustrates historical and projected growth in RF complexity.

Figure 3 — Projected Increase in Filter content in Mobile Phone Front End Modules (FEMs) from 2021 – 2027 (Source: Mobile Experts 2022).



Commercialization of XBAW Filters

The immediate focus of our XBAW filter business is on the commercialization of wide bandwidth RF filters to address the Wi-Fi, Network Infrastructure and Defense bands with innovative single-band designs using our XBAW sub 8 GHz RF filter technology. We are currently developing commercial single-band XBAW filters through the NY Facility. We are focused on developing fixed-band XBAW filters because we believe these designs present the greatest near-term potential for commercialization of our technology, and that once demonstrated, the facility can be more efficiently readied for production compared to alternative technologies.

Our technology development process consists of the following five phases:

1. Pre-Alpha — Demonstrate basic feasibility/capabilities
2. Alpha — Develop stable recipe (Process freeze) with limited production development
3. Beta — Complete technology qualification (Process qualification) in factory to enable product design
4. Pre-Production — Demonstrate lead product production capabilities, release final design tools
5. Production — Continual improvement of process and parametric performance

We have completed all phases for our first generation XBAW process technology called XB1. Additionally, we have received and delivered orders for pre-production products based on our XBAW process technology, and as of end fiscal 2023, we have shipped more than 65 million XBAW filters to the 5G mobile, Wi-Fi, 5G infrastructure and defense markets.

Research and Development

Since inception, the Company's focus has been on developing an innovative wireless filter technology with a compelling value proposition to our potential customers and a significant and noticeable impact to the end user. Compared to legacy polycrystalline material (used to manufacture RF resonators and filters), our patented XBAW technology employs high purity piezoelectric films in our resonators, which are used as the enabler to create high performance BAW RF filters. Our high purity piezoelectric materials are a key differentiator when compared to the incumbent amorphous thin-film technologies because they increase the acoustic velocity, the electromechanical coupling coefficient in the resonator and/or high-power performance. These technology features allow Akoustis to engineer RF filter solutions for a broad spectrum for multiple radio frequencies and thus multiple end markets.

Research and development expense totaled $33.2 million for the year ended June 30, 2023, and $35.7 million for the year ended June 30, 2022. R&D activities focused on high purity piezoelectric materials development and resonator demonstration. Current R&D investments include materials advancement, resonator development, RF filter design, high yield wafer manufacturing and filter packaging.

As a result of our efforts, we have developed and introduced multiple new BAW filters which are currently sampling and in production with multiple customers across multiple markets. Our focus remains on improving the electromechanical coupling and quality factor of our resonator technology and the performance of our fabricated filters through design improvements and process optimization experiments.

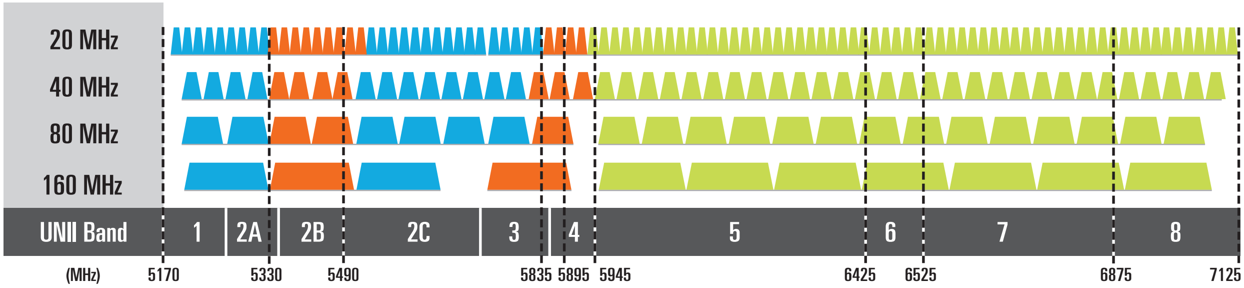
Recent Developments in R&D

We concentrated on several products and end markets in fiscal 2023 including 5G mobile, Wi-Fi, CBRS and 5G infrastructure, and the defense market.

In 5G mobile, we have multiple active customer engagements. Our first customer is a tier-2 RF module maker that is designing RF filters using our proprietary and patented XBAW® process that will utilize our new, advanced wafer-level-packaging. This customer is expected to complete three filters designs utilizing Akoustis PDK and enter pre-production in the first half of calendar 2024. Our second customer is a tier-1 RF component company and has engaged Akoustis to develop two filters for 5G connectivity. Akoustis has shipped multiple designs to this customer over the past year in new, advanced wafer-level-packaging. Our third mobile customer is a tier-1 RF module maker that has engaged Akoustis to develop an XBAW® filter to address a challenging coexistence band in 5G mobile. We have provided a complete design to this customer for evaluation and expect to continue to work closely with this customer over next 12 – 18 months. Finally, our fourth mobile customer is a leading tier-1 RF module maker that has engaged Akoustis to develop a new 5G filter utilizing our new, state-of-the-art wafer-level-packaging technology. Akoustis delivered second iteration engineering samples to this customer in the second half of fiscal 2023 and expects to continue to work closely with this customer over the next 12 – 18 months.

Advancements in our Wi-Fi portfolio continued in fiscal 2023. With the FCC's decision to increase the available spectrum for Wi-Fi with the ratification of 5.9-7.1 GHz in April 2020, new filters are needed that can operate at high frequency with ultra-wide bandwidth. This has driven investment in the development of both standard and custom XBAW® filters to address this new market over the past several years. We announced our first two Wi-Fi 6E filters in fiscal 2021, including a 5.5 GHz and 6.5 GHz XBAW® filter solution with 675 MHz and 1180 MHz of bandwidth. In early fiscal 2022, we entered the Wi-Fi 6E market with our first design win in August of 2021 for a multiple-in-multiple-out (MIMO) gateway product. By the end of the second quarter, we added multiple new Wi-Fi design wins and added two additional Wi-Fi 6E customers and one additional Wi-Fi 6 customer in production, exiting the quarter with five customers in production, up from one at the end of the prior calendar year.

Figure 4 — Wi-Fi 6E and emerging Wi-Fi 7 channel frequency spectrum



In early January 2022, we announced the addition of five additional design wins in Wi-Fi, four in Wi-Fi 6E and one in Wi-Fi 6, bringing the total number of Wi-Fi design wins to thirteen. We added two additional design wins in April 2022, bringing the total number to fifteen, and we received one additional design win in Wi-Fi 6E in the June 2022 quarter. In October 2022, we announced the addition of three new design wins in Wi-Fi 6E bringing total to nineteen. In May 2023, we announced the addition of one design win in Wi-Fi 7 and two additional design wins in Wi-Fi 6 bringing total to twenty-two. We are currently sampling and shipping volume pre-production and production filters with multiple OEMs, ODMs and SoC makers.

In June 2020, we entered into a strategic purchase agreement with a tier 1 enterprise-focused Wi-Fi OEM to create customer Wi-Fi 6E XBAW filters for a MU-MIMO enterprise router product. During fiscal 2021 and 2022, we developed multiple filters for this customer, all of which have been design-locked and successfully completed qualification in the June 2022 quarter. We entered into production with this customer in the first half of fiscal 2023.

In April, 2021, we announced that we had developed two new Wi-Fi 6E XBAW filters, a 5.6 GHz filter and a 6.6 GHz filter. The 5.6 GHz filter module covers the entire UNII 1-4 spectrum and enables an additional 80 MHz and 160 MHz channel in UNII 4, while the 6.6 GHz filter module covers the UNII 5-8 spectrum. Current Wi-Fi 6E configurations allow for the use of six 80 MHz and three 160 MHz channels in the UNII 1-3 spectrum and fourteen 80 MHz and seven 160 MHz channels in the UNII 5-8 spectrum. The XBAW 5.6/6.6 GHz coexistence filter modules allow for the use of seven 80 MHz and three 160 MHz channels in the UNII 1-4 spectrum and twelve 80 MHz and six 160 MHz channels in the UNII 5-8 spectrum. Given that the 6 GHz portion of the Wi-Fi 6E standard has begun to experience utilization relatively recently, this new XBAW coexistence solution allows for an environment of greater capacity in the 5 GHz bands. We received our first order from a tier-1 consumer-focused OEM on the same day we introduced the filters, with the first order for the development of new multi-user, multiple-in-multiple-out mesh routing products for the consumer market. In June 2023, we announced the introduction of next generation 5.6 GHz and 6.6 GHz filters with improved performance in a package greater than 4 times smaller compared to the previous generation of the product.

We have had several significant advancements in our CBRS and 5G mobile infrastructure business during fiscal 2022 and 2023. In the June quarter of fiscal 2022, we entered production with three CBRS infrastructure OEM’s, our first production ramps in mobile infrastructure. Also in that quarter, we finished the first phase development of our new 3.8 GHz filter for the US market. In late calendar 2020, the FCC auctioned frequencies between 3.7 GHz and 3.98 GHz for 5G mobile use in the United States. Carriers are currently building networks that operate between 3.7 GHz and 3.98 GHz; we are running second iteration of our filters to address these bands and expect to begin sampling our new 3.8 GHz filter to OEMs in late calendar 2023 for use in small cell base stations.

In the defense market, we built on our early successes in phased array radar and drone filters with the award of a Defense Advanced Research Projects Agency (DARPA) contract to advance XBAW technology in October of 2020, and the award of a second DARPA contract in April 2022 to advance the Company’s XBAW technology to 18 GHz. The first program, a Direct-to-Phase-2 (DP2) program, is to facilitate MEMS development, produce novel piezoelectric materials and device designs for both commercial and defense markets. One of the major outcomes from the DP2 program is to develop a piezo MEMS (PDK) for the Company’s proprietary and patented XBAW process which is expected to support customer engagements that leverage the PDK to create devices and circuits, including RF filters, using the XBAW process. Under the second program, the Company intends to develop a novel mode overtone approach to circumvent trade-offs inherent in traditional BAW frequency scaling approaches.

Akoustis currently has 17 commercial XBAW filters in its production and greater than 18 XBAW filters in development. Current product catalog filters include a 5.6 GHz Wi-Fi filter, a 5.2 GHz Wi-Fi filter, a 5.5 GHz Wi-Fi-6E filter, a 6.5 GHz Wi-Fi 6E filter, three small cell 5G network infrastructure filters including two Band n77 filters and one Band n79 filter, a 3.8 GHz filter for defense phased-array radar applications, and a 3.6 GHz filter for the CBRS 5G infrastructure market. New developments include standard catalog and custom filters for the sub-7 GHz bands targeting 5G mobile device, network infrastructure, Wi-Fi CPE, automotive and defense markets.

Our RFMi Technology and Business

RFMi is focused on supplying SAW and Xtal based frequency components to automotive, industrial IoT, medical, telecom, consumer, and other markets. The team designs, develops and markets under RFMi-branded SAW band pass filters, notch filters, diplexers, duplexers, resonators and delay lines, as well as Xtal resonators, temperature sensing Xtal resonators, temperature compensated crystal oscillators ("TCXO"), voltage controlled temperature compensated crystal oscillators ("VCTCXO"), crystal oscillators ("XO"), voltage controlled crystal oscillators ("VCXO"), oven controlled crystal oscillators ("OCXO") and Xtal filters, etc.

Technological Challenges Facing Customers for RFMi-branded Solutions

While wireless spectrum expands to above 3GHz where Akoustis XBAW products are focused, the spectrum under 3GHz is also becoming more and more crowded. Customers are losing "guard bands" next to their operating spectrum to competing applications and operators, and "co-existence" has become necessary for functionality for wireless electronics. LTE applications increasingly need to co-exist with Industrial, Scientific, and Medical ("ISM") band applications, satellite signals are interfered by terrestrial signals, industrial wireless control signals are saturated by communication signals, even medical wireless signals can be interrupted by other RF power outputs. The more traditional filtering technologies, like L-C (inductor — capacitor) and ceramic filters, may not have a Q factor high enough to supply steep roll-off from passband to rejection band. On the other hand, the demand for available data has also exploded, due to the increasing speed of data transmission and digital communication, which requires faster and more accurate piezo-ceramic resonators.

Our RFMi-branded Solutions for the RFMi Customers

RFMi is addressing jamming and high data rate problems by focusing on frequency components and supplying diverse and flexible SAW and Xtal products. In its operation spectrum (about 30MHz to 3GHz), SAW technology offers one of the highest Q factors. RFMi provides custom and standard SAW band pass filters to allow a signal spectrum to pass while rejecting the other signals, as well as a SAW diplexer with one input and two output, SAW duplexers that transmit and receive simultaneously for Frequency Division Duplex ("FDD") applications, and SAW resonators for high frequency transmitters, as well as custom delay lines. For Xtal products, instead of only supplying standard Xtal resonators at a few frequencies, RFMi provides a family of Xtal products and supports custom designs to accommodate a wider temperature range than standard products, stable frequency, and low jitter and phase noise.

Our GDSI Services and Business

GDSI supplies advanced back-end wafer processing and supply chain services to over 250 customers across multiple industries including automotive, IoT, defense, medical, optical and communications. Its services process multiple materials including silicon, silicon carbide, silicon germanium, fused silica, quartz, alumina, ceramics, MEMS, optical filers and components, gallium nitride and PZT.

Service Challenges Facing Customers of GDSI-branded Solutions

Semiconductor manufacturers in North America typically use overseas assembly and test ("OSAT") partners for die preparation, which can take multiple weeks for service and delivery of a finished product. GDSI is an ideal partner for complex die preparation for North American customers as it can offer same day service, in addition to advanced prototyping and production capacity for customers with low lead times. Additionally, GDSI has ISO, ITAR and Trusted Foundry Supplier (CAT 1A rank) accreditations, allowing it to service defense companies in the United States that often cannot outsource production to overseas partners.

Our GDSI-branded Solutions for GDSI Customers

GDSI offers wafer-thinning services for wafers up to 300 millimeters, die grinding, ultra-thin wafer grinding at greater than 50um, bonded wafers, and bumped wafers. The services offer tight tolerances for TTV and final thickness accuracy, 3DICs/TSV with via reveal or grinding into interposer, DBG for ultra-thin die or increased die strength. GDSI also offers wafer polishing services for wafers up to 200 millimeters using a chemical mechanical polish with a mirror finish with a Ra<10A, increased die strength, reduced warpage and which removes sub-surface damage. The division also offers a stealth dicing process for wafers up to 300 millimeters, which is a completely dry process with frontside and backside processing capability for wafers with a thickness range of 75um to 800um. Additionally, GDSI can offer coring services, device pick-and-place and automated inspection services.

Raw Materials

Within its internal manufacturing operation for XBAW filters, Akoustis sources raw materials, process gases, metals and other miscellaneous supplies to fabricate its BAW RF filter circuits. Materials range from substrates (used to deposit key piezoelectric materials) to standard dielectric-based laminates (used for packaging of the RF filter circuits). The Company sources at least two types of substrate materials for its BAW process and we have more than one supplier for one material and a single source for the other. Multiple process gases are used for material synthesis, process etching and wafer treatment. While there is more than one supplier for most process gases, the purity levels of such gases may change by source. Hence, either purification or process requalification may be required when purchasing from a second source is required. Akoustis sources various high purity metals for electrode formation and interconnect layers for its RF circuits. Such metals are available in various purity levels and are available from more than one supplier. Other process handling hardware common to the semiconductor industry is available in abundance from multiple suppliers. Consistent with other semiconductor manufacturers, the Company may have to work with all its suppliers to ensure adequate supply of raw materials, process gases and metals as the Company ramps from R&D into high volume manufacturing.

RFMi Supply Chain

RFMi mainly relies on its contract manufacturer, Tai-Saw Technology Co., Ltd. (“TST”) to source raw materials, such as different chemicals and gases for front and back-end manufacturing, quartz, lithium tantalate and certain bonded wafers, metal targets, Xtal blanks, semiconductor IC’s, aluminum bonding wires and flip chip gold stub bump supplies, packages and lids. Most raw materials have dual or multi-sources. However, certain materials, e.g., high temperature co-fired ceramic (“HTCC”) ceramic packages, bonded wafers and automotive grade TCXO/VCTCXO IC’s are single-sourced as there is no alternative supplier or the alternative supplier does not guarantee automotive grade materials. Many of RFMi’s customers are automotive and require a Production Part Approval Process (“PPAP”), where using an alternative source may require re-PPAP and take efforts and time. RFMi intends to diversity its supply chain, however, it takes time and resources. Certain raw material, like HTCC ceramic packages, may not have a second source for the foreseeable future.

Intellectual Property

We rely on a combination of intellectual property rights, including patents and trade secrets, along with copyrights, trademarks and contractual obligations and restrictions to protect our core technology and business.

In the United States and internationally, as of August 25, 2023, our IP portfolio included 104 patents, including one blocking patent that we have licensed from Cornell University. Additionally, we have 108 active and pending patent applications. These patents cover our XBAW RF filter technology from the substrate level through the system application layer. Where possible, we leverage both federal and state level R&D grants to support development and commercialization of our technology. Our owned patents expire between 2034 and 2040. We intend to continue to innovate and expand our patent portfolio, and when appropriate, we will look to purchase license(s) that grant access to additional intellectual property that enables, enhances or further expands our technical capabilities and/or product.

We believe that Akoustis has competitive advantages from rights granted under our patent applications. Some applications, however, may not result in the issuance of any patents. In addition, any future patent may be opposed, contested, circumvented or designed around by a third party or found to be unenforceable or invalidated. Others may develop technologies that are similar or superior to our proprietary technologies, duplicate our proprietary technologies or design around patents owned or licensed by us.

We generally control access to, and use of, our confidential information through the use of internal and external controls, including contractual protections with employees, contractors and customers. We rely in part on the United States and international copyright laws to protect our intellectual property. All employees and consultants are required to execute confidentiality and intellectual property assignment agreements in connection with their employment and consulting relationships with us. We also require them to agree to disclose and assign to us all inventions conceived or made in connection with the employment or consulting relationship.

Competition

The RF filter market is controlled by a relatively small number of RF component suppliers. These companies include, among others, Broadcom Corporation, Murata Manufacturing Co., Ltd.("Murata"), Qorvo, Inc., Skyworks Solutions Inc., Taiyo Yuden Co. Ltd., and Qualcomm Incorporated. Broadcom Corporation and Qorvo, Inc. dominate the high band BAW filter market, controlling a significant portion of the customer base and are increasing capacity to meet the growing RF filter demand of the 4G/5G cellular market.

We compete directly with these companies to secure design slots inside RFFE module targeting companies that procure filters or internally source filters. While many of our competitors have more resources than we have, we believe that our filter designs will be superior in performance, and we approach prospective customers as a pure-play filter supplier, offering advantages in performance over the full frequency range at competitive costs. Our challenges include convincing our customers that we have a strong intellectual property position, we will be able to deliver in volume, we will meet their price targets, and we can satisfy quality, reliability and other requirements. For a list of other competitive factors, see "Item 1A. Risk Factors — We are still developing many of our products, and they may not be accepted in the market."

The Xtal market is more mature and there are many players, including Epson, KDS Daishinku, Kyocera, Murata and NDK from Japan and TXC from Taiwan. Our RFMi products are largely focused on niche markets such as Industrial IoT and professional audio, which may reduce competition with these large, high volume competitors. In addition, our RFMi products primarily consist of TCXO, VCTCXO and VCXO, instead of low cost Xtal. However, we may still compete with market participants with more resources and purchasing power than us.

Employees

We place an emphasis on hiring the best talent at the right time to enable our core technology and business growth. This includes establishing a competitive compensation and benefits package, thereby enhancing our ability to recruit experienced personnel and key technologists. As of June 30, 2023, we had a total of 222 full-time employees. We will continue to hire specific and targeted positions to further enable our technology and manufacturing capabilities as and when appropriate.

Government Regulations

Our business and products in development are or may become subject to regulation by various federal and state governmental agencies, including the radio frequency emission regulatory activities of the Federal Communications Commission (the "FCC"), the consumer protection laws of the Federal Trade Commission (the "FTC"), the import/export regulatory activities of the Department of Commerce, international traffic in arms regulations (ITAR) administered by the Department of State, the product safety regulatory activities of the Consumer Products Safety Commission, and the environmental regulatory activities of the Environmental Protection Agency (the "EPA").

The rules and regulations of the FCC limit the RF used by, and level of power emitting from, electronic equipment. Our RF filters, as a key element enabling consumer electronic smartphone equipment, are required to comply with these FCC rules and may require certification, verification or registration of our RF filters with the FCC. Certification and verification of new equipment requires testing to ensure the equipment's compliance with the FCC's rules. The equipment must be labeled according to the FCC's rules to show compliance with these rules. Testing, processing of the FCC's equipment certificate or FCC registration and labeling may increase development and production costs and could delay the implementation of our XBAW acoustic wave resonator technology for our RF filters and the launch and commercial productions of our filters into the U.S. market. Electronic equipment permitted or authorized to be used by us through FCC certification or verification procedures must not cause harmful interference to licensed FCC users, and may be subject to RF interference from licensed FCC users. Selling, leasing or importing non-compliant equipment is considered a violation of FCC rules and federal law, and violators may be subject to an enforcement action by the FCC. Any failure to comply with the applicable rules and regulations of the FCC could have an adverse effect on our business, operating results and financial condition by increasing our compliance costs and/or limiting our sales in the United States.

Like our XBAW products, RFMi's SAW and Xtal products are frequency components and are subject to similar FCC rules. For instance, many of RFMi's customers operate in ISM (Industrial, Scientific, and Medical) band, MICS (Medical Implant Communication System), WMTS (Wireless Medical Telemetry Service) and other bands regulated by FCC, in which transmission power level is restricted and products have to pass the FCC, and in certain cases FDA certification to be allowed in the market. Even though RFMi's components do not need to be certified by FCC and/or FDA, our customers modules and systems which incorporate RFMi components may need to be certified. Any failure of RFMi's customers to be certified would affect RFMi's sales.

The semiconductor and electronics industries also have been subject to increasing environmental regulations. A number of domestic and foreign jurisdictions seek to restrict the use of various substances, a number of which have been used in our products in development or processes. While we have implemented a compliance program to ensure our product offering meets these regulations, there may be instances where alternative substances will not be available or commercially feasible, or may only be available from a single source, or may be significantly more expensive than their restricted counterparts. Additionally, if we were found to be non-compliant with any such rule or regulation, we could be subject to fines, penalties and/or restrictions imposed by government agencies that could adversely affect our operating results. We will continue to monitor our quality program and expand as required to maintain compliance and ability to audit our supply chain.

Noncompliance with applicable regulations or requirements could subject us to investigations, sanctions, mandatory product recalls, enforcement actions, disgorgement of profits, fines, damages, civil and criminal penalties, or injunctions. An adverse outcome in any such litigation could require us to pay contractual damages, compensatory damages, punitive damages, attorneys' fees and costs. These enforcement actions could harm our business, financial condition and results of operations. If any governmental sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, financial condition and results of operations could be materially adversely affected. In addition, responding to any action will likely result in a significant diversion of management's attention and resources and an increase in professional fees.

Recent Legislation

On August 9, 2022, President Biden signed into law the CHIPS and Science Act of 2022, which appropriates funds to support the construction of semiconductor plants in the United States and advancement of United States semiconductor research and development. The Company is seeking to expand its domestic manufacturing footprint including both semiconductors and advanced packaging at our NY campus under the DoC Chips for America program. We are currently awaiting feedback on our pre-application from the DoC and we expect to file a final application by the end of the calendar year.

ITEM 1A. RISK FACTORS

This section is a summary of the risks that we presently believe are material to the operations of the Company. Additional risks of which we are not presently aware or which we presently deem immaterial may also impair the Company's business, financial condition or results of operations.

Risk Factors Summary

Risks Related to our Business and the Industry in which we Operate

- We have a limited operating history upon which investors can evaluate our business and future prospects.
- We may not generate sufficient revenues to achieve profitability.
- We have recently engaged, and may in the future engage, in acquisitions that could disrupt our business, cause dilution to our shareholders and harm our financial condition and operating results.
- We are subject to a number of restrictive covenants relating to our indebtedness, which may restrict our business and financing activities.

- Our business, results of operation and financial condition have been, and could in the future be, adversely affected by a pandemic, epidemic or other public health emergency.
- The industry and the markets in which the Company operates are highly competitive and subject to rapid technological change.
- We are still developing many of our products, and they may not be accepted in the market.
- Winning business in the semiconductor industry is subject to a lengthy process that often requires us to incur significant expense, from which we may ultimately generate no revenue.
- We face risks associated with the operation of our manufacturing facility.
- The ongoing supply shortage experienced by the semiconductor industry has disrupted, and will likely continue to disrupt normal business activity, and may have an adverse effect on our results of operations.
- The average selling prices of semiconductor products in our markets have often decreased rapidly and may do so in the future.
- Problems in scaling our manufacturing operations or poor manufacturing yields could have a material adverse effect on our business.
- Industry overcapacity could cause us to underutilize our manufacturing facilities and have a material adverse effect on our financial performance.
- We face intense competition, which may cause pricing pressures, decreased gross margins and loss of potential market share and may materially and adversely affect our business, financial condition and results of operations.
- We contract with a number of large service providers and product companies that have considerable bargaining power, which may require us to agree to terms and conditions that could have an adverse effect on our business or ability to recognize revenues.
- We may be subject to risks related to doing business in, and having counterparties based in, foreign countries.
- Economic regulation in China could adversely impact our business and results of operations.
- We depend on a few large customers for a substantial portion of our revenue.
- Global shortages in manufacturing capacities could negatively affect our operations and negatively impact our results of operations.
- Changes in general economic conditions, together with other factors, cause significant upturns and downturns in the industry, and our business, therefore, may also experience cyclical fluctuations in the future.
- If we are unable to attract and retain qualified personnel to contribute to the development, manufacture and sale of our products, we may not be able to effectively operate our business.

Risks Related to Our Intellectual Property

- If we fail to obtain, maintain and enforce our intellectual property rights, we may not be able to prevent third parties from using our proprietary technologies.
- We have a limited number of patent applications, which may not result in issued patents or patents that fully protect our intellectual property.
- We are and may in the future be involved in lawsuits to protect or enforce our patents, which could be expensive, time-consuming and unsuccessful.
- We need to protect our trademark rights and disclosure of our trade secrets to prevent competitors from taking advantage of our goodwill.

- Development of certain technologies with our customers or manufacturers may result in restrictions on jointly-developed intellectual property.
- We are and may be subject to claims of infringement, misappropriation or misuse of third party intellectual property that, regardless of merit, could result in significant expense and loss of our intellectual property rights.

Risks Related to our Financial Condition

- We have a history of losses, will need substantial additional funding to continue our operations and may not achieve or sustain profitability in the future.
- Servicing our debt requires a significant amount of cash or Common Stock, and we may not have sufficient cash flow from our business or have the ability to issue the necessary number of shares of Common Stock to pay our substantial debt.

Risks Related to Regulatory Requirements

- Government regulation may adversely affect our business.
- We may incur substantial expenses in connection with regulatory requirements, and any regulatory compliance failure could cause our business to suffer.
- There could be an adverse change or increase in the laws and/or regulations governing our business.

Investment Risks

- Our common stock has been thinly traded and its share price in the public markets has experienced, and may in the future experience, extreme volatility.
- Stockholders may experience dilution of their ownership interests because of the future issuance of additional shares of our stock or other securities.

General Risk Factors

- Security breaches and other disruptions could compromise our proprietary information and expose us to liability, which would cause our business and reputation to suffer.
- Litigation or legal proceedings, including product liability claims, could expose us to significant liabilities, occupy a significant amount of our management's time and attention and damage our reputation.
- There could be an adverse change or increase in the laws and/or regulations governing our business.

Risks Related to our Business and the Industry in which we Operate

We have a limited operating history upon which investors can evaluate our business and future prospects.

We are an emerging commercial company that began meaningful commercial operations in 2019 by selling advanced single-crystal BAW filter products for RFFEs for use in the mobile wireless device industry. Historically, we have primarily focused on R&D of high efficiency acoustic wave resonator technology utilizing single-crystal piezoelectric materials, and have not become profitable from operations.

Since our expectations of potential customers and future demand for our products are based on only limited experience, it is difficult for our management and our investors to accurately forecast and evaluate our future prospects and our revenues. Our proposed progression of our operations is therefore subject to all of the risks inherent in light of the expenses, difficulties, complications and delays frequently encountered in connection with the growth of any new business and the development of a product, as well as those risks that are specific to our business in particular. The risks include, but are not limited to, our reliance on third parties to complete some processes for the manufacturing and packaging of our products, the possibility that we will not be able to develop functional and scalable products, or that although functional and scalable, our products and/or services will not be accepted in the market. To successfully introduce and market our products at a profit, we must establish brand name recognition and competitive advantages for our products. There are no assurances that the Company can successfully address these challenges. If it is unsuccessful, the Company and its business, financial condition and operating results will be materially and adversely affected.

We may not generate sufficient revenues to achieve profitability.

We have incurred operating losses since our inception and expect to continue to have negative cash flow from operations. We have only generated minimal revenues from shipment of product while our primary sources of funds have been R&D grants, MEMS foundry services (which we exited in 2021), issuances of our equity, and debt. Our future profitability will depend on our ability to create a sustainable business model and generate sufficient revenues, which is subject to a number of factors, including our ability to successfully implement our strategies and execute our R&D plan, our ability to implement our improved design and cost reductions into manufacturing of our RF filters, the availability of funding, market acceptance of our products, consumer demand for end products incorporating our products, our ability to compete effectively in a crowded field, our ability to respond effectively to technological advances by timely introducing our new technologies and products, and global economic and political conditions.

Our future profitability also depends on our expense levels, which are influenced by a number of factors, including the resources we devote to developing and supporting our projects and potential products, the continued progress of our research and development of potential products, our ability to improve R&D efficiencies, license fees or royalties we may be required to pay, and the potential need to acquire licenses to new technology, the availability of intellectual property for licensing or acquisition, or the use of our technology in new markets, which could require us to pay unanticipated license fees and royalties in connection with these licenses.

Our development and commercialization efforts may prove more expensive than we currently anticipate, and we may not succeed in increasing our revenues to offset higher expenses. These expenses, among other things, may cause our net income and working capital to decrease. If we fail to generate sufficient revenue and manage our expenses, we may never achieve profitability, which would adversely and materially affect our ability to provide a return to our investors.

We have recently engaged, and may in the future engage, in acquisitions that could disrupt our business, cause dilution to our shareholders and harm our financial condition and operating results.

In October 2021, we acquired a majority ownership position in RFM Integrated Device, Inc. (“RFMi”) and, on April 29, 2022, exercised the right to acquire the remaining 49%. In January 2023, we acquired all of the outstanding capital stock of Grinding and Dicing Services, Inc. (“GDSI”). The consideration for the acquisitions has included cash, common stock, a secured promissory note, as well as a possible earn-out payment with respect to RFMi that may be paid in cash or common stock based on its future trading price. We may in the future make additional acquisitions of, or investments in, companies that we believe have products or capabilities that are a strategic or commercial fit with our current business or otherwise offer opportunities for our company. In connection with these acquisitions or investments, we may:

- issue common stock or other forms of equity that would dilute our existing shareholders’ percentage of ownership,
- incur debt and assume liabilities, and
- incur amortization expenses related to intangible assets or incur large and immediate write-offs.

We may not be able to complete acquisitions on favorable terms, if at all. If we do complete an acquisition, such as of RFMi and GDSI, we cannot assure you that it will ultimately strengthen our competitive position, that it will be viewed positively by customers, financial markets or investors or that we will otherwise realize the expected benefits of such an acquisition to the anticipated extent or at all. Furthermore, the acquisitions of RFMi and GDSI and any future acquisitions could pose numerous additional risks to our expected operations, including, but not limited to:

- problems integrating the purchased business, products or technologies,
- challenges in achieving strategic objectives, cost savings and other anticipated benefits,
- increases to our expenses,

- the assumption of significant liabilities, which may have been previously unknown or not discoverable through diligence, that exceed the limitations of any applicable indemnification provisions or the financial resources of any indemnifying party,
- inability to maintain relationships with prospective key customers, vendors and other business partners of the acquired businesses,
- diversion of management's attention from its day-to-day responsibilities,
- difficulty in maintaining controls, procedures and policies during the transition and integration,
- entrance into marketplaces where we have no or limited prior experience and where competitors have stronger marketplace positions,
- potential stockholder litigation challenging the acquisition, which could result in significant costs of defense, indemnification and liability,
- potential loss of key employees, particularly those of the acquired entity, and
- historical financial information may not be representative or indicative of our results as a combined company.

Acquisitions may also have unanticipated tax, legal, regulatory and accounting ramifications, including recording goodwill and non-amortizable intangible assets that are subject to impairment testing on a regular basis and potential periodic impairment charges and incurring amortization expenses related to certain intangible assets.

If our goodwill and intangible assets on our consolidated balance sheet arising from the RFMi and GDSI acquisitions become impaired, it would require us to record a material charge to earnings in accordance with generally accepted accounting principles.

As a result of our acquisitions of RFMi and GDSI, we recorded approximately $14.6 million of goodwill and $17.7 million of intangible assets which are currently shown as assets on our consolidated balance sheet at June 30, 2023. Generally Accepted Accounting Principles ("GAAP") require us to test our goodwill and intangible assets for impairment on an annual basis, or more frequently if indicators for potential impairment exist. The testing required by GAAP involves estimates and judgments by management. Although we believe our assumptions and estimates are reasonable and appropriate, any changes in key assumptions, including a failure to meet business plans or other unanticipated events and circumstances, may affect the accuracy or validity of such estimates. If in the future we determine that an impairment exists, we may be required to record a material charge to earnings in our consolidated financial statements during the period in which any impairment of our goodwill or intangible assets is determined.

We are subject to a number of restrictive covenants relating to our indebtedness, which may restrict our business and financing activities.

The indenture governing our convertible notes imposes operating and other restrictions on us. Such restrictions may affect, and in many respects limit or prohibit, among other things, our ability to:

- incur or guarantee additional indebtedness;
- issue preferred stock or stock of any subsidiary;
- make investments or acquisitions;
- merge, consolidate, dissolve or liquidate;
- engage in certain asset sales (including the sale of stock of our subsidiary);
- grant liens (except permitted liens);
- pay dividends;
- engage in transactions with our affiliates; and
- enter into a new line of business.

The restrictions in the indenture governing the convertible notes may prevent us from taking actions that we believe would be in the best interests of our business, and may make it difficult for us to successfully execute our business strategy or effectively compete with companies that are not similarly restricted. We also may incur future debt obligations that might subject us to additional restrictive covenants that could affect our financial and operational flexibility. Our ability to comply with these covenants in future periods will largely depend on the pricing of our products and services, and our ability to successfully implement our overall business strategy. We cannot assure you that we will be granted waivers or amendments to these agreements if for any reason we are unable to comply with these agreements. The breach of any of these covenants and restrictions could result in a default under the indenture governing the convertible notes, which could result in an acceleration of our indebtedness.

Our business, results of operation and financial condition have been, and could in the future be, adversely affected by a pandemic, epidemic or other public health emergency.

The COVID-19 pandemic had a significant impact on worldwide economic activity and caused disruptions in our supply chain and distribution networks as well as sales activity. Another pandemic, including a new COVID-19 variant, or other public health emergency, together with preventative measures taken to contain or mitigate such crises, could adversely impact our results of operations and financial conditions. In addition, a pandemic or other public health emergency could impact the proper functioning of financial and capital markets, foreign currency exchange rates, product and energy costs, labor supply and costs, and interest rates. Any pandemic or other public health emergency could also amplify the other risks and uncertainties described in this Annual Report on Form 10-K.

We cannot reasonably predict the ultimate impact of any pandemic or other public health emergency, including the extent of any adverse impact on our business, results of operations and financial condition, which will depend on, among other things, the duration and spread, the impact of governmental regulations that may be imposed in response, the effectiveness of actions taken to contain or mitigate the outbreak, the availability, safety and efficacy of vaccines, including against emerging variants of the infectious disease, and global economic conditions.

Our sales efforts typically function by in-person meetings with customers and potential customers to discuss our products. The method and timing of these meetings has been altered due to stay-at-home orders and travel restrictions relating to COVID-19. This limitation on the ability of our sales personnel to maintain their customary interaction with customers may negatively affect demand for our products. We have also found that potential customers have been forced to slow and reprioritize various product development projects as a result of COVID-19. This disruption to our sales activity and our customers' businesses, and the resulting delay in the growth of our business, may have a material adverse effect on our results of operations, financial condition and cash flows. Furthermore, a reduction or delay in revenues will prolong our dependence on capital raising to finance our operations.

The industry and the markets in which the Company operates are highly competitive and subject to rapid technological change. Therefore, in order for our products to be competitive and achieve market acceptance, we need to keep pace with rapid development of new process technologies.

The markets in which we compete are intensely competitive. We operate primarily in the industry that designs and produces semiconductor components for wireless communications and other wireless devices, which is subject to rapid changes in both product and process technologies based on demand and evolving industry standards. The markets for our products are characterized by:

- rapid technological developments and product evolution,
- rapid changes in customer requirements,
- frequent new product introductions and enhancements,
- continuous demand for higher levels of integration, decreased size and decreased power consumption,
- short product life cycles with declining prices over the life cycle of the product, and
- evolving industry standards.

The continuous evolutions of these technologies and frequent introduction of new products and enhancements have generally resulted in short product life cycles for wireless semiconductor products, in general, and for RFFEs, in particular. Our R&D activity and resulting products could become obsolete or less competitive sooner than anticipated because of a faster than anticipated change in one or more of the above-noted factors. Therefore, in order for our products to be competitive and achieve market acceptance, we need to keep pace with rapid development of new process technologies, which requires us to:

- respond effectively to technological advances by timely introducing new technologies and products,
- successfully implement our strategies and execute our R&D plan in practice,
- improve the efficiency of our technology, and
- implement our improved design and cost reductions into manufacturing of our RF filters.

We are still developing many of our products, and they may not be accepted in the market.

Although we believe that our XBAW acoustic wave resonator technology, which utilizes high purity piezoelectric materials, provides material advantages over existing RF filters technologies, and we have developed and are currently developing various methods of integration suitable for implementation of this technology into RF filters, we cannot be certain that our RF BAW filters will be able to achieve or maintain market acceptance. While we have fabricated R&D filters that demonstrate the performance of our XBAW technology, and this technology has been qualified for mass production, the Company is undergoing a critical production ramp to commercial scale. There are no assurances that we can successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields. In addition to our limited operating history, we will depend on a limited number of manufacturers and customers for a significant portion of our revenue in the future and we cannot guarantee their acceptance of our products. Each of these factors may adversely affect our ability to implement our business strategy and achieve our business goals.

The successful development of our XBAW technology and market acceptance of our RF BAW filters will be highly complex and will depend on the following principal competitive factors, including our ability to:

- comply with industry standards and effectively compete against current technology for producing RF acoustic wave filters,
- differentiate our products from offerings of our competitors by delivering RF BAW filters that are higher in quality, reliability and technical performance,
- anticipate customer and market requirements, changes in technology and industry standards and timely develop improved technologies that meet high levels of satisfaction of our potential customers,
- maintain, grow and manage our internal teams to the extent we increase our operations and develop new segments of our business,
- develop and maintain successful collaborative, strategic, and other relationships with manufacturers, customers and contractors,
- protect, develop or otherwise obtain adequate intellectual property for our technology and our filters; and
- obtain strong financial, sales, marketing, technical and other resources necessary to develop, test, manufacture, commercialize and market our filters.

If we are unsuccessful in accomplishing these objectives, we may not be able to compete successfully against current and potential competitors. As a result, our XBAW technology and our RF filters may not be accepted in the market and we may never attain profitability.

Winning business in the semiconductor industry is subject to a lengthy process that often requires us to incur significant expense, from which we may ultimately generate no revenue.

Our business is dependent on us winning competitive bid selection processes, known as "design wins". These selection processes are typically lengthy and can require us to dedicate significant development expenditures and scarce engineering resources in pursuit of a single customer opportunity. Failure to obtain a particular design win may prevent us from obtaining design wins in subsequent generations of a particular product. This can result in lost revenue and can weaken our position in future selection processes.

Winning a product design does not guarantee sales to a customer. A delay or cancellation of a customer's plans could materially and adversely affect our financial results, as we incur significant expense in the design process and may generate little or no revenue from it. In addition, the timing of design wins is unpredictable and implementing production for a major design win, or multiple design wins at the same time, may strain our resources and supply chain. In such event, we may be forced to dedicate significant additional resources and incur additional costs and expenses. Further, often customers will only purchase limited numbers of evaluation units until they qualify the products and/or the manufacturing line for those products. The qualification process can take significant time and resources. Delays in qualification or failure to qualify our products may cause a customer to discontinue use of our products and result in a significant loss of revenue. Finally, customers could choose at any time to stop using our products or could fail to successfully market and sell their products, which could reduce demand for our products, and cause us to hold excess inventory, materially adversely affecting our business, financial condition and results of operations. These risks are exacerbated by the fact that many of our products, and the end products into which our products are incorporated, often have very short life cycles.

We face risks associated with the operation of our manufacturing facility.

We operate a wafer fabrication facility in Canandaigua, NY that we acquired in June 2017. We currently use several international and domestic suppliers to assemble and test our products, as well as our own test and tape and reel facilities located in the U.S.

A number of factors related to our facilities will affect our business and financial results, including the following:

- our ability to adjust production capacity in a timely fashion in response to changes in demand for our products;
- the significant fixed costs of operating the facilities;
- factory utilization rates;
- our ability to qualify our facilities for new products and new technologies in a timely manner;
- the availability of raw materials, the impact of the volatility of commodity pricing and tariffs imposed on raw materials, including substrates, gold, platinum and high purity source materials such as gallium, aluminum, arsenic, indium, silicon, phosphorous and palladium;
- our manufacturing cycle times;
- our manufacturing yields;
- our ability to hire, train and manage qualified production personnel;
- our compliance with applicable environmental and other laws and regulations; and
- our ability to avoid prolonged periods of down-time in our facilities for any reason.

We are dependent upon third parties for the supply of raw materials and components.

Our manufacturing operations depend on obtaining adequate supplies of raw materials and components used in our manufacturing processes at a competitive cost, including silicon wafers, copper lead frames, precious and rare earth metals, ceramic packages and various chemicals and gases. Although we maintain relationships with suppliers located around the world with the objective of ensuring that we have adequate sources for the supply of raw materials and components for our manufacturing needs, increases in demand from the semiconductor industry for such raw materials and components, as well as increased demand for commodities in general, can result in tighter supplies and higher costs. Our suppliers may not be able to meet our delivery schedules, we may lose a significant or sole supplier, a supplier may not be able to meet performance and quality specifications and we may not be able to purchase such supplies or material at a competitive cost. If a supplier were unable to meet our delivery schedules or if we lost a supplier or a supplier were unable to meet performance or quality specifications, our ability to satisfy customer obligations would be materially and adversely affected. In addition, we review our relationships with suppliers of raw materials and components for our manufacturing needs on an ongoing basis. In connection with our ongoing review, we may modify or terminate our relationship with one or more suppliers. We may also enter into sole supplier arrangements to meet certain of our raw material or component needs. While we do not typically rely on a single source of supply for our raw materials, we are currently dependent on a limited number of sole-source suppliers. If we were to lose these sole sources of supply, for any reason, a material adverse effect on our business could result until an alternate source is obtained. As certain materials are highly specialized, the lead time needed to identify and qualify a new supplier is typically lengthy and there is often no readily available alternative source. To the extent we enter into additional sole supplier arrangements for any of our raw materials or components, the risks associated with our supply arrangements would be exacerbated.

The ongoing supply shortage experienced by the semiconductor industry has disrupted and will likely continue to disrupt normal business activity, and may have an adverse effect on our results of operations.

The global silicon semiconductor industry is experiencing a shortage in supply and difficulties in ability to meet customer demand. In particular, the government-mandated COVID-19 containment measures in China have impacted supply shipments and created ongoing risk and uncertainty. These issues have led to an increase in lead-times of the production of semiconductor chips and components.

We have experienced, and expect to continue to experience, disruption to parts of our semiconductor supply chain, including procuring necessary components and inputs, such as wafers and substrates, in a timely fashion, with suppliers increasing lead times or placing products on allocation and raising prices. We have also incurred higher costs to secure available inventory, or have extended our purchase commitments or placed non-cancellable orders with suppliers, which introduces inventory risk if our forecasts and assumptions are inaccurate. In addition, disruptions to commercial transportation infrastructure have increased delivery times for materials and components to our facilities and, in some cases, our ability to timely ship our products to customers. We have seen some of our customers become more conservative in response to these complications by reducing their purchases and inventories or postponing capital expenditures, including product orders from us.

We believe the global supply chain challenges and their adverse impact on our business will persist and the degree to which the pandemic ultimately impacts our business and results of operations will depend on future developments beyond our control.

Social and environmental responsibility regulations, policies and provisions, as well as customer and investor demands, may make our supply chain more complex and may adversely affect our relationships with customers and investors.

There is an increasing focus on corporate, social and environmental responsibility in the semiconductor industry, particularly with OEMs that manufacture consumer electronics. A number of our customers have adopted, or may adopt, procurement policies that include social and environmental responsibility provisions or requirements that their suppliers should comply with, or they may seek to include such provisions or requirements in their procurement terms and conditions. An increasing number of investors are also requiring companies to disclose corporate, social and environmental policies, practices and metrics. In addition, various jurisdictions are developing climate change-based laws or regulations that could cause us to incur additional direct costs for compliance, as well as indirect costs resulting from our customers, suppliers, or both incurring additional compliance costs that are passed on to us. These legal and regulatory requirements, as well as investor expectations, on corporate environmental and social responsibility practices and disclosure, are subject to change, can be unpredictable, and may be difficult and expensive for us to comply with, given the complexity of our supply chain and our significant outsourced manufacturing. If we are unable to comply, or are unable to cause our suppliers or manufacturers to comply, with such policies or provisions or meet the requirements of our customers and investors, a customer may stop purchasing products from us or an investor may sell their shares, and may take legal action against us, which could harm our reputation, revenue and results of operations.

In recent years, there has been an increased focus from stakeholders, regulators and the public in general on corporate, social and environmental matters, including greenhouse gas emissions and climate-related risks, renewable energy, water stewardship, waste management, diversity, equality and inclusion, responsible sourcing and supply chain, human rights, and social responsibility. We may be unable to satisfactorily meet evolving standards, regulations and disclosure requirements related to corporate, social, and environmental matters. Such matters can affect the willingness or ability of investors to make an investment in our Company, as well as our ability to meet regulatory requirements, including the SEC's proposed rules related to greenhouse gas emissions. Any failure, or perceived failure, to meet evolving stakeholder expectations, additional regulations and industry standards or achieve our corporate, social, and environmental responsibility goals could have an adverse effect on our business, results of operations, financial condition, or stock price.

In addition, as part of their corporate, social and environmental responsibility programs, an increasing number of OEMs are seeking to source products that do not contain minerals sourced from areas where proceeds from the sale of such minerals are likely to be used to fund armed conflicts, such as in the Democratic Republic of Congo. This could adversely affect the sourcing, availability and pricing of minerals used in the manufacture of semiconductor devices, including our products. As a result, we may face difficulties in satisfying these customers' demands, which may harm our sales and operating results.

The average selling prices of semiconductor products in our markets have often decreased rapidly and may do so in the future, which could harm our revenue and gross profit.

Certain of the semiconductor products we develop and sell are used for high volume applications. As a result, the prices of those products have often decreased rapidly. Gross profit on our products may be negatively affected by, among other things, pricing pressures from our customers. We have reduced, and may in the future reduce, the average selling prices of our products in response to, or in anticipation of, future competitive pricing pressures, new product introductions by us or our competitors and other factors. In addition, some of our customer agreements provide for volume-based pricing and product pricing roadmaps, which can also reduce the average selling prices of our products over time. Our margins and financial results will suffer if we are unable to offset any reductions in our average selling prices by increasing our sales volumes, reducing manufacturing costs, or developing new and higher value-added products on a timely basis.

If we experience poor manufacturing yields, our operating results may suffer.

Our products have unique designs and are fabricated using multiple semiconductor process technologies that are highly complex. In many cases, our products are assembled in customized packages. Many of our products consist of multiple components in a single module and feature enhanced levels of integration and complexity. Our customers insist that our products be designed to meet their exact specifications for quality, performance and reliability. Our manufacturing yield is a combination of yields across the entire supply chain, including wafer fabrication, assembly and test yields. Defects in a single component in an assembled module product can impact the yield for the entire module, which means the adverse economic impacts of an individual defect can be multiplied many times over if we fail to discover the defect before the module is assembled. Due to the complexity of our products, we periodically experience difficulties in achieving acceptable yields and other quality issues, particularly with respect to new products.

Our customers test our products once they have been assembled into their products. The number of usable products that result from our production process can fluctuate as a result of many factors, including:

- design errors;
- minute impurities and variations in materials used;
- contamination of the manufacturing environment;
- equipment failure or variations in the manufacturing processes;
- losses from broken wafers or other human error; and
- defects in substrates and packaging.

We constantly seek to improve our manufacturing yields. Typically, for a given level of sales, when our yields improve, our gross margins improve, and when our yields decrease, our unit costs are higher, our margins are lower, and our operating results are adversely affected.

Costs of product defects and deviations from required specifications could include the following:

- writing off inventory;
- scrapping products that cannot be fixed;

- accepting returns of products that have been shipped;
- providing product replacements at no charge;
- reimbursement of direct and indirect costs incurred by our customers in recalling or reworking their products due to defects in our products;
- travel and personnel costs to investigate potential product quality issues and to identify or confirm the failure mechanism or root cause of product defects; and
- defending against litigation.

These costs could be significant and could reduce our gross margins. Our reputation with customers also could be damaged as a result of product defects and quality issues, and product demand could be reduced, which could harm our business and financial results.

Problems in scaling our manufacturing operations could have a material adverse effect on our business.

Future customer demand may require us to significantly increase our manufacturing capacity. There are substantial technical challenges to increasing manufacturing capacity, including equipment acquisition lead times, materials procurement, scaling our manufacturing process, manufacturing site expansion, and the need to significantly increase production yields while maintaining or improving quality control and assurance. Developing commercial-scale manufacturing facilities will require the investment of substantial additional funds and the hiring and retention of additional management, quality assurance, quality control and technical personnel who have the necessary manufacturing experience. The scaling of manufacturing capacity is subject to numerous risks and uncertainties and may lead to variability in product quality or reliability, prolonged construction timelines, as well as resources required to acquire, install and maintain manufacturing equipment, among others, all of which can lead to unexpected delays in manufacturing output. Additionally, the production of our products must occur in a highly controlled and clean environment to minimize particles and other yield- and quality-limiting contaminants. Weaknesses in process control or minute impurities in materials may cause a substantial percentage of defective products. We may not be able to maintain stringent quality controls and contamination problems could arise. Material defects in our products could result in loss or delay of revenues, delayed market acceptance, damage to our reputation, lost customers, legal claims, increased insurance costs or increased service and warranty costs. If we are unable to successfully scale up our manufacturing operations to meet customer demand, our business growth could be materially adversely affected.

Industry overcapacity could cause us to underutilize our manufacturing facilities and have a material adverse effect on our financial performance.

It is difficult to predict future demand for our products, which makes it difficult to estimate future requirements for production capacity and avoid periods of overcapacity. Fluctuations in the growth rate of industry capacity relative to the growth rate in demand for our products also can lead to overcapacity and contribute to cyclicality in the semiconductor market.

Capacity expansion projects have long lead times and require capital commitments based on forecasted product trends and demand well in advance of production orders from customers. In recent years, we have made significant capital investments to expand our RF filter capacity to address forecasted future demand patterns. In certain cases, these capacity additions may exceed the near-term demand requirements, leading to overcapacity situations and underutilization of our manufacturing facilities.

As many of our manufacturing costs are fixed, these costs cannot be reduced in proportion to the reduced revenues experienced during periods of underutilization. Underutilization of our manufacturing facilities can adversely affect our gross margin and other operating results. If demand for our products experiences a prolonged decrease, we may be required to close or idle facilities and write down our long-lived assets or shorten the useful lives of underutilized assets and accelerate depreciation, which would increase our expenses.

We face intense competition, which may cause pricing pressures, decreased gross margins and loss of potential market share and may materially and adversely affect our business, financial condition and results of operations.

We compete with U.S. and international semiconductor manufacturers and mobile semiconductor companies of all sizes in terms of resources and market share, some of whom have significantly greater financial, technical, manufacturing and marketing resources than we do. We expect competition in our markets to intensify as new competitors enter the market, existing competitors merge or form alliances, and new technologies emerge. Our competitors may introduce new solutions and technologies that are superior to our products, are verified on a commercial scale, and have achieved widespread market acceptance. Certain of our competitors may be able to adapt more quickly than we can to new or emerging technologies and changes in customer requirements or may be able to devote greater resources to the development, promotion and sale of their products than we can. This implementation may require us to modify the manufacturing process for our filters, design new products to more stringent standards, and redesign some existing products, which may prove difficult for us and result in delays in product deliveries and increased expenses.

Increased competition could also result in pricing pressures, declining average selling prices for our products, decreased gross margins and loss of potential market share. We will need to make substantial investments to develop these enhancements and technologies, and we cannot assure investors that we will have funds available for these investments or that these enhancements and technologies will be successful. If a competing technology emerges that is, or is perceived to be, superior to our existing technology and we are unable to adapt to these changes and to compete effectively, our market share and financial condition could be materially and adversely affected, and our business, revenue, and results of operations could be harmed.

In addition, from time to time, governments may provide subsidies or make other investments that could give competitive advantages to many semiconductor companies. In August 2022, the United States enacted the CHIPS Act, which, among other things, provides funding to increase domestic production and research and development in the semiconductor industry. Our competitors could receive government funding allocated under the CHIPS Act or otherwise benefit from such investments to a greater extent than we do, which could cause them to gain market share and adversely affect our business, financial condition and results of operations.

We contract with a number of large service providers and product companies that have considerable bargaining power, which may require us to agree to terms and conditions that could have an adverse effect on our business or ability to recognize revenues.

Large service providers and product companies comprise a significant portion of our current and target customer bases. These customers generally have greater purchasing and bargaining power than smaller entities and, accordingly, often request and receive more favorable terms from suppliers, including us. As we seek to expand our sales to existing customers and acquire new customers, we may be required to agree to terms and conditions that are favorable to our customers and that may affect the timing of our ability to recognize revenue, increase our costs and have an adverse effect on our business, financial condition, and results of operations. Furthermore, large customers have increased buying power and ability to require onerous terms in our contracts with them, including pricing, warranties, and terms related to indemnification, intellectual property ownership and licensing. If we are unable to satisfy the terms of these contracts, it could result in liabilities of a material nature, including litigation, damages, additional costs, loss of market share, loss of intellectual property rights or exclusive use of such rights, and loss of reputation. Additionally, the terms these large customers may require, such as most-favored customer or exclusivity provisions with respect to specific products, may impact our ability to do business with other customers and generate revenues from such customers.

We may be subject to risks related to doing business in, and having counterparties based in, foreign countries.

We engage in operations, and enter into agreements with counterparties, located outside the U.S., which exposes us to political, governmental and economic instability and foreign currency exchange rate fluctuations.

Any disruption caused by these factors could harm our business, results of operations, financial condition, liquidity and prospects. Risks associated with potential operations, commitments and investments outside of the U.S. include but are not limited to risks of:

- global and local economic, social and political conditions and uncertainty, including heightened tensions between the U.S. and China, China and Taiwan, or other countries;
- currency exchange restrictions and currency fluctuations;

- war, including the Russian-Ukrainian conflict, or terrorist attack;
- local outbreak of disease, such as COVID-19;
- renegotiation or nullification of existing contracts or international trade arrangements;
- labor market conditions and workers' rights affecting our manufacturing operations or those of our customers;
- macro-economic conditions impacting key markets and sources of supply;
- changing laws and policies affecting trade, taxation, financial regulation, immigration, and investment;
- compliance with laws and regulations that differ among jurisdictions, including those covering taxes, intellectual property ownership and infringement, imports and exports, anti-corruption and anti-bribery, antitrust and competition, data privacy, and environment, health, and safety; and
- general hazards associated with the assertion of sovereignty over areas in which operations are conducted, transactions occur, or counterparties are located.

As our reporting currency is the U.S. dollar, any operations conducted outside the U.S. or transactions denominated in foreign currencies would face additional risks of fluctuating currency values and exchange rates, hard currency shortages and controls on currency exchange. In addition, we would be subject to the impact of foreign currency fluctuations and exchange rate changes on our financial reports when translating our assets, liabilities, revenues and expenses from operations or transactions outside of the U.S. into U.S. dollars at the then-applicable exchange rates. These translations could result in changes to our results of operations from period to period.

RFMi relies on third parties outside the U.S., including in Taiwan, for its development and manufacturing activities.

Our subsidiary, RFMi, depends on contractors for certain of its manufacturing and research and development activities. Specifically, RFMi's contract manufacturer, TST, produces the majority of products sold by RFMi. TST ships some products to RFMi for distribution to end customers and, in some cases, ships products directly to those customers. TST is located in Taiwan and therefore geopolitical changes in China-Taiwan relations could disrupt its operations, which would adversely affect RFMi's ability to manufacture certain products. In addition, we have leased office space and have operations in Taiwan. Accordingly, our business, financial condition and results of operations may be affected by changes in governmental and economic policies in Taiwan, social instability and diplomatic and social developments in or affecting Taiwan due to its unique international political status. We cannot assure that relations between Taiwan and China will not face political, military or economic uncertainties in the future. Any deterioration in the relations between Taiwan and China, and other factors affecting military, political or economic conditions in Taiwan, could disrupt RFMi's and our business operations and materially and adversely affect our results of operations.

Economic regulation in China could adversely impact our business and results of operations.

A significant portion of our potential customer base is in China. For many years, the Chinese economy has experienced periods of rapid growth and wide fluctuations in the rate of inflation. In response to these factors, the Chinese government has, from time to time, adopted measures to regulate growth and to contain inflation, including currency controls and measures designed to restrict credit, control prices or set currency exchange rates. Such actions in the future, as well as other changes in Chinese laws and regulations, including actions in furtherance of China's stated policy of reducing its dependence on foreign semiconductor manufacturers as well as China's data localization policies and measures, could increase the cost of doing business in China, foster the emergence of Chinese-based competitors, decrease the demand for our products in China, or reduce the supply of critical materials for our products, which could have a material adverse effect on our business and results of operations.

Changes in government trade and investment policies, including the imposition of tariffs, export restrictions, sanctions, transaction restrictions, or retaliatory measures could limit our ability to sell our products to certain customers, which may materially adversely affect our sales and results of operations.

The U.S. or foreign governments may take administrative, legislative or regulatory action that could materially interfere with our ability to sell products in certain countries, particularly Russia and in China. For example, beginning in May 2018, the U.S. imposed tariffs, ranging from 7.5% to 25% on approximately two-thirds of U.S. imports from China, including certain electronic components and equipment. China has taken retaliatory actions, including imposing tariffs on certain U.S. exports effective September, 2019. While the imposition of these tariffs did not have a direct, material adverse impact on our business during fiscal year ended June 30, 2023, the direct and indirect effects of tariffs and other restrictive trade policies are difficult to measure and are only one part of a larger U.S./China economic and trade policy friction.

For example, U.S. government actions targeting exports of certain technologies to and from China are becoming more pervasive. In 2018, the U.S. adopted new laws designed to address concerns about the export of emerging and foundational technologies to China. In 2021, the U.S. Department of Commerce issued regulations implementing former President Trump's executive order invoking national emergency economic powers to implement a framework to regulate the acquisition or transfer of information communications technology in transactions that imposed undue national security risks. In addition, the U.S. Department of Commerce enacted new rules that expanded export license requirements for U.S. companies to sell certain items to companies and other end-users in China that are designated as military end-users or have operations that could support military end uses; has added additional Chinese companies to its restricted entity list and unverified list under suspicion of military-civil fusion, support of Russia, or other factors associated with a broadening scope of national security concerns; and has expanded an existing rule (referred to as the foreign direct product rule) in a manner that could cause foreign-made wafers, chipsets, and certain related items to be subject to U.S. licensing requirements if certain Chinese corporations or their affiliates are parties to a transaction involving the items.

In response to these and other U.S. actions, China could determine to take or appear to have taken countermeasures against U.S. companies doing business in or with China. These series of actions and other types of countermeasures could lead to additional restrictions on the export of products that include or enable certain technologies, including products we could potentially provide to China-based customers. More recently in August 2023, President Biden issued an executive order that provides for the establishment of a new outbound investment program to block and regulate investment in China in sensitive technologies. In addition, the Biden administration has and likely will continue to take action under U.S. export control laws to restrict transfer of goods, technology, information, and the provision of services that could harm U.S. national security.

Furthermore, the imposition of tariffs on our potential customers' products that are imported from China to the U.S. could harm sales of such products, which could indirectly harm our business. We cannot predict what actions may ultimately be taken with respect to tariffs, export controls, countermeasures, or other trade measures between the U.S. and China or other countries, what products may be subject to such actions, or what actions may be taken by the other countries in retaliation.

The loss or temporary loss of potential foreign customers or the imposition of restrictions on our ability to sell products to such customers as a result of tariffs, export restrictions, sanctions or other U.S. executive or regulatory actions could materially adversely affect our sales, business and results of operations.

We depend on a few large customers for a substantial portion of our revenue.

A substantial portion of our revenue comes from large purchases by a small number of customers. Our future operating results depend on both the success of our largest customers and on our success in diversifying our products and customer base.

The concentration of our revenue with a relatively small number of customers makes us particularly dependent on factors, both positive and negative, affecting those customers. If demand for their devices incorporating our products increases, our results are favorably impacted, while if demand for their devices decreases, they may reduce their purchases of, or stop purchasing, our products and our operating results would suffer. Even if we achieve a design win, our customers can delay, temporarily suspend, or cancel the manufacture or release of a new device for any reason, such as a shortage of supply of other components needed to manufacture their device. Most of our customers can cease incorporating our products into their devices with little notice to us and with little or no penalty. The loss of a large customer and failure to add new customers to replace lost revenue would have a material adverse effect on our business, financial condition and results of operations.

Global shortages in manufacturing capacities could negatively affect our operations and negatively impact our results of operations.

Our business depends in significant part upon manufacturers of products requiring semiconductors, as well as the current and anticipated production of these products. As a supplier to such manufacturers, we are subject to the business cycles that characterize the industry. Recent sharp increases in demand for semiconductor products have resulted in a global shortage of manufacturing capacities and it is unclear how long this shortage may last. If our customers are forced to reduce the amount of their products they manufacture or plan to manufacture due to a limited supply of semiconductors, our business, financial condition and results of operations could be negatively affected.

Changes in general economic conditions, together with other factors, cause significant upturns and downturns in the industry, and our business, therefore, may also experience cyclical fluctuations in the future.

From time to time, changes in general economic conditions, together with other factors, may cause significant upturns and downturns in the semiconductor industry. These fluctuations are due to a number of factors, many of which are beyond our control, including:

- levels of inventory in our end markets,
- availability and cost of supply for manufacturing of our products,
- changes in end-user demand for the products manufactured with our technology and sold by our prospective customers,
- exposure to foreign currency exchange rates, import duties and tariffs,
- inflation or a tightening of the credit markets
- industry production capacity levels and fluctuations in industry manufacturing yields,
- market acceptance of our current and future customers' products that incorporate our RF filters,
- the gain or loss of significant customers,
- the effects of competitive pricing pressures, including decreases in average selling prices of products,
- new product and technology introductions by competitors,
- changes in the mix of products produced and sold, and
- intellectual property disputes.

As a result, the demand for our products can change quickly and in ways we may not anticipate, and our business, therefore, may also experience cyclical fluctuations in future operating results. In addition, future downturns in the electronic systems industry could adversely impact our revenue and harm our business, financial condition and results of operations. Macroeconomic weakness and uncertainty also make it more difficult for us to accurately forecast revenue, gross margin and expenses, and may make it more difficult to raise or refinance debt. For example, an escalation of trade tensions between the U.S. and China has resulted in trade restrictions and increased tariffs that harm our ability to participate in Chinese markets or compete effectively with Chinese companies. Sustained uncertainty about, or worsening of, current global economic conditions and further escalation of trade tensions between the U.S. and its trading partners, especially China, and possible decoupling of the U.S. and China economies, could result in a global economic slowdown and long-term changes to global trade.

If we are unable to attract and retain qualified personnel to contribute to the development, manufacture and sale of our products, we may not be able to effectively operate our business.

As the source of our technological and product innovations, our key technical personnel represent a significant asset. We believe that our future success is highly dependent on the continued services of our current key officers, employees, and Board members, as well as our ability to attract and retain highly skilled and experienced technical personnel. The loss of their services could have a detrimental effect on our operations. Specifically, the loss of the services of our President and Chief Executive Officer, our Chief Financial Officer, or our Executive Vice President of Business Development, any major changes in our Board or other senior management, or our inability to attract, retain and motivate qualified personnel could have a material adverse effect on our ability to operate our business. The competition for management and technical personnel is intense in the wireless semiconductor industry, and therefore, we cannot assure you that we will be able to attract and retain qualified management and other personnel necessary for the design, development, manufacture and sale of our products.

If we are unable to establish effective marketing and sales capabilities or enter into additional agreements with third parties to market and sell our products, we may not be able to effectively generate and sustain or increase product revenues.

We have limited experience selling, marketing or distributing products and currently have a small internal marketing and sales force. To progress the launch and commercialization of our technology and our products, we must build on a territory-by-territory basis marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services, and we may not be successful in doing so. Therefore, we may choose to collaborate, either globally or on a territory-by-territory basis, with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. If so, our success will depend, in part, on our ability to enter into and maintain collaborative relationships for such capabilities, such collaborator's strategic interest in the products under development and such collaborator's ability to successfully market and sell any such products.

If we are unable to enter into such arrangements when needed on acceptable terms or at all, we may not be able to successfully commercialize our products. Further, to the extent that we depend on third parties for marketing and distribution, any revenues we receive will depend upon the efforts of such third parties, and there can be no assurance that such efforts will be successful. If we decide in the future to establish an internal sales and marketing team with technical expertise and supporting distribution capabilities to commercialize our products, it could be expensive and time consuming and would require significant attention of our executive officers to manage. We may also not have sufficient resources to allocate to the sales and marketing of our products. Any failure or delay in the development of sales, marketing and distribution capabilities, either through collaboration with one or more third parties or through internal efforts, would adversely impact the commercialization of any of our products that we obtain approval to market. As a result, our future product revenue would suffer, and we may incur significant additional losses.

We may engage in future acquisitions that could disrupt our business, cause dilution to our shareholders and harm our financial condition and operating results.

We have in the past acquired other businesses and may, in the future, make acquisitions of, or investments in, companies that we believe have products or capabilities that are a strategic or commercial fit with our current business or otherwise offer opportunities for our company. In connection with these acquisitions or investments, we may:

- issue Common Stock or other forms of equity that would dilute our existing shareholders' percentage of ownership,
- incur debt and assume liabilities, and
- incur amortization expenses related to intangible assets or incur large and immediate write-offs.

We may not be able to complete acquisitions on favorable terms, if at all. If we do complete an acquisition, we cannot assure you that it will ultimately strengthen our competitive position or that it will be viewed positively by customers, financial markets or investors. Furthermore, future acquisitions could pose numerous additional risks to our expected operations, including:

- problems integrating the purchased business, products or technologies,
- challenges in achieving strategic objectives, cost savings and other anticipated benefits,
- increases to our expenses,
- the assumption of significant liabilities that exceed the limitations of any applicable indemnification provisions or the financial resources of any indemnifying party,
- inability to maintain relationships with prospective key customers, vendors and other business partners of the acquired businesses,
- diversion of management's attention from its day-to-day responsibilities,
- difficulty in maintaining controls, procedures and policies during the transition and integration,

- entrance into marketplaces where we have no or limited prior experience and where competitors have stronger marketplace positions,
- potential loss of key employees, particularly those of the acquired entity, and
- historical financial information may not be representative or indicative of our results as a combined company.

Unsolicited takeover proposals, governance change proposals, proxy contests and certain proposals/actions by activist investors may create additional risks and uncertainties with respect to our financial position, operations, strategies and management, and may adversely affect our ability to attract and retain key employees. Any perceived uncertainties may affect the market price and volatility of our securities.

Public companies in the technology industry have been the target of unsolicited takeover proposals in the past. In the event that a third party, such as a competitor, private equity firm or activist investor makes an unsolicited takeover proposal, or proposes to change our governance policies or board of directors, or makes other proposals concerning our ownership structure or operations, our review and consideration of such proposals may be a significant distraction for our management and employees, and may require us to expend significant time and resources. Such proposals may create uncertainty for our employees, additional risks and uncertainties with respect to our financial position, operations, strategies and management, and may adversely affect our ability to attract and retain key employees. Any perceived uncertainties as to our future direction also may affect the market price and volatility of our securities.

Risks Related to Our Intellectual Property

If we fail to obtain, maintain and enforce our intellectual property rights, we may not be able to prevent third parties from using our proprietary technologies.

Our long-term success largely depends on our ability to market technologically competitive products which, in turn, largely depends on our ability to obtain and maintain adequate intellectual property protection and to enforce our proprietary rights without infringing the proprietary rights of third parties. While we rely upon a combination of our patent applications currently pending with the United States Patent and Trademark Office (“USPTO”), our trademarks, copyrights, trade secret protection and confidentiality agreements to protect the intellectual property related to our technologies, there can be no assurance that:

- our currently pending or future patent applications will result in issued patents,
- our limited patent portfolio will provide adequate protection to our core technology,
- we will succeed in protecting our technology adequately in all key jurisdictions,
- we will be able to finalize negotiations to enter into agreements pursuant to which we will license certain patents, or
- we can prevent third parties from disclosure or misappropriation of our proprietary information which could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding any competitive advantage we may derive from the proprietary information.

In addition, we intend to expand our international presence, and effective patent, copyright, trademark and trade secret protection may not be available or may be limited in foreign countries.

We have a limited number of patent applications, which may not result in issued patents or patents that fully protect our intellectual property.

In the United States and internationally we had 108 applications as of August 25, 2023; however, there is no assurance that any of the pending applications or our future patent applications will result in patents being issued, or that any patents that may be issued as a result of existing or future applications will provide meaningful protection or commercial advantage to us.

The process of seeking patent protection in the United States and abroad can be long and expensive. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain at the time of filing that we are the first to file any patent application related to our technology. In addition, patent applications are often published as part of the patent application process, even if such applications do not issue as patents. When published, such applications will become publicly available, and proprietary information disclosed in the application will become available to others. While at present we are unaware of competing patent applications, competing applications could potentially surface.

Even if all of our pending patent applications are granted and result in registration of our patents, we cannot predict the breadth of claims that may be allowed or enforced, or that the scope of any patent rights could provide a sufficient degree of protection that could permit us to gain or keep our competitive advantage with respect to these products and technologies. For example, we cannot predict:

- the degree and range of protection any patents will afford us against competitors, including whether third parties will find ways to make, use, sell, offer to sell or import competitive products without infringing our patents;
- if and when patents will be issued;
- if third parties will obtain patents claiming inventions similar to those covered by our patents and patent applications;
- if third parties have blocking patents that could be used to prevent us from marketing our own patented products and practicing our own technology; or
- whether we will need to initiate litigation or administrative proceedings (e.g., at the USPTO) in connection with patent rights, which may be costly whether we win or lose.

As a result, the patent applications we own may fail to result in issued patents in the United States. Third parties may challenge the validity, enforceability or scope of any issued patents or patents issued to us in the future, which may result in those patents being narrowed, invalidated or held unenforceable. Even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from developing similar products that do not infringe the claims made in our patents. If the breadth or strength of protection provided by the patents we hold or pursue is threatened, we may not be able to prevent others from offering similar technology and products in the RFFE mobile market and our ability to commercialize our RF filters with technology protected by those patents could be threatened.

If we fail to obtain issued patents outside of the United States, our ability to prevent misappropriation of our proprietary information or infringement of our intellectual property rights in countries outside of the United States where our filters may be sold in the future may be significantly limited. If we file foreign patent applications related to our pending U.S. patent applications or to our issued patents in the United States, these applications may be contested and fail to result in issued patents outside of the United States or we may be required to narrow our claims. Even if some or all of our patent applications are granted outside of the United States and result in issued patents, effective enforcement of rights granted by these patents in some countries may not be available due to the differences in foreign patent and other laws concerning intellectual property rights, a relatively weak legal regime protecting intellectual property rights in these countries, and because it is difficult, expensive and time-consuming to police unauthorized use of our intellectual property when infringers are overseas. This failure to obtain or maintain adequate protection of our intellectual property rights outside of the United States could have a materially adverse effect on our business, results of operations and financial conditions.

We are, and may in the future be, involved in lawsuits to protect or enforce our patents, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents or the patents of our potential licensors. To attempt to stop infringement or unauthorized use, we may file infringement claims from time to time, which can be expensive and time consuming and distract management.

If we pursue any infringement proceeding, a court may decide that a patent of ours or one of our licensors is not valid or is unenforceable or may refuse to stop the other party from using the relevant technology on the grounds that our patents do not cover the technology in question. Additionally, any enforcement of our patents may provoke third parties to assert counterclaims against us. Some of our current and potential competitors have the ability to dedicate substantially greater resources to enforcing their intellectual property rights than we have. Moreover, the legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, which could reduce the likelihood of success of, or the amount of damages that could be awarded resulting from, any infringement proceeding we pursue in any such jurisdiction. An adverse result in any infringement litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable, or interpreted narrowly and could put our patent applications at risk of not issuing, which could limit the ability of our filters to compete in those jurisdictions.

Interference proceedings could be provoked by third parties or brought by the USPTO to determine the priority of inventions with respect to our patents or patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to use it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms, or at all.

We need to protect our trademark rights and disclosure of our trade secrets to prevent competitors from taking advantage of our goodwill.

We believe that the protection of our trademark rights is an important factor in product recognition, protecting our brand, maintaining goodwill, and maintaining or increasing market share. We currently have nineteen registered domestic and international trademarks and two pending domestic trademark applications including the marks AKOUSTIS, XBAW, and RFMi in multiple forms and international classes. We may expend substantial cost and effort in an attempt to register new trademarks and maintain and enforce our trademark rights. If we do not adequately protect our rights in our trademarks from infringement, any goodwill that we have developed in those trademarks could be lost or impaired.

Third parties may claim that the sale or promotion of our products, when and if we have any, may infringe on the trademark rights of others. Trademark infringement problems occur frequently in connection with the sale and marketing of products in the RFFE mobile industry. If we become involved in any dispute regarding our trademark rights, regardless of whether we prevail, we could be required to engage in costly, distracting and time-consuming litigation that could harm our business. If the trademarks we use are found to infringe upon the trademark of another company, we could be liable for damages and be forced to stop using those trademarks, and as result, we could lose all the goodwill that has been developed in those trademarks.

In addition to the protection afforded by patents and trademarks, we seek to rely on copyright, trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our processes that involve proprietary know-how, information or technology that is not covered by patents. For Akoustis, this includes chip layouts, circuit designs, resonator layouts and implementation, and MEMS resonator device engineering. Although we require all of our employees and certain consultants and advisors to assign inventions to us, and all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information or technology to enter into confidentiality agreements, our trade secrets and other proprietary information may be disclosed, or competitors may otherwise gain access to such information or independently develop substantially equivalent information. If we are unable to prevent material disclosure of the intellectual property related to our technologies to third parties, we will not be able to establish or maintain the competitive advantage that we believe is provided by such intellectual property, which would weaken our competitive market position, and materially adversely affect our business and operational results.

Development of certain technologies with our manufacturers and other suppliers may result in restrictions on jointly-developed intellectual property.

In order to maintain and expand our strategic relationship with manufacturers of our filters and other suppliers, we may, from time to time, develop certain technologies jointly with these manufacturers and other suppliers and file for further intellectual property protection and/or seek to commercialize such technologies. We may enter into joint development agreements with manufacturers and other suppliers to provide for joint development works and joint intellectual property rights by us and by such manufacturer or supplier. Such agreements may restrict our commercial use of such intellectual property, or may require written consent from, or a separate agreement with, that manufacturer or supplier. In other cases, we may not have any rights to use intellectual property solely developed and owned by such manufacturer, supplier, or another third party. If we cannot obtain commercial use rights for such jointly-owned intellectual property or intellectual property solely owned by these manufacturers or suppliers, our future product development and commercialization plans may be adversely affected.

We are, and may become, subject to claims of infringement, misappropriation or misuse of third party intellectual property that, regardless of merit, could result in significant expense and loss of our intellectual property rights.

The semiconductor industry is characterized by the vigorous pursuit and protection of intellectual property rights. We have not undertaken a comprehensive review of the rights of third parties in our field. From time to time, we may be named in lawsuits or receive notices or inquiries from third parties regarding our products or the manner in which we conduct our business suggesting that we may be infringing, misappropriating or otherwise misusing patent, copyright, trademark, trade secret and other intellectual property rights. Any claims that our technology infringes, misappropriates or otherwise misuses the rights of third parties, regardless of their merit or resolution, could be expensive to litigate or settle and could divert the efforts and attention of our management and technical personnel, cause significant delays and materially disrupt the conduct of our business. We may not prevail in such proceedings given the complex technical issues and inherent uncertainties in intellectual property litigation. If such proceedings result in an adverse outcome, we could be required to:

- pay substantial damages, including treble damages if we were held to have willfully infringed;
- cease the manufacture, offering for sale or sale of the infringing technology or processes;
- expend significant resources to develop non-infringing technology or processes;
- obtain a license from a third party, which may not be available on commercially reasonable terms, or may not be available at all; or
- lose the opportunity to license our technology to others or to collect royalty payments based upon successful protection and assertion of our intellectual property against others.

On October 4, 2021, the Company was named as a defendant in a complaint filed by Qorvo, Inc. (“Qorvo”) in the United States District Court for the District of Delaware alleging, among other things, patent infringement, false advertising, false patent marking, and unfair competition. The complaint alleges that the defendants misappropriated proprietary information, made misleading statements about the characteristics of certain of its products, and sold products infringing on certain of the plaintiff’s patents. The plaintiff seeks an injunction enjoining the Company from the alleged infringement and damages, including punitive and statutory enhanced damages, in an unspecified amount. The Company filed a motion to dismiss all of the claims other than the direct patent infringement claims, but the court permitted the plaintiff to file an amended complaint which the court subsequently determined was sufficient for pleading purposes. The Court denied the Company’s motion in May 2022. The Court held a claims construction hearing in November 2022, issuing its claim construction order on March 15, 2023. On February 8, 2023, Qorvo filed a second amended complaint adding allegations of misappropriation of trade secrets, racketeering activities, and civil conspiracy. The Company continues to develop its defenses and mitigation strategies, and intends to proceed in defending itself vigorously against the claims asserted by Qorvo. However, the Company can provide no assurance as to the outcome of such dispute, and such action may result in judgments against the Company for an injunction, significant damages or other relief, such as future royalty payments to Qorvo or restrictions on certain of the Company’s activities.

On April 20, 2023, the Company filed a complaint against Qorvo in the United States District Court for the Eastern District of Texas alleging infringement by Qorvo of a patent licensed exclusively to the Company by Cornell University. The complaint alleges Qorvo’s willful infringement of the Cornell patent and seeks remedies including enhanced damages and attorneys’ fees. On July 24, 2023, Qorvo filed a motion to dismiss the complaint. On August 11, 2023, Qorvo filed a motion to strike Akoustis’ infringement contentions. The Company intends to vigorously pursue its claims against Qorvo but can provide no assurance as to the outcome of this dispute.

Resolution of each of the matters described above may be prolonged and costly, and the ultimate result or judgment is uncertain due to the inherent uncertainty in litigation and other proceedings. An adverse result in the matters described above would have a material adverse effect on the Company’s business. Even if ultimately settled or resolved in the

Company's favor, the matters described above and other possible future actions may result in significant expenses, diversion of management and technical personnel attention and disruptions and delays in the Company's business and product development, and other collateral consequences, all of which could have a material adverse effect on its business, financial condition, and results of operations. Any out-of-court settlement of the above matters or other actions may also have an adverse effect on the Company's business, financial condition and results of operations, including, but not limited to, substantial expenses, the payment of royalties, licensing or other fees payable to third parties, or restrictions on its ability to develop, manufacture, and sell its products.

From time to time, the Company may become involved in other lawsuits, investigations, and claims that arise in the ordinary course of business. The Company believes it has meritorious defenses against such other pending claims and intends to vigorously pursue them. While it is not possible to predict or determine the outcomes of any such other pending actions, the Company believes the amount of liability, if any, with respect to such other pending actions, would not materially affect its financial position, results of operations, or cash flows.

In addition, our agreements with prospective customers and manufacturing partners may require us to indemnify such customers and manufacturing partners for third party intellectual property infringement claims. Pursuant to such agreements, we may be required to defend such customers and manufacturing partners against certain claims that could cause us to incur additional costs. While we endeavor to include as part of such indemnification obligations a provision permitting us to assume the defense of any indemnification claim, not all of our current agreements contain such a provision and we cannot provide any assurance that our future agreements will contain such a provision, which could result in increased exposure to us in the case of an indemnification claim.

Risks Related to our Financial Condition

We have a history of losses, will need substantial additional funding to continue our operations and may not achieve or sustain profitability in the future.

Our operations have consumed substantial amounts of cash since inception. Our filter business has incurred losses since its inception in May 2014. We anticipate that our operating expenses will increase in the foreseeable future as we continue to pursue the development of our patent-pending high purity piezoelectric materials technology, invest in marketing, sales and distribution of our products to grow our business, acquire customers, commercialize our technology in the mobile wireless market and continue to invest in our manufacturing facility in Canandaigua, NY. These efforts may prove more expensive than we currently anticipate, and we may not succeed in generating sufficient revenues to offset these higher expenses. In addition, we expect to incur significant expenses related to regulatory requirements and our ability to obtain, protect, and defend our intellectual property rights.

We may also encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may increase our capital needs and/or cause us to spend our cash resources faster than we expect. Accordingly, we will need to obtain substantial additional funding in order to continue our operations.

To date, we have financed our operations through a mix of investments from private investors, public offerings of equity and debt securities, foundry services revenue, RF filter revenue, and grant funding, and we expect to continue to utilize such means of financing for the foreseeable future. Additional funding from those or other sources may not be available when or in the amounts needed, on acceptable terms, or at all. If we raise additional capital through the sale of equity, or securities convertible into equity, it would result in dilution to our then existing stockholders, which could be significant depending on the price at which we may be able to sell our securities and the amount of securities we issue. If we raise additional capital through the incurrence of indebtedness, we may become subject to covenants restricting our business activities, and holders of debt instruments may have rights and privileges senior to those of our equity investors. In addition, servicing the interest and principal repayment obligations under debt facilities could divert funds that would otherwise be available to support research and development, or commercialization activities. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or eliminate the production and sale of our RF filter products, our R&D programs for our acoustic wave filter technology or any future commercialization efforts. Any of these events could materially and adversely affect our business, financial condition and prospects, and could cause our business to fail.

Servicing our debt requires a significant amount of cash or Common Stock, and we may not have sufficient cash flow from our business or have the ability to issue the necessary number of shares of Common Stock to pay our substantial debt.

Pursuant to the convertible note offering we completed in June 2022, we incurred $44.0 million of indebtedness and we issued a $4.0 million promissory note in connection with our acquisition of GDSI. This level of debt could have significant consequences on future operations, including:

- increasing our vulnerability to adverse economic and industry conditions;
- making it more difficult for us to meet our payment and other obligations;
- making it more difficult to obtain any necessary future financing for working capital, capital expenditures, debt service requirements or other purposes;
- requiring the dedication of a substantial portion of any cash flow from operations to service our indebtedness, thereby reducing the amount of cash flow available for other purposes, including capital expenditures;
- placing us at a possible competitive disadvantage with competitors that are less leveraged than us or have better access to capital than we have; and
- limiting our flexibility in planning for, or reacting to, changes in our business and the markets in which we compete.

Accrued interest on our 6.0% Convertible Senior Notes due 2027 is payable semi-annually in cash or freely tradable shares of Common Stock. Our ability to make scheduled payments of interest depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not generate cash flow from operations in the future sufficient to service our debt in cash and make necessary capital expenditures.

If we are unable to generate sufficient cash flow to satisfy payment obligations under our convertible notes, we may be required to adopt one or more alternatives, such as selling assets or obtaining additional equity capital on terms that may be onerous or highly dilutive. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations. If we determine to pay the interest in shares of Common Stock, it could materially dilute our current stockholders.

Our ability to raise capital may be materially adversely impacted by economic and geopolitical uncertainties.

A sustained disruption in the capital markets from economic and geopolitical uncertainties such as the COVID-19 pandemic, bank failures, inflation, recession, or higher interest rates could negatively impact our ability to raise capital. In the past, we have financed our operations primarily by the issuance of equity and debt securities. However, we cannot predict if such economic and geopolitical uncertainties will impact the capital markets or if we will be able to raise additional funds on terms acceptable to us. Such macro-economic disruptions may disrupt our ability to raise additional capital to finance our operations in the future, which could materially and adversely affect our business, financial condition and prospects, and could ultimately cause our business to fail.

Risks Related to Regulatory Requirements

Government regulation may adversely affect our business.

The effects of regulation may materially and adversely impact our business. For example, regulatory policies of the FCC relating to radio frequency emissions, consumer protection laws of the FTC, product safety regulatory activities of the Consumer Products Safety Commission, the import/export regulatory activities of the Department of Commerce, international traffic in arms regulations (ITAR) administered by the Department of State, and environmental regulatory activities of the EPA could impede sales of our products in the United States. We and our customers are also subject to various import and export laws and regulations. If we fail to continue to comply with these regulations, we may be unable to manufacture the affected products or ship these products to certain customers and be subject to investigations, sanctions, mandatory product recalls, enforcement actions, disgorgement of profits, fines, damages, civil and criminal penalties, or injunctions. Additionally, these rules and regulations may in the future be expanded such that they may have a greater effect on our business than they do currently.

As described above under the risk factor entitled "We may be subject to risks related to doing business in, and having counterparties based in, foreign countries," our business is also increasingly subject to complex foreign and U.S. laws and regulations, including but not limited to, anti-corruption laws, such as the Foreign Corrupt Practices Act and equivalent laws in other jurisdictions, antitrust or competition laws, and data privacy laws, among others. Foreign governments may also impose tariffs, duties and other import restrictions on components that we obtain from non-domestic suppliers and may impose export restrictions on products that we sell internationally. These tariffs, duties or restrictions could materially and adversely affect our business, financial condition and results of operations.

Our product or manufacturing standards could also be impacted by new or revised environmental rules and regulations or other social initiatives. Those rules, or similar rules that may be adopted in other jurisdictions, could adversely affect our costs, the availability of minerals used in our products and our relationships with customers and suppliers.

We may incur substantial expenses in connection with regulatory requirements, and any regulatory compliance failure could cause our business to suffer.

The wireless communications industry is subject to ongoing regulatory obligations and review. See "Business — Government Regulations" above. Maintaining compliance with these requirements may result in significant additional expense to us, and any failure to maintain such compliance could cause our business to suffer.

Noncompliance with applicable regulations or requirements could also subject us to investigations, sanctions, mandatory product recalls, enforcement actions, disgorgement of profits, fines, damages, civil and criminal penalties, or injunctions. An adverse outcome in any such litigation could require us to pay contractual damages, compensatory damages, punitive damages, attorneys' fees and costs. These enforcement actions could harm our business, financial condition and results of operations. If any governmental sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, financial condition and results of operations could be materially adversely affected. In addition, responding to any action will likely result in a significant diversion of management's attention and resources and an increase in professional fees.

Compliance with regulations regarding the use of "conflict minerals" could limit the supply and increase the cost of certain metals used in manufacturing our products.

Regulations in the United States require that we determine whether certain materials used in our products, referred to as conflict minerals, originated in the Democratic Republic of the Congo or adjoining countries, or originated from recycled or scrap sources. We incur costs associated with our policies and procedures to comply with the applicable rules and due diligence procedures. In addition, verification and reporting requirements could affect the sourcing and availability of minerals that are used in the manufacture of our products, and we may face reputational and competitive challenges if we are unable to sufficiently verify the origins of all conflict minerals used in our products. We may also face challenges with government regulators, potential customers, suppliers and manufacturers if we are unable to sufficiently verify that the metals used in our products are conflict free.

There could be an adverse change or increase in the laws and/or regulations governing our business.

We and our operating subsidiaries are subject to various laws and regulations in different jurisdictions, and the interpretation and enforcement of laws and regulations are subject to change. We are also subject to different tax regulations in each of the jurisdictions where we conduct our business or where our management or the management of our operating subsidiary is located. We expect that the scope and extent of regulation in these jurisdictions, as well as regulatory oversight and supervision, will generally continue to increase. There can be no assurance that future regulatory, judicial and legislative changes in any jurisdiction will not have a material adverse effect on us or hinder us in the operation of our business. In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations applicable to us.

These current or future laws and regulations may impair our research, development or production efforts or impact the research activities we pursue. Our failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions, which could cause our financial condition to suffer.

Investment Risks

You could lose all of your investment.

An investment in our securities is speculative and involves a high degree of risk. Potential investors should be aware that the value of an investment in the Company may go down as well as up. In addition, there can be no certainty that the market value of an investment in the Company will fully reflect its underlying value.

Our common stock has been thinly traded and its share price in the public markets has experienced, and may in the future experience, extreme volatility.

Our common stock has traded on the Nasdaq Capital Market, under the symbol "AKTS," since March 13, 2017. Since that date, our common stock has been relatively thinly traded and at times been subject to price volatility. Recently, from July 1, 2022 to June 30, 2023, the closing price of our common stock on the Nasdaq Capital Market ranged from $2.34 to $5.23 per share.

The trading price of our Common Stock may be significantly affected by various factors, including quarterly fluctuations in our operating results, changes in investors' and analysts' perception of the business risks and conditions of our business, issuance of additional shares in connections with strategic transactions or acquisitions we may make, our ability to meet the earnings estimates and other performance expectations of financial analysts or investors, unfavorable commentary or downgrades of our stock by equity research analysts, and general economic or political conditions. Additionally, the stock market and public companies with relatively smaller public floats in particular have been subject to extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of such companies. Additionally, technical factors in the public trading market for our stock may produce price movements that may or may not comport with macro, industry or company-specific fundamentals, including, without limitation, the sentiment of retail investors (including as may be expressed on financial trading and other social media sites), speculation in the press, in the investment community, or on the internet, including on online forums and social media, about our Company, our industry or our securities, the amount and status of short interest in our securities (including a "short squeeze"), access to margin debt, trading in options and other derivatives on our common stock and other technical trading factors. We may incur rapid and substantial decreases in our stock price in the foreseeable future that are unrelated to our operating performance or prospects. There can be no guarantee that our stock price will remain at current prices or that future sales of our common stock will not be at prices lower than the sales price in this offering.

The daily trading volume of our common stock has historically been relatively low. If we are unable to develop and maintain a liquid market for our common stock, you may not be able to sell your common stock at prices you consider to be fair or at times that are convenient for you, or at all. This situation may be attributable to a number of factors, including but not limited to the fact that we are a company with a smaller public float that is relatively unknown to stock analysts, stockbrokers, institutional investors, and others in the investor community. In addition, investors may be risk averse to investments in companies with smaller public floats. The low trading volume is outside of our control and may not increase or, if it increases, may not be maintained. In addition, following periods of volatility in the market price of a company's securities, litigation has often been brought against that company and we may become the target of litigation as a result of price volatility. Litigation could result in substantial costs and divert our management's attention and resources from our business. This could have a material adverse effect on our business, results of operations and financial condition.

Stockholders may experience dilution of their ownership interests because of the future issuance of additional shares of our Common Stock or preferred stock or other securities that are convertible into or exercisable for our Common Stock or preferred stock.

In the future, we may issue our authorized but previously unissued equity securities, resulting in the dilution of the ownership interests of our stockholders. The Company is authorized to issue an aggregate of 125,000,000 shares of Common Stock and 5,000,000 shares of preferred stock. We may issue additional shares of our Common Stock or other securities that are convertible into or exercisable for our Common Stock in connection with hiring or retaining employees, future acquisitions, future sales of our securities for capital raising purposes, or for other business purposes. In addition, as of September 6, 2023, options to purchase 3,156,037 shares of our Common Stock were outstanding. The future issuance of additional shares of our Common Stock may create downward pressure on the trading price of the

Common Stock. We may need to raise additional capital in the future to meet our working capital needs, and there can be no assurance that we will not issue additional shares, warrants or other convertible securities in the future in conjunction with these capital raising efforts, including at a price (or exercise prices) below the price you paid for your stock.

We do not anticipate paying dividends on our Common Stock.

Cash dividends have never been declared or paid on our Common Stock, and we do not anticipate such a declaration or payment for the foreseeable future. We expect to use future earnings, if any, to fund business growth. Therefore, stockholders will not receive any funds absent a sale of their shares of Common Stock. If we do not pay dividends, our Common Stock may be less valuable because a return on your investment will only occur if our stock price appreciates. We cannot assure stockholders that our stock price will appreciate or that they will receive a positive return on their investment if and when they sell their shares.

General Risk Factors

Security breaches and other disruptions could compromise our proprietary information and expose us to liability, which would cause our business and reputation to suffer.

We rely on trade secrets, technical know-how and other unpatented proprietary information relating to our product development and manufacturing activities to provide us with competitive advantages. We protect this information by entering into confidentiality agreements with our employees, consultants, strategic partners and other third parties. We also design our computer networks and implement various procedures to restrict unauthorized access to dissemination of our proprietary information.

We face internal and external data security threats. Current, departing or former employees or third parties that improperly use or access our computer systems and networks could copy, obtain or misappropriate our proprietary information or otherwise interrupt our business. Like other businesses, we are also subject to significant system or network disruptions from numerous causes, including computer viruses and other cyber-attacks, facility access issues, new system implementations and energy blackouts.

Security breaches, computer malware, phishing, spoofing, and other cyber-attacks have become more prevalent and sophisticated in recent years. Geopolitical instability, such as Russia's invasion of Ukraine, may increase the likelihood that we will experience direct or collateral consequences from cyber conflicts between nation-states or other politically motivated actors targeting critical technology infrastructure. While we defend against these threats on a daily basis, we do not believe that such attacks to date have caused us any material damage. Because the techniques used by computer hackers and others to access or sabotage networks constantly evolve and generally are not recognized until launched against a target, we may be unable to anticipate, counter or ameliorate all of these techniques. As a result, our and our customers' proprietary information may be misappropriated, and the impact of any future incident cannot be predicted. Any loss of such information could harm our competitive position, result in a loss of customer confidence in the adequacy of our threat mitigation and detection processes and procedures, cause us to incur significant costs to remedy the damages caused by the incident, and divert management and other resources. We routinely implement improvements to our network security safeguards and we are devoting increasing resources to the security of our information technology systems. We cannot, however, assure that such system improvements will be sufficient to prevent or limit the damage from any future cyber-attack or network disruption.

The costs related to cyber-attacks or other security threats or computer systems disruptions typically would not be fully insured or indemnified by others. Occurrence of any of the events described above could result in loss of competitive advantages derived from our R&D efforts or our intellectual property. Moreover, these events may result in the early obsolescence of our products, product development delays, or diversion of the attention of management and key information technology and other resources, or otherwise adversely affect our internal operations and reputation or degrade our financial results and stock price.

We may be subject to theft, loss, or misuse of personal data by or about our employees, customers or other third parties, which could increase our expenses, damage our reputation, or result in legal or regulatory proceedings.

In the ordinary course of our business, we have access to sensitive, confidential or personal data or information regarding our employees and others that is subject to privacy and security laws and regulations. The theft, loss, or misuse of personal data collected, used, stored, or transferred by us to run our business, or by our third-party service providers, including business process software applications providers and other vendors that have access to sensitive data, could result in damage to our reputation, disruption of our business activities, significantly increased business and security costs or costs related to defending legal claims.

Global privacy legislation, enforcement, and policy activity in this area are rapidly expanding and creating a complex regulatory compliance environment. For example, the European Union has adopted the General Data Protection Regulation ("GDPR"), which requires companies to comply with rules regarding the handling of personal data, including its use, protection and the ability of persons whose data is stored to correct or delete such data about themselves. Failure to meet GDPR requirements could result in penalties of up to the higher of €20 million or 4% of worldwide revenue. In addition, the interpretation and application of consumer and data protection laws in the U.S., Europe and elsewhere are often uncertain and fluid, and may be interpreted and applied in a manner that is inconsistent with our data practices. Complying with these changing laws has caused, and could continue to cause, us to incur substantial costs, which could have an adverse effect on our business and results of operations. Further, failure to comply with existing or new rules may result in significant penalties or orders to stop the alleged non-compliant activity. Finally, even our inadvertent failure to comply with federal, state, or international privacy-related or data protection laws and regulations could result in audits, regulatory inquiries or proceedings against us by governmental entities or others.

Our business and operations would suffer in the event of system failures, and our operations are vulnerable to interruption by natural disasters, terrorist activity, power loss and other events beyond our control, the occurrence of which could materially harm our business.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access as well as telecommunication and electrical failures. While we have not experienced any such system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our R&D. If any disruption or security breach resulted in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and/or the further development of our technology for RF filters could be delayed.

We are also vulnerable to accidents, electrical blackouts, fires, labor strikes, terrorist activities, war, natural disasters, including hurricanes, earthquakes, floods and tornadoes, and other events beyond our control, and we have not undertaken a systematic analysis of the potential consequences to our business as a result of any such events and do not have an applicable recovery plan in place. We carry business interruption insurance that would compensate us for certain actual losses from interruptions of our business that may occur, however that may not fully cover all losses incurred, any losses or damages incurred could cause our business to materially suffer.

Litigation or legal proceedings, including product liability claims, could expose us to significant liabilities, occupy a significant amount of our management's time and attention and damage our reputation.

We are from time to time party to various litigation claims and legal proceedings. We evaluate these claims and proceedings to assess the likelihood of unfavorable outcomes and estimate, if possible, the amount of potential losses. If we or any of our manufacturers fails to successfully manufacture wafers that conform to our design specifications and the strict regulatory requirements of the FCC, it may result in substantial risk of undetected flaws in components or other materials used by our manufacturers during fabrication of our products and could lead to product defects and costs to repair or replace these parts or materials, significantly impacting our ability to develop and implement our technology and to improve performance of our products. In addition, claims made or threatened by our suppliers, customers or current or former employees could adversely affect our relationships, damage our reputation or otherwise adversely affect our business, financial condition or results of operations. The costs associated with defending product liability and other claims, and the payment of damages, could be substantial. Our reputation could also be adversely affected by such claims, whether or not successful.

We may establish reserves as appropriate based upon assessments and estimates in accordance with our accounting policies in accordance with U.S. GAAP. We base our assessments, estimates and disclosures on the information available to us at the time and rely on legal and management judgment. Actual outcomes or losses may differ materially from assessments and estimates. Actual settlements, judgments or resolutions of these claims or proceedings may negatively affect our business and financial performance. A successful claim against us that is not covered by insurance or is in excess of our available insurance limits could require us to make significant payments of damages and could materially adversely affect our financial condition, results of operations and cash flows.

Delaware law, our charter documents and the ability of our Board of Directors to issue additional stock could impede or discourage a takeover or change of control that stockholders may consider favorable.

As a Delaware corporation, we are subject to certain anti-takeover provisions. Under Delaware law, a corporation may not engage in a business combination with any holder of 15 percent or more of its capital stock unless the holder has held the stock for three years or, among other things, the board of directors has approved the transaction. Accordingly, our Board of Directors could rely on Delaware law to prevent or delay an acquisition of our company. In addition, certain provisions of our certificate of incorporation and bylaws may have the effect of delaying or preventing a change of control or changes in our management. These provisions include only our Board of Directors being able to fill vacancies on the Board and various limitations in our bylaws on stockholder meeting, including advance notice requirements for stockholders to make nominations of candidates for election as directors or to bring matters before an annual meeting of stockholders and our stockholders not having the ability to call a special meeting.

Our Board of Directors is authorized to issue up to 5,000,000 shares of preferred stock with powers, rights and preferences designated by it. Shares of voting or convertible preferred stock could be issued, or rights to purchase such shares could be issued, to create voting impediments or to frustrate persons seeking to effect a takeover or otherwise gain control of the Company. The ability of the Board to issue such additional shares of preferred stock, with rights and preferences it deems advisable, could discourage an attempt by a party to acquire control of the Company by tender offer or other means. Such issuances could therefore deprive stockholders of benefits that could result from such an attempt, such as the realization of a premium over the market price for their shares in a tender offer or the temporary increase in market price that such an attempt could cause. Moreover, the issuance of such additional shares of preferred stock to persons supporting of the Board of Directors could make it more difficult to remove incumbent managers and directors from office even if such change were to be favorable to stockholders generally.

Our bylaws provide, subject to certain exceptions, that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for certain stockholder litigation matters, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or stockholders.

Our bylaws provide, subject to limited exceptions, that the Court of Chancery of the State of Delaware will, to the fullest extent permitted by law, be the sole and exclusive forum for any claims, including any derivative actions or proceedings brought on our behalf, (1) that are based upon a violation of a duty by a current or former director or officer or stockholder in such capacity or (2) that may be brought in the Court of Chancery pursuant to the Delaware General Corporation Law. Any person or entity purchasing or otherwise acquiring any interest in shares of our Common Stock shall be deemed to have notice of and to have consented to the provisions of our bylaws described above. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, other employees or stockholders which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provision that is contained in our bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could materially adversely affect our business, financial condition and results of operations.

As a smaller reporting company and a non-accelerated filer, we are subject to scaled disclosure requirements that may make it more challenging for investors to analyze our results of operations and financial prospects and may cause investors to find our Common Stock less attractive.

As a smaller reporting company, we are subject to scaled disclosure requirements that may make it more challenging for investors to analyze our results of operations and financial prospects. For instance, as a "smaller reporting company," which is generally defined as a company with less than $250 million of public float or a company with less than $100 million in annual revenues and either no public float or a public float of less than $700 million, we may elect to provide simplified executive compensation disclosures in our filings and take advantage of other decreased disclosure obligations in our filings with the SEC, including being required to provide only two years of audited financial statements in our annual reports. Consequently, it may be more challenging for investors to analyze our results of operations and financial prospects. Additionally, under current SEC rules, we are not an "accelerated filer" and so not required to include an auditor attestation of the effectiveness of our internal control over financial reporting in this Annual Report on Form 10-K. We cannot predict if investors will find our Common Stock less attractive because we may rely on these reduced requirements. If some investors find our Common Stock less attractive as a result, there may be a less active trading market for our Common Stock and the price of shares of our Common Stock may be more volatile.

Being a public company is expensive and administratively burdensome.

As a public reporting company, we are subject to the information and reporting requirements of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and other federal securities laws, rules and regulations related thereto, including compliance with the Sarbanes-Oxley Act. Complying with these laws and regulations requires the time and attention of our Board of Directors and management and increases our expenses. Among other things, we are required to:

- maintain and evaluate a system of internal control over financial reporting in compliance with the requirements of Section 404 of the Sarbanes-Oxley Act and the related rules and regulations of the SEC and the Public Company Accounting Oversight Board;
- maintain policies relating to disclosure controls and procedures;
- prepare and distribute periodic reports in compliance with our obligations under federal securities laws;
- institute a more comprehensive compliance function, including with respect to corporate governance; and
- involve, to a greater degree, our outside legal counsel and accountants in the above activities.

The costs of preparing and filing annual and quarterly reports, proxy statements and other information with the SEC and furnishing audited reports to stockholders is expensive and much greater than that of a privately-held company, and compliance with these rules and regulations may require us to hire additional financial reporting, internal controls and other finance personnel, and will involve a material increase in regulatory, legal and accounting expenses and the attention of management. There can be no assurance that we will be able to comply with the applicable regulations in a timely manner, if at all. In addition, being a public company makes it more expensive for us to obtain director and officer liability insurance. In the future, we may be required to accept reduced coverage or incur substantially higher costs to obtain this coverage. These factors could also make it more difficult for us to attract and retain qualified executives and members of our Board of Directors, particularly directors willing to serve on the Audit Committee of our Board of Directors.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our current headquarters in Huntersville, NC is 22,400 square feet, and its base rent is approximately $22,000 per month with a term expiring February 2026. In June 2017, the Company acquired a 120,000 square foot MEMS fabrication facility in Canandaigua, NY (the “NY Facility”). The Company has entered into a Lease and Project Agreement and a Company Lease Agreement with the Ontario County Industrial Development Agency, a public benefit corporation of the State of New York (the “OCIDA”), covering the NY Facility, pursuant to which the Company leases the NY Facility to the OCIDA for nominal consideration and the OCIDA leases the NY Facility back to the Company for annual rent payments set forth in such agreements.

As part of the acquisition of RFMi, the Company assumed a lease in Carrollton, Texas. The lease covering this property is currently scheduled to expire in March 2025.

As part of the acquisition of GDSI, the Company entered into a lease in San Jose, California. The lease covering this property is currently scheduled to expire in December 2025.

During the fourth quarter of fiscal year 2022, the Company entered into a new office lease located in Taiwan. The lease covering this property is currently scheduled to expire in May 2025.

The Company believes that its existing facilities will be suitable and sufficient to meet the Company’s needs for the next several years.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we may become involved in various lawsuits and legal proceedings that arise in the ordinary course of business. Litigation is subject to inherent uncertainties, and an adverse result in these or other matters may arise from time to time that may have an adverse effect on our business, financial condition or results of operations and prospects.

Except for the matters described under "Litigation, Claims and Assessments" in "Note 15 — Commitments and Contingencies" of the consolidated financial statements in Item 8 of Part II of this Annual Report on Form 10-K, which description is incorporated in this "Item 3. Legal Proceedings" by reference, we are currently not aware of any material pending legal proceedings to which we are a party or of which any of our property is the subject, nor are we aware of any such proceedings that are contemplated by any governmental authority.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

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

Market Information and Holders

Our Common Stock is currently traded on the Nasdaq Capital Market under the symbol "AKTS."

As of September 01, 2023, 72,351,827 shares of our Common Stock were issued and outstanding and were held by approximately 88 stockholders of record.

Dividends

We have never paid any dividends on our capital stock and do not anticipate paying any cash dividends on our Common Stock in the foreseeable future. We intend to retain future earnings to fund ongoing operations and future capital requirements. Any future determination to pay dividends will be at the discretion of our Board of Directors and will be dependent upon financial condition, results of operations, capital requirements and such other factors as the Board of Directors deems relevant.

Warrants, Options and Restricted Stock Units

As of June 30, 2023, there were outstanding options to purchase 3,156,037 shares of our Common Stock. Additionally, there were outstanding 3,428,235 restricted stock units.

Equity Compensation Plan Information as of June 30, 2023

The following table provides information as of June 30, 2023, relating to our equity compensation plans, under which grants of options, restricted stock, and other equity awards may be made from time to time:

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 plans (excluding securities reflected in column (a)
	(a)	(b)	(c)
Equity compensation plans approved by security holders – options	3,156,037(1)	$ 6.61	4,638,242(4)
Equity compensation plans approved by security holders – restricted stock units	3,064,882(2)	$ 0.00	—
Equity compensation plans not approved by security holders	363,353(3)	—	—
Total	6,584,272		4,638,242(4)

(1) Consists of (i) 130,000 shares of Common Stock issuable upon the exercise of outstanding options issued under the Company's 2015 Equity Incentive Plan (the "2015 Plan"), (ii) 770,502 issuable under the Company's 2016 Stock Incentive Plan (the "2016 Plan"), (iii) and 2,255,535 issuable under the Company's 2018 Stock Incentive Plan (the "2018 Plan").

(2) Consists of 3,064,882 shares of Common Stock to be issued upon the vesting of outstanding restricted stock units issuable under the 2018 Plan.

(3) Consists of 363,353 shares of Common Stock to be issued upon the vesting of outstanding restricted stock units to be issued outside of an approved plan.

(4) As of June 30, 2023, 4,638,242 additional shares of Common Stock remained available for future issuance under the 2018 Plan. No additional grants will be made under the Company's 2014 Stock Plan (the "2014 Plan"), the 2015 Plan or the 2016 Plan.

Recent Sales of Unregistered Securities

We did not sell any equity securities during the fiscal year ended June 30, 2023 that were not registered under the Securities Act, other than as previously reported in our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K filed with the SEC.

ITEM 6. [RESERVED]

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

The following management's discussion and analysis should be read in conjunction with the historical financial statements and the related notes thereto contained in this Annual Report on Form 10-K. See also the "Cautionary Note Regarding Forward-Looking Information" on page ii of this Report.

The following discussion highlights the results of operations and the principal factors that have affected our financial condition, as well as our liquidity and capital resources for the periods described, and provides information that management believes is relevant for an assessment and understanding of the statements of financial condition and results of operations presented herein. The following discussion and analysis are based on the audited financial statements contained in this Report, which we have prepared in accordance with United States generally accepted accounting principles. You should read the discussion and analysis together with such financial statements and the related notes thereto.

Overview

Akoustis Technologies, Inc., a Delaware corporation, was incorporated in 2013. The Company is an emerging commercial product company focused on developing, designing, and manufacturing innovative RF filter solutions for the wireless industry, including for products such as smartphones and tablets, network infrastructure equipment, Wi-Fi Customer Premise Equipment ("CPE") and defense applications. Filters are critical in selecting and rejecting signals, and their performance enables differentiation in the modules defining the RF front-end ("RFFE"). Located between the device's antenna and its digital backend, the "RFFE" is the circuitry that performs the analog signal processing and contains components such as amplifiers, filters and switches. We have developed a proprietary microelectromechanical system ("MEMS") based bulk acoustic wave ("BAW") technology and a unique manufacturing process flow, called "XBAW", for our filters produced for use in RFFE modules. Our XBAW™ filters incorporate optimized high purity piezoelectric materials for high power, high frequency and wide bandwidth operation. We are developing RF Filters for 5G, Wi-Fi and defense bands using our proprietary resonator device models and product design kits (PDKs). As we qualify our RF filter products, we are engaging with target customers to evaluate our filter solutions.

Our initial designs target UHB, sub-7 GHz 5G, Wi-Fi and defense bands. We expect our filter solutions will address problems (such as loss, bandwidth, power handling, and isolation) created by the growing number of frequency bands in the RFFE of mobile devices, infrastructure and premise equipment to support 5G and Wi-Fi. We have prototyped, sampled and begun commercial shipment of our single-band low loss BAW filter designs for 5G frequency bands and 5 GHz and 6 GHz Wi-Fi bands, which are suited to competitive BAW solutions and historically cannot be addressed with low-band, lower power handling surface acoustic wave ("SAW") technology. Additionally, through our wholly owned subsidiary, RFMi, of which we acquired majority ownership in October 2021 and full ownership in April 2023, we operate a fabless business whereby we make sales of complementary SAW resonators, RF filters, crystal ("Xtal") resonators and oscillators, and ceramic products — addressing opportunities in multiple end markets, such as automotive and industrial applications. We also offer back-end semiconductor supply chain services through our wholly owned subsidiary, GDSI, which we acquired in January 2023.

We expect to continue to incur substantial costs for commercialization of our technology on a continuous basis because our business model involves materials and solid-state device technology development and engineering of catalog and custom filter design solutions. To succeed across our combined portfolio of Akoustis, XBAW, and RFMi products, we must convince customers in a wide range of industries including mobile phone OEMs, RFFE module manufacturers, network infrastructure OEMs, Wi-Fi CPE OEMs, medical device makers, and defense customers to use our products in their systems and modules. For example, since there are two dominant BAW filter suppliers in the industry that have high-band technology, and both utilize such technology as a competitive advantage at the module level, we expect customers that lack access to high-band filter technology will be open to engage with our company for XBAW filters.

To help drive our XBAW filter business, we plan to continue to pursue RF filter design and R&D development agreements and potentially joint ventures with target customers and other strategic partners, although we cannot guarantee we will be successful in these efforts. These types of arrangements may subsidize technology development costs and qualification, filter design costs, and offer complementary technology and market intelligence and other avenues to revenue. However, we intend to retain ownership of our core XBAW technology, intellectual property, designs, and related improvements. Across our combined portfolio of Akoustis, XBAW, and RFMi products, we expect to continue development of catalog designs for multiple customers and to offer such catalog products in multiple sales channels.

Please see Item 1. Business for more information.

Business Environment and Current Trends

Impact of COVID-19

The COVID-19 pandemic has significantly impacted business activity across the globe. In particular, COVID-19 contributed to delays we observed in certain suppliers' shipment of materials necessary for us to manufacture our products and in certain vendors' ability to deliver equipment for installation at our facilities. Although the effects of COVID-19 and its impact on our supply chain have eased since the peak of the pandemic and related lock-down protocols imposed by local governments, including China, we will continue to actively monitor the situation and may take further actions altering our business operations that we determine are in the best interests of our employees, customers, partners, suppliers, and stakeholders, or as required by federal, state, or local authorities. The effect that any such alterations or modifications may have on our business, including the effects on our customers, employees, and prospects, or on our financial results for fiscal year 2024 or beyond is unclear.

Semiconductor Shortages and Supply Chain Issues

The global silicon semiconductor industry continues to experience a shortage in supply and difficulties in ability to meet customer demand. This shortage has led to an increase in lead-times of production of semiconductor chips and components. As our business depends in significant part upon manufacturers of products requiring semiconductors, as well as the current and anticipated production of these products, we have sought to manage the impact of supply shortages though carefully maintaining and increasing key inventory levels. In some cases, we have incurred higher costs to secure available inventory, or have extended our purchase commitments or placed non-cancellable orders with suppliers, which introduces inventory risk if our forecasts and assumptions are inaccurate. We believe the global supply chain challenges and their adverse impact on our business and financial results will persist through calendar year 2024. We expect these constrained supply conditions to increase our costs of goods sold and increase uncertainty with respect to the timing of delivery of specific customer orders.

Critical Accounting Policies and Estimates

The following discussion and analysis of our financial condition and results of operations is based upon our financial statements, which have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). Certain accounting policies and estimates are particularly important to the understanding of our financial position and results of operations and require the application of significant judgment by our management or can be materially affected by changes from period to period in economic factors or conditions that are outside of our control. As a result, they are subject to an inherent degree of uncertainty. In applying these policies, our management uses its judgment to determine the appropriate assumptions to be used in the determination of certain estimates. Those estimates are based on our historical operations, our future business plans and projected financial results, the terms of existing contracts, our observance of trends in the industry, information provided by our customers and information available from other outside sources, as appropriate.

Revenue Recognition

Application of the revenue recognition guidance requires a significant number of judgments and estimates, which may impact the amount and timing of revenue recognition and related disclosures. Refer to Note 3, "Summary of significant accounting policies" of our notes to consolidated financial statements included elsewhere in this Report for additional information regarding our revenue recognition policies, significant judgements, and estimates.

Derivative Liability

The Company evaluates its options, warrants, convertible notes, and other contracts, if any, to determine if those contracts or embedded components of those contracts qualify as derivatives to be separately accounted for in accordance with paragraph 815-10-05-4 and Section 815-40-25 of the FASB Accounting Standards Codification. The result of this accounting treatment is that the fair value of the embedded derivative is marked-to-market each balance sheet date and recorded as either an asset or a liability. The change in fair value is recorded in the consolidated statement of operations as other income or expense. Upon conversion, exercise or cancellation of a derivative instrument, the instrument is marked to fair value at the date of conversion, exercise, or cancellation and then the related fair value is reclassified to equity.

In circumstances where the embedded conversion option in a convertible instrument is required to be bifurcated and there are also other embedded derivative instruments in the convertible instrument that are required to be bifurcated, the bifurcated derivative instruments are accounted for as a single, compound derivative instrument.

The classification of derivative instruments, including whether such instruments should be recorded as liabilities or as equity, is re-assessed at the end of each reporting period. Equity instruments that are initially classified as equity that become subject to reclassification are reclassified to liability at the fair value of the instrument on the reclassification date. Derivative instrument liabilities will be classified in the balance sheet as current or non-current based on whether or not net-cash settlement of the derivative instrument is expected within 12 months of the balance sheet date.

The Company adopted Section 815-40-15 of the FASB Accounting Standards Codification ("Section 815-40-15") to determine whether an instrument (or an embedded feature) is indexed to the Company's own stock. Section 815-40-15 provides that an entity should use a two-step approach to evaluate whether an equity-linked financial instrument (or embedded feature) is indexed to its own stock, including evaluating the instrument's contingent exercise and settlement provisions.

The Company utilizes a Monte Carlo simulation to compute the fair value of the derivative liability and to mark to market the fair value of the derivative at each balance sheet date. The Company records the change in the fair value of the derivative as other income or expense in the consolidated statements of operations.

The Company utilizes the with-and-without method, a form of the income approach model to compute the fair value of its embedded derivatives associated with its convertible notes. The fair value of the embedded derivatives represents the difference in the present value of anticipated cash flows assuming the feature is present as compared to a security without the same feature. The Company records the change in the fair value of the derivative as other income or expense in the consolidated statements of operations.

Fair Value of the Acquired Intangible Assets

We perform valuations of assets acquired and liabilities assumed on each acquisition accounted for as a business combination and allocate the purchase price of each acquired business to our respective assets and liabilities. Acquired intangible assets include developed technology, customer relationships and tradenames. We use various valuation techniques to value these intangibles assets, with the primary technique being a discounted cash flow analysis. A discounted cash flow analysis requires us to make various assumptions, estimates and judgements including projected revenue, gross margins, operating costs, growth rates, useful lives and discount rates. We believe our assumptions, estimates, and judgements to be reasonable, but which are inherently uncertain and unpredictable and, as a result, actual results may differ from estimates. Estimates associated with the accounting for acquisitions may change as additional information becomes available regarding the assets acquired and liabilities assumed. Intangible assets are amortized over their estimated useful lives using the straight-line method which approximates the pattern in which the economic benefits of such assets are expected to be consumed.

Results of Operations

Our results of operations are presented for the fiscal years ended June 30, 2023 and June 30, 2022.

Year Ended June 30, 2023 Compared to Year Ended June 30, 2022

Revenue

The Company recorded revenue of $27.1 million for the year ended June 30, 2023 as compared to $15.4 million for the year ended June 30, 2022. The increase of $11.7 million was primarily due to an increase in RF product revenue of $4.6 million or 34%, which includes revenue from sales of RFMi products. Additionally, revenue from fabrication services, which includes revenue from GDSI, increased by $7.1 million or 382%.

Cost of Revenue

Cost of revenue includes direct labor, material, net realizable value (NRV) adjustments, and facility costs primarily associated with foundry services revenue, manufacturing of filter products and engineering services. The Company recorded cost of revenue of $30.2 million for the year ended June 30, 2023 as compared to $19.5 million for the year ended June 30, 2022. The $10.7 million increase is primarily due to costs associated with RF product revenue which increased by $7.7 million or 45%, which includes cost of revenue from sales of RFMi products. In addition, costs associated with fabrication services, which includes GDSI, increased by $3.1 million or 125%.

Research and Development Expenses

R&D expenses were $33.2 million for the year ended June 30, 2023 and were $2.5 million, or 7% lower than the prior year amount for the same period of $35.7 million. Personnel costs, including stock-based compensation, were $16.5 million compared to $17.9 million in the prior year period, a decrease of $1.4 million or 7.9%. Facility costs, including depreciation, of $7.8 million primarily associated with the NY Facility were $0.1 million lower than the prior period. Lastly, R&D material costs were $0.8 million lower than the prior period.

General and Administrative Expense

General and administrative (“G&A”) expenses include salaries and wages for executive and administrative staff, stock-based compensation, professional fees, insurance costs and other general costs associated with the administration of our business. G&A expenses for the year ended June 30, 2023 were $29.7 million, which is an increase of $9.0 million compared to the year ended June 30, 2022. Year-over-year changes within G&A expenses include an increase in employee compensation (including stock-based compensation) of $2.6 million as well as increased general expenses of $5.9 million, primarily professional fees and intangible amortization.

Other Income/(Expense)

Other income for the year ended June 30, 2023 was $0.1 million compared to other expenses of $0.5 million in fiscal year 2022. The $0.4 million increase in other income was primarily due to an increase in interest expense of $2.2 million which was offset by an increase in income related changes in contingent liabilities and derivative liabilities resulting in income of $2.3 million.

Net Loss

The Company recorded a net loss of $63.6 million for the year ended June 30, 2023, compared to a net loss of $59.2 million for the year ended June 30, 2022. The year-over-year incremental loss of $4.4 million, or 7%, was primarily driven by an increase in cost of revenue of $10.7 million, higher R&D and G&A personnel costs, including stock based compensation of $1.2 million, as well as an increase in professional fees and intangible amortization of $6.1 million. These increases were partially offset by decreases in R&D materials and facility costs of $0.9 million as well as an increase in revenue of $11.7 million.

These increases were partially offset by decreases in R&D materials and facility costs of $0.9 million as well as an increase in revenue of $11.7 million.

Liquidity and Capital Resources

Overview

The Company's short-term and long-term liquidity requirements primarily arise from funding (i) research and development expenses, (ii) general and administrative ("G&A") expenses including salaries, bonuses, commissions and stock-based compensation, (iii) working capital requirements, (iv) business acquisitions and investments we may make from time to time, including potential performance based payments related to our acquisition of RFMi and a note payable issued in connection with our acquisition of GDSI, and (v) interest and principal payments related to our $44.0 million aggregate principal amount of outstanding convertible notes. Additionally, in the near-term, the Company makes capital expenditures in connection with the expansion of the capacity of its manufacturing facility in Canandaigua, New York.

The Company has incurred losses and negative cash flow from operations since inception. Our operations thus far have been funded primarily with sales of equity and debt securities, as well as contract research and government grants, foundry services and engineering services. We expect our operating expenditures to continue to increase to support future growth of our manufacturing capabilities and expansion of our product offerings, as well as an increase in research and development and headcount costs to support this growth. We believe we currently have sufficient resources to fund operations and planned investments for at least the next twelve months from the date of filing of this Form 10-K. However, until we are able to generate sufficient cash flow from operations to achieve and maintain profitability and meet our obligations as they come due, we may need to raise additional capital to support our business. We recently completed an offering of convertible notes resulting in net proceeds to the Company of $43.7 million and have access to an at-the-market offering program pursuant to which we may sell up to $50 million of Common Stock. As of the date of this Annual Report, the Company had sold $2.0 million of Common Stock under such at-the-market offering program and previously announced that it was suspending sales under the at-the-market offering program in light of market conditions. If, in the future, the Company determines to resume sales under the at-the-market offering program, it intends to notify investors by the filing of a Current Report on Form 8-K, other SEC filing or other public announcement. In January 2023, approximately $13.9 million in cash was paid to the sellers in the GDSI acquisition as mentioned in Note 7 to the Financial Statements. Additionally, the Company estimates that approximately $4.0 million of additional cash is needed to complete construction in progress assets that are currently not in service.

The Company had $43.1 million of cash on hand as of June 30, 2023, which reflects a decrease of $37.4 million compared to $80.5 million as of June 30, 2022. The $37.4 million decrease is primarily due to $44.8 million of cash used in operating activities, cash used for purchases of machinery and equipment of $11.3 million and cash used for investment in subsidiary of $13.9 million. Partially offsetting these cash uses was cash proceeds from issuance of common stock of $32.0 million.

Financing Activities

On May 2, 2022, the Company entered into an ATM Sales Agreement with Oppenheimer & Co. Inc., Craig-Hallum Capital Group LLC, and Roth Capital Partners, LLC pursuant to which the Company may sell from time-to-time shares of its common stock having an aggregate offering price of up to $50,000,000 (the "2022 Equity Offering Program"). The Company announced on May 25, 2022 that it was suspending sales under the 2022 Equity Offering Program in light of the current market conditions. If, in the future, the Company determines to resume sales pursuant to the 2022 Equity Offering Program, it intends to notify investors by the filing of a Current Report on Form 8-K, other SEC filing or other public announcement. The Company did not make any sales of common stock under the Equity Offering Program in the year ended June 30, 2023.

On June 9, 2022, the Company issued $44.0 million aggregate principal amount of its 6.0% Convertible Senior Notes due 2027 (the "Notes") guaranteed by its wholly-owned subsidiary, Akoustis, Inc. The Notes were issued pursuant to an indenture (the "Indenture"), dated June 9, 2022, among the Company, the Guarantor and The Bank of New York Mellon Trust Company, N.A., as trustee. The Notes bear interest at a rate of 6.0% per year until maturity on June 15, 2027, payable semi-annually beginning on December 15, 2022. At the Company's option, interest may be paid in cash and/or shares of the Company's common stock. The initial conversion rate for the Notes is 212.3142 shares of common stock (subject to adjustment as provided in the Indenture) per $1,000 principal amount of the Notes, which is equal to an initial conversion price of approximately $4.71 per share.

On January 19, 2023, the Company closed an underwritten public offering of 12,545,454 shares of its common stock at a price to the public of $2.75 per share pursuant to an underwriting agreement with B. Riley Securities, Inc., as representative of the several underwriters named therein. The shares of common stock issued at closing included 1,636,363 shares issued pursuant to the underwriters' over-allotment option, which was exercised in full. Gross proceeds totaled $34.5 million before deducting the underwriting discount and offering expenses of approximately $2.5 million resulting in net proceeds from the offering of approximately $32.0 million. Certain of the Company's directors and officers participated in the offering by purchasing shares on the same terms and conditions as other investors.

Balance Sheet and Working Capital

June 30, 2023 Compared to June 30, 2022

As of June 30, 2023, the Company had current assets of $59.8 million made up primarily of cash on hand of $43.1 million. As of June 30, 2022, current assets were $91.7 million comprised primarily of cash on hand of $80.5 million. The reduction in current assets was primarily a result of the use of cash in operations.

Property, Plant and Equipment was $57.8 million as of June 30, 2023 as compared to a balance of $51.2 million as of the year ended June 30, 2022. The $6.6 million year-over-year increase is primarily due to the purchase of equipment for the NY Facility of $13.2 million offset by depreciation of $9.2 million as well as assets acquired during the acquisition of GDSI amounting to $2.5 million.

Total assets as of June 30, 2023 and June 30, 2022 were $148.9 million and $161.3 million, respectively. The $12.4 million decrease is primarily due to a decrease in cash of $31.9 million which was partially offset by increases in property, plant and equipment as well as increase in intangible assets, including goodwill, related to the acquisition of GDSI.

Current liabilities as of June 30, 2023 were $17.6 million and increased year-over-year by $4.9 million which was primarily due to increases in accounts payable and accrued expenses, primarily due to increases in production activities and, employee compensation accruals and professional fee accruals.

Long-term liabilities totaled $45.1 million as of June 30, 2023, compared to $45.5 million for the prior year period. This decrease was a result of decreases in derivative and contingent liability valuations offset by increases promissory notes payable.

Stockholders' equity was $86.2 million as of June 30, 2023, compared to $103.4 million as of June 30, 2022. Additional paid-in-capital ("APIC") was $356.5 million as of June 30, 2023 and increased by $46.4 million compared to June 30, 2022. The year-over-year increase was primarily due to an increase from net proceeds of $32.0 million for the issuance of common stock during the year, common stock issued for services in the amount of $9.4 million, and common stock issued for the acquisition of a subsidiary of $1.7 million. The $17.2 million decrease in stockholders' equity consisted of the $46.4 million increase in APIC reduced by the $63.6 million net loss recorded for the year ended June 30, 2023.

Cash Flow Analysis

Year Ended June 30, 2023 Compared to the Year Ended June 30, 2022

Operating Activities

Net cash used in operating activities was $44.8 million during the year ended June 30, 2023 and $45.2 million for the 2022 comparative period. The $0.4 million year-over-year decrease in cash used was attributable to an increase in revenue partially offset by higher operating expenses associated with the ramp up of commercialization activities, higher spend on G&A costs for support personnel, and professional fees.

Investing Activities

Net cash used in investing activities was $25.1 million for the year ended June 30, 2023 compared to $34.9 million for the comparative year ended June 30, 2022. The $9.8 million year-over-year decrease was primarily due to decreased spend on R&D and manufacturing equipment of $16.3 million offset by a $6.3 million increase in cash used for investment in a subsidiary.

Financing Activities

Net cash provided by financing activities was \$32.6 million for the year ended June 30, 2023 versus \$72.3 million for the 2022 comparative period. The \$39.7 million decrease was due to a decrease in proceeds from convertible debt of \$43.7 million compared to the prior period, offset by an increase in proceeds from issuance of common stock of \$4.4 million.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Not applicable

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTAL DATA

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of
Akoustis Technologies, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Akoustis Technologies, Inc. (the "Company") as of June 30, 2023 and 2022, the related consolidated statements of operations, changes in stockholders' equity and cash flows for each of the two years in the period ended June 30, 2023, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of June 30, 2023 and 2022, and the results of its operations and its cash flows for each of the two years in the period ended June 30, 2023, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 audits 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 financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

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

Valuation of Customer Relationships Acquired in the Business Combination

Critical Audit Matter Description

As described in Note 7 to the financial statements, on January 1, 2023, the Company acquired all of the outstanding capital stock of Grinding and Dicing Services, Inc. ("GDSI") for a total consideration of $13.9 million in cash and approximately $1.7 million shares of the Company's common stock. As of the date of the acquisition, the Company recognized customer relationships acquired at an estimated fair value of $6.1 million. As disclosed by management, the Company valued the acquired customer relationships utilizing the multi-period excess earnings method, a form of income approach. Determining the fair value of the customer relationships acquired required management to make significant judgments, including the revenue growth rate assumption, attrition rate, contributory asset charges, and discount rate.

We identified the valuation of customer relationships acquired in the acquisition of GDSI as a critical audit matter due to the significant judgments made by management to estimate the fair value of the acquired customer relationships and the sensitivity of the fair value to the significant underlying assumptions, which include the revenue growth rate assumption, attrition rate, contributory asset charges, and discount rate. These significant assumptions are forward looking and could be affected by future economic and market conditions. This in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's fair value measurement of the acquired customer relationships.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the valuation of acquired customer relationships included the following, among others:

- We obtained an understanding of the design of controls associated with management's process for estimating the fair value of the acquired customer relationships.
- We assessed the reasonableness of management's projections by comparing the projection used to the historical financial results of the acquired business and certain peer companies.
- We evaluated the reasonableness of the attrition rate by assessing the underlying data used in determining the rate and testing mathematical accuracy of the calculation.
- With the assistance of our valuation specialists, we evaluated the reasonableness of the valuation methodology and the following significant valuation assumptions:
  - Discount rate by testing the source information underlying the determination of the discount rate, testing mathematical accuracy of the calculation, and reconciling the weighted average cost of capital, weighted average return on assets and internal rate of return.
  - Contributory asset charges by testing the source information underlying the determination of the contributory asset charges and mathematical accuracy of the calculation.

/s/ Marcum LLP

Marcum LLP

We have served as the Company's auditor since 2015.

New York, NY
September 6, 2023

Akoustis Technologies, Inc.
Consolidated Balance Sheets
(In thousands, except per share data)

	June 30, 2023	June 30, 2022
Assets		
Assets:		
Cash and cash equivalents	$ 43,104	$ 80,485
Accounts receivable	4,753	3,793
Inventory	7,548	4,094
Other current assets	4,440	3,359
Total current assets	59,845	91,731
Property and equipment, net	57,826	51,157
Goodwill	14,559	8,051
Intangibles, net	15,241	8,994
Operating lease right-of-use asset, net	1,374	1,126
Other assets	72	279
Total Assets	**$ 148,917**	**$ 161,338**
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts payable and accrued expenses	$ 17,027	$ 11,204
Contingent consideration	—	855
Operating lease liability	439	313
Deferred revenue	105	286
Total current liabilities	17,571	12,658
Long-term Liabilities:		
Convertible notes payable, net	43,347	43,731
Contingent consideration	—	591
Operating lease liability	976	811
Promissory note payable	667	—
Other long-term liabilities	117	117
Total long-term liabilities	45,107	45,250
Total Liabilities	62,678	57,908
Commitments and Contingencies (Note 15)		
Stockholders' Equity		
Preferred Stock, par value $0.001: 5,000,000 shares authorized; none issued and outstanding	—	—
Common stock, $0.001 par value; 125,000,000 shares authorized; 72,154,647 and 57,079,347 shares issued and outstanding at June 30, 2023 and June 30, 2022, respectively	72	57
Additional paid in capital	356,522	310,171
Accumulated deficit	(270,355)	(206,798)
Total Stockholders' Equity	86,239	103,430
Total Liabilities and Stockholders' Equity	**$ 148,917**	**$ 161,338**

See accompanying notes to the consolidated financial statements.

Akoustis Technologies, Inc.
Consolidated Statements of Operations
(In thousands, except per share data)

	For the Year Ended June 30, 2023	For the Year Ended June 30, 2022
Revenue	$ 27,121	$ 15,350
Cost of revenue	30,237	19,487
Gross profit	(3,116)	(4,137)
Operating expenses		
Research and development	33,243	35,708
General and administrative expenses	29,710	20,710
Total operating expenses	**62,953**	**56,418**
Loss from operations	**(66,069)**	**(60,555)**
Other (expense) income		
Interest (expense) income	(2,322)	(77)
Change in fair value of contingent liability	1,446	(347)
Other (expense) income	(8)	—
Change in fair value of derivative liabilities	948	(48)
Total Other (expense) income	**64**	**(472)**
Net loss before income taxes	**$ (66,005)**	**$ (61,027)**
Income tax expense (benefit)	**$ (2,448)**	**$ (1,833)**
Net loss	$ (63,557)	$ (59,194)
Net (income) loss attributable to noncontrolling interest	—	167
Net Loss attributable to common stockholders	(63,557)	(59,027)
Net loss per common share – basic and diluted	$ (1.00)	$ (1.09)
Weighted average common shares outstanding – basic and diluted	63,621,727	54,021,205

See accompanying notes to the consolidated financial statements.

Akoustis Technologies, Inc.
Consolidated Statements of Changes in Stockholders' Equity
For the Years Ended June 30, 2023 and 2022
(In thousands)

	Common Stock		Additional Paid In Capital	Accumulated Deficit	Total Akoustis Technologies, Inc. Equity	Noncontrolling Interest	Total Equity
	Shares	Par Value					
Balance, June 30, 2021	51,236	$ 51	$ 265,130	$ (147,771)	$ 117,410	$ —	$ 117,410
Common stock issued for cash, net of issuance costs	4,178	4	27,574	—	27,578	—	27,578
Stock-based compensation	739	1	10,246	—	10,247	—	10,247
Common stock issued for exercise of warrants	21	—	67	—	67	—	67
Common stock issued for exercise of options	87	—	409	—	409	—	409
ESPP purchase	135	1	592	—	593	—	593
Common stock issued in acquisition	683	—	4,162	—	4,162	—	4,162
Noncontrolling interest acquired	—	—	1,991	—	1,991	167	2,158
Net loss	—	—	—	(59,027)	(59,027)	(167)	(59,194)
Balance, June 30, 2022	57,079	$ 57	$ 310,171	$ (206,798)	$ 103,430	$ —	$ 103,430
Common stock issued for cash, net of issuance costs	12,546	12	32,013	—	32,025	—	32,025
Stock-based compensation	1,009	1	9,406	—	9,407	—	9,407
ESPP purchase	89	—	560	—	560	—	560
Common stock issued in acquisition	606	1	1,689	—	1,690	—	1,690
Common stock issued in payment of note interest	826	1	2,683	—	2,684	—	2,684
Net loss	—	—	—	(63,557)	(63,557)	—	(63,557)
Balance, June 30, 2023	72,155	$ 72	$ 356,522	$ (270,355)	$ 86,239	$ —	$ 86,239

See accompanying notes to the consolidated financial statements.

Akoustis Technologies, Inc.
Consolidated Statements of Cash Flows
(In thousands)

	For the Year Ended June 30, 2023	For the Year Ended June 30, 2022
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$ (63,557)	$ (59,194)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	11,256	7,853
Stock-based compensation	9,407	10,247
Amortization of debt discount	564	29
Non-cash interest payments	2,684	—
(Gain)/Loss on disposal of assets	(100)	(210)
Change in deferred tax assets	(2,394)	—
Amortization of operating lease right of use asset	395	271
Change in fair value of derivative liabilities	(948)	48
Change in fair value of contingent consideration	(1,446)	347
Changes in operating assets and liabilities:		
Accounts receivable	(79)	(1,639)
Inventory	(3,454)	(2,506)
Other current asset	(805)	(1,241)
Other assets	—	(12)
Accounts payable and accrued expenses	3,522	2,975
Lease liabilities	(352)	(274)
Other long term liabilities	667	(1,980)
Deferred revenue	(181)	91
Net Cash Used in Operating Activities	(44,821)	(45,195)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Cash paid for machinery and equipment	(11,385)	(27,720)
Cash received from sale of fixed assets	121	357
Cash paid for investment in subsidiary	(13,882)	(7,579)
Net Cash Used in Investing Activities	(25,146)	(34,942)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from issuance of common stock	32,026	27,578
Proceeds from exercise of warrants	—	67
Proceeds from exercise of employee stock options	—	409
Proceeds from employee stock purchase plan	560	592
Proceeds received from convertible note, net of issuance costs	—	43,654
Net Cash Provided by Financing Activities	32,586	72,300
Net Increase (Decrease) in Cash, Cash Equivalents	(37,381)	(7,837)
Cash and Cash Equivalents – Beginning of Period	80,485	88,322
Cash and Cash Equivalents – End of Period	$ 43,104	$ 80,485
SUPPLEMENTARY CASH FLOW INFORMATION:		
Cash Paid During the Period for:		
Income taxes	$ 40	$ 112

Akoustis Technologies, Inc.
Consolidated Statements of Cash Flows
(In thousands) — (Continued)

	For the Year Ended June 30, 2023	For the Year Ended June 30, 2022
SUPPLEMENTARY DISCLOSURE OF NON-CASH INVESTING AND FINANCING ACTIVITIES:		
Common stock issued in payment of interest	$ 2,684	$ —
Fixed assets included in accounts payable and accrued expenses	$ —	$ (393)
Operating lease right-of-use asset, net	$ 133	$ —
Operating lease liability	$ (133)	$ —
Acquisition of Business		
Tangible assets, excluding cash and cash equivalents	$ 3,904	1,346
Intangibles	$ 8,289	9,452
Goodwill	$ 6,508	8,051
Deferred Tax Liability	$ (2,394)	(1,980)
Contingent consideration	$ —	1,099
Liabilities assumed	$ (1,124)	(1,871)
Liabilities cancelled	$ 88	—
Issuance of common stock for acquisition	$ 1,690	4,162
Noncontrolling interest acquired	$ —	(2,158)

See accompanying notes to the consolidated financial statements.

AKOUSTIS TECHNOLOGIES, INC.
Notes to the Consolidated Financial Statements

Note 1. Organization

Akoustis Technologies, Inc. (the "Company") was incorporated on April 10, 2013, and effective December 15, 2016, the Company changed its state of incorporation to the State of Delaware. Through its wholly-owned subsidiary, Akoustis, Inc. (a Delaware corporation), the Company, headquartered in Huntersville, North Carolina, is focused on developing, designing, and manufacturing innovative radio frequency ("RF") filter products for the wireless industry, including for products such as smartphones and tablets, cellular infrastructure equipment, Wi-Fi Customer Premise Equipment ("CPE"), and military and defense communication applications. Located between the device's antenna and its digital backend, the RF front-end ("RFFE") is the circuitry that performs the analog signal processing and contains components such as amplifiers, filters and switches. To construct the resonator devices that are the building blocks for its RF filters, the Company has developed a family of novel, high purity acoustic piezoelectric materials as well as a unique microelectromechanical system ("MEMS") wafer semiconductor process, collectively referred to as XBAW® technology. The Company leverages its integrated device manufacturing ("IDM") business model to develop and sell high performance RF filters using its XBAW® technology. Filters are critical in selecting and rejecting signals, and their performance enables differentiation in the modules defining the RFFE. Additionally, through RFM Integrated Device, Inc. ("RFMi"), a wholly-owned subsidiary of Akoustis, Inc., the Company makes sales of complementary surface acoustic wave ("SAW") resonators, RF filters, crystal (Xtal) resonators and oscillators, and ceramic products branded as "RFMi" products. We also offer back-end semiconductor supply chain services through our wholly owned subsidiary, Grinding & Dicing Services, Inc. ("GDSI"), which we acquired in January 2023.

Note 2. Liquidity

As of June 30, 2023, the Company had cash and cash equivalents of $43.1 million and working capital of $42.3 million. The Company has historically incurred recurring operating losses and experienced net cash used in operating activities.

The Company expects its current cash and cash equivalents to be sufficient to fund its operations beyond the next twelve months from the date of filing of this Form 10-K. These funds will be used to fund the Company's operations, including capital expenditures, R&D, commercialization of our technology, development of our patent strategy and expansion of our patent portfolio, as well as to provide working capital and funds for other general corporate purposes. Except for the $48.0 million of common stock remaining available to be sold under its ATM Sales Agreement with Oppenheimer & Co. Inc., Craig-Hallum Capital Group LLC, and Roth Capital Partners, LLC, the Company has no commitments or arrangements to obtain any additional funds, and there can be no assurance such funds will be available on acceptable terms or at all.

If in the future the Company is unable to obtain additional financing in a timely fashion and on acceptable terms when such financing is needed, its financial condition and results of operations may be materially adversely affected and it may not be able to continue operations or execute its stated commercialization plan.

Note 3. Summary of significant accounting policies

<u>Basis of presentation</u>

The Company's consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") and the rules and regulations of the Securities and Exchange Commission ("SEC").

<u>Principles of Consolidation</u>

The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries, Akoustis, Inc., RFMi, and GDSI. All significant intercompany accounts and transactions have been eliminated in consolidation.

Note 3. Summary of significant accounting policies (cont.)

Use of estimates and assumptions

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date(s) of the financial statements and the reported amounts of revenues and expenses during the reporting period(s). The policies, estimates and assumptions include estimates and assumptions used in valuation of equity instruments, deferred taxes and related valuation allowances, contingent consideration, goodwill, fair value of the acquired intangible assets, initial fair value of the non-controlling interest, revenue recognition, derivative liabilities, and the fair values of long-lived assets. Actual results could differ from the estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents. Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash deposits. The Company maintains its cash in institutions insured by the Federal Deposit Insurance Corporation ("FDIC"). At times, the Company's cash and cash equivalent balances may be uninsured or in amounts that exceed the FDIC insurance limits; as of June 30, 2023, approximately $42.3 million was uninsured.

Accounts Receivable

Accounts receivable is recorded at the invoiced amount and do not bear interest. The Company maintains an allowance for doubtful accounts for estimated losses inherent in its accounts receivable portfolio. Management considers an account receivable to be past due when it is not settled under its stated terms. In establishing the required allowance, management considers historical losses adjusted to take into account current market conditions and customers' financial condition, the amount of receivables in dispute, and the current receivables aging and current payment patterns. Account balances are charged off against the allowance after all means of collection have been exhausted and the potential for recovery is considered remote. During the years ended June 30, 2023 and 2022, the Company's allowance for doubtful accounts was immaterial. The Company does not have any off balance sheet credit exposure related to its customers.

Inventory

Inventory, which consists of raw materials, work-in-process and finished product, is stated at the lower of cost or net realizable value. Inventory is valued on a first-in first-out basis. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation.

Property and equipment, net

Property and equipment are stated at cost less accumulated depreciation. Depreciation is calculated using the straight — line method on the various asset classes over their estimated useful lives, which range from two to eleven years. Expenditures for major renewals and betterments that extend the useful lives of property and equipment are capitalized. Expenditures for maintenance and repairs, which do not extend the economic useful life of the related assets, are charged to operations as incurred. The Company records gains or losses on the disposal of assets as the difference between net book value of assets and cash received less costs to dispose of assets. Gains or losses on the disposal of assets, as well as impairment of assets held for sale are recorded in operating expenses.

Leases

The Company determines if an arrangement is a lease at inception. For each lease, the lease term is determined at the commencement date and includes renewal options and termination options when it is reasonably certain that the Company will exercise that option. Operating leases with the lease terms greater than one year are included in operating lease right-of-use ("ROU") assets and current and long-term operating lease liabilities in the Company's consolidated balance sheets.

Note 3. Summary of significant accounting policies (cont.)

Operating lease ROU assets represent the right to use an underlying asset for the lease term and lease liabilities represent the obligation to make lease payments arising from the lease. Operating lease liabilities are recognized at commencement date based on the present value of lease payments over the lease term using an estimated rate of interest the Company would have to pay to borrow equivalent funds on a collateralized basis at the lease commencement date. The operating lease ROU assets are based on the liability adjusted for any prepaid or deferred rent and lease incentives. The incremental borrowing rate was utilized to discount lease payments over the expected term given that the Company's operating leases do not provide an implicit rate. The Company estimates the incremental borrowing rate to reflect the profile of secured borrowing over the expected term of the leases based on the information available at the later of the date of adoption or the lease commencement date. Rent expense for the operating lease is recognized on a straight-line basis over the lease term.

Business Combinations

The Company uses the acquisition method of accounting for business combinations and recognizes assets acquired and liabilities assumed at their fair values on the date acquired. Goodwill represents the excess of the purchase price over the fair value of the acquired identifiable net assets. The fair values of the assets and liabilities acquired are determined based upon the Company's valuation using a combination of market, income, or cost approaches. The valuation involves making significant estimates and assumptions, which are based on detailed financial models including the projection of future cash flows and the weighted average cost of capital.

Contingent Consideration

Contingent consideration relates to the potential payment for an acquisition that is contingent upon the achievement by the acquired business of revenue targets. The Company records contingent consideration at fair value based on the consideration expected to be transferred. For potential payments related to revenue target achievements, the Company estimated the fair value based on the probability of achievement of such revenue targets. The assumptions utilized in the calculation of the fair value include the probability assessments of expected future sales revenue of RFMi products in each of calendar year 2022 and 2023 and the volatility of those revenues, appropriately discounted considering the uncertainties associated with the obligation. Contingent consideration is remeasured each reporting period, and subsequent changes in fair value are recognized within other (expense) income in the Company's Statement of Operations.

Goodwill and Intangible assets, net

Goodwill is the excess of purchase price over the fair value of identified net assets of businesses acquired. The Company has two operating segments and two reporting units. The Company reviews goodwill at least annually for possible impairment and will test for impairment between annual tests if an event occurs that would more likely than not reduce the fair value of the reporting unit below its carrying value. No impairment charge was recognized for the years ended June 30, 2023 and June 30, 2022.

Intangible assets consist of developed technology, trademarks, and customer relationships. Applicable long — lived assets are amortized over the shorter of their estimated useful lives, the estimated period that the assets will generate revenue, or the statutory or contractual term in the case of patents. Estimates of useful lives and periods of expected revenue generation are reviewed for appropriateness and are based upon management's judgment. Developed technology is amortized using the straight-line method over their weighted average useful lives of 10 years, trademarks are amortized using the straight-line method over their useful lives of 5 years and customer relationships are amortized using the straight-line method over their useful lives of 7 years.

Note 3. Summary of significant accounting policies (cont.)

Impairment of Long-Lived Assets

The Company assesses the recoverability of its long-lived assets, including property and equipment, when there are indications that the assets might be impaired. When evaluating assets for potential impairment, the Company compares the carrying value of the asset to its estimated undiscounted future cash flows. If an asset's carrying value exceeds such estimated undiscounted cash flows, the Company records an impairment charge for the difference between the carrying amount of the asset and its fair value.

Fair Value of Financial Instruments

The carrying amounts of cash and cash equivalents and accounts payable approximate fair value due to the short-term nature of these instruments.

The Company measures the fair value of financial assets and liabilities based on the guidance of ASC 820, "*Fair Value Measurements and Disclosures*," which defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements.

ASC 820 defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

Fair value measurements are categorized using a valuation hierarchy for disclosure of the inputs used to measure fair value, which prioritize the inputs into three broad levels:

Level 1 — Quoted prices are available in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions for the asset or liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2 — Pricing inputs are other than quoted prices in active markets included in level 1, which are either directly or indirectly observable as of the reported date, and include those financial instruments that are valued using models or other valuation methodologies.

Level 3 — Pricing inputs include significant inputs that are generally less observable from objective sources. These inputs may be used with internally developed methodologies that result in management's best estimate of fair value.

Derivative Liability

The Company evaluates its options, warrants, convertible notes, or other contracts, if any, to determine if those contracts or embedded components of those contracts qualify as derivatives to be accounted for separately. The fair value of any identified embedded derivative is marked-to-market each balance sheet date and recorded as either an asset or a liability. The change in fair value is recorded in the consolidated statement of operations as other income or expense. Upon conversion, exercise or cancellation of a derivative instrument, the instrument is marked to fair value at the date of conversion, exercise or cancellation and then the related fair value is reclassified to equity.

The classification of derivative instruments, including whether such instruments should be recorded as liabilities or as equity, is re-assessed at the end of each reporting period. Equity instruments that are initially classified as equity that become subject to reclassification are reclassified to liability at the fair value of the instrument on the reclassification date. Derivative instrument liabilities will be classified in the balance sheet as current or non-current based on whether or not net-cash settlement of the derivative instrument is expected within 12 months of the balance sheet date.

The Company analyzes whether an instrument (or an embedded feature) is indexed to the Company's own stock and uses a two-step approach to evaluate whether an equity-linked financial instrument (or embedded feature) is indexed to its own stock, including evaluating the instrument's contingent exercise and settlement provisions.

Note 3. Summary of significant accounting policies (cont.)

Revenue Recognition

The Company derives its revenue primarily from the sale of filter products under individual customer purchase orders, some of which have underlying master sales agreements that specify terms governing the product sales. In the absence of a sales agreement, the Company's standard terms and conditions apply. Revenue is recognized when control of the promised goods or services is transferred to the Company's customers, in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. The Company applies a five-step approach as defined in FASB ASC 606, Revenue from Contracts with Customers (Topic 606), in determining the amount and timing of revenue to be recognized: (1) identifying the contract with a customer; (2) identifying the performance obligations in the contract; (3) determining the transaction price; (4) allocating the transaction price to the performance obligations in the contract; and (5) recognizing revenue when the corresponding performance obligation is satisfied.

Each distinct promise to transfer products is considered to be an identified performance obligation for which revenue is recognized at a point in time upon transfer of control of the products to the customer. Transfer of control occurs upon shipment to the distributor or direct customer. Returns under the Company's general assurance warranty of products have not been material, and warranty-related services are not considered a separate performance obligation.

Pricing adjustments and estimates of returns are treated as variable consideration for purposes of determining the transaction price. Sales returns are generally accepted at the Company's discretion. Variable consideration is estimated using the expected value method considering all reasonably available information, including the Company's historical experience and its current expectations, and is reflected in the transaction price when sales are recorded. The Company records net revenue excluding taxes collected on its sales to trade customers.

Accounts receivable represents the Company's unconditional right to receive consideration from its customer. Substantially all payments are collected within the Company's standard terms, which do not include a significant financing component. To date, there have been no material impairment losses on accounts receivable.

Research and Development

Research and development expenses are charged to operations as incurred.

Stock — based compensation

The Company recognizes compensation expense for all equity — based payments in accordance with ASC 718 "*Compensation — Stock Compensation*" based on estimated fair values. The fair value of share-based payment awards is amortized over the requisite service period, which is defined as the period during which an employee is required to provide service in exchange for an award. The Company recognizes the expense for the awards ratably over the service period for each separately vesting tranche.

Awards granted by the Company generally vest over the requisite service periods, typically over a four-year or five-year period. Awards granted to non-employee directors generally vest over a one-year period from the grant date.

The fair value of a restricted stock award is equal to the fair market value of a share of Company stock on the date of grant.

The fair value of an option award is estimated on the date of grant using the Black — Scholes option valuation model. The Black — Scholes option valuation model requires the development of assumptions that are inputs into the model. These assumptions are the value of the underlying share, the expected stock volatility, the risk — free interest rate, the expected life of the option, and the dividend yield on the underlying stock. Expected volatility is calculated using the historical volatilities of the Company's common stock traded on the Nasdaq Capital Market over the expected term. Risk — free interest rates are calculated based on continuously compounded risk — free rates for the appropriate term.

Note 3. Summary of significant accounting policies (cont.)

The expected life of the option is calculated under the simplified method. The dividend yield is assumed to be zero as the Company has never paid or declared any cash dividends on its Common stock and does not intend to pay dividends on its Common stock in the foreseeable future. The Company accounts for the impact of forfeitures as they occur.

Determining the appropriate fair value model and calculating the fair value of equity — based payment awards requires the input of the subjective assumptions described above. The assumptions used in calculating the fair value of equity — based payment awards represent management's best estimates, which involve inherent uncertainties and the application of management's judgment. As a result, if factors change and the Company uses different assumptions, equity — based compensation could be materially different in the future. In addition, the Company has elected to account for the impact of forfeitures as those forfeitures occur. If the Company's actual forfeitures are material, the equity — based compensation could be significantly different from what the Company has recorded in the current period.

Income taxes

The Company accounts for income taxes using the asset and liability approach. Deferred tax assets and liabilities are recognized and represent the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. They are measured using the enacted tax rates expected to apply to taxable income in the years in which the related temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. The Company recognizes interest and penalties related to uncertain tax positions in selling, general and administrative expenses.

As part of the financial process, the Company assesses on a tax jurisdictional basis the likelihood that the Company's deferred tax assets can be recovered. If recovery is not more likely than not (a likelihood of less than 50 percent), the provision for taxes must be increased by recording a reserve in the form of a valuation allowance for the deferred tax assets that are estimated not to ultimately be recoverable. In this process, certain relevant criteria are evaluated including: the amount of income or loss in prior years, the existence of deferred tax liabilities that can be used to absorb deferred tax assets, future expected taxable income, and prudent and feasible tax planning strategies. Changes in taxable income, market conditions, U.S. or international tax laws, and other factors may change the Company's judgment regarding whether the Company will be able to realize the deferred tax assets. These changes, if any, may require material adjustments to the net deferred tax assets and an accompanying reduction or increase in income tax expense which will result in a corresponding increase or decrease in net income in the period when such determinations are made.

As part of the Company's financial process, the Company also assesses the likelihood that the Company's tax reporting positions will ultimately be sustained. To the extent it is determined it is more likely than not (a likelihood of more than 50 percent) that some portion or all of a tax reporting position will ultimately not be recognized and sustained, a provision for unrecognized tax benefit is provided by either reducing the applicable deferred tax asset or accruing an income tax liability. The Company's judgment regarding the sustainability of the Company's tax reporting positions may change in the future due to changes in U.S. or international tax laws and other factors. These changes, if any, may require material adjustments to the related deferred tax assets or accrued income tax liabilities and an accompanying reduction or increase in income tax expense which will result in a corresponding increase or decrease in net income in the period when such determinations are made.

Recently Issued Accounting Pronouncements

In November 2021, the Financial Accounting Standards Board issued Accounting Standards Update ("ASU") 2021-10, "Government Assistance (Topic 832) - Disclosures by Business Entities about Government Assistance" to increase transparency about certain government assistance or grants received by a business entity. This new guidance requires the disclosure of (1) the types of assistance, (2) an entity's accounting for the assistance, and (3) the effect of the assistance on an entity's financial statements. The Company adopted ASU 2021-10 on July 1, 2022.

Note 3. Summary of significant accounting policies (cont.)

From time to time, the Company receives cash grants and tax abatements from U.S. federal and state governments which, in most cases, attach conditions for a specific duration period and generally relate to hiring employees, the construction or acquisition of assets or to developing specific technologies. If conditions are not satisfied, or the duration period for the agreement is infringed, the incentives are subject to reduction, termination, or recapture.

The Company's accounting policy is to recognize a benefit to the income statement over the duration of the program when the conditions, including the required spending attached to the incentive are achieved and the Company is expected to complete any further requirements. A grant that compensates for operational expenses is recognized as a reduction from the nature of the expense the grant is designated to offset. A grant related to property, plant and equipment investments is recognized as a reduction to the cost-basis of the underlying assets with an ongoing reduction to depreciation expense based on the useful lives of the related assets. During fiscal 2023, the Company received a de-minimis amount related to these programs.

In August 2022, the Creating Helpful Incentives to Produce Semiconductors and Science Act (the "CHIPS Act") was signed into law. The CHIPS Act provides for a 25% refundable tax credit on certain investments in domestic semiconductor manufacturing. The credit is provided for qualifying property, which is placed in service after December 31, 2022. The CHIPS Act also provides for certain other financial incentives to further investments in domestic semiconductor manufacturing. The Company is evaluating the provisions of the new law and its potential impact to the Company.

In August 2022, the Inflation Reduction Act (the "IRA") was signed into law. The IRA establishes a new book minimum tax of 15% on consolidated adjusted GAAP pre-tax earnings for corporations with average income in excess of $1 billion and is effective for tax years beginning after December 31, 2022. In addition, the IRA also introduced a nondeductible 1% excise tax on a publicly traded corporation for the net value of certain stock repurchases during the tax year (effective for repurchases after December 31, 2022). The new law did not have a material impact on the Company's consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments — Credit Losses (Topic 326)–Measurement of Credit Losses on Financial Instruments", which requires entities to measure all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. This replaces the existing incurred loss model and is applicable to the measurement of credit losses on financial assets measured at amortized cost. This guidance is effective for the Company for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2022. The Company is currently assessing the impact that adopting this new accounting standard will have on our consolidated financial statements but does not expect it to have a material impact on the Company's consolidated financial statements.

Note 4. Revenue Recognition from Contracts with Customers

Disaggregation of Revenue

The Company's primary revenue streams include fabrication services and product sales across multiple geographic regions primarily the Americas, Asia and Europe.

Fabrication Services

Fabrication services revenue includes Non-Recurring Engineering ("NRE") and backend packaging services. Under these contracts, products are delivered to the customer at the completion of the service which represents satisfaction of the performance obligation as well as transfer of title. Depending on language with regards to enforceable right to payment for performance completed to date, related revenue will either be recognized over time or at a point in time.

Note 4. Revenue Recognition from Contracts with Customers (cont.)

Product Sales

Product sales revenue consists of sales of RF filters, which are primarily sold with contract terms stating that title passes, and the customer takes control, at the time of shipment. Revenue is then recognized when the devices are shipped, and the performance obligation has been satisfied. If devices are sold under contract terms that specify that the customer does not take ownership until the goods are received, revenue is recognized when the customer receives the goods.

The following table summarizes the revenues of the Company's reportable segments by geographic region for the year ended June 30, 2023 (in thousands):

	Fabrication Services Revenue	Product Sales Revenue	Total Revenue with Customers
Americas	$ 7,287	$ 3,892	$ 11,179
Asia	1,503	11,493	12,996
Europe	161	2,771	2,932
Other	—	14	14
Total	**$ 8,951**	**$ 18,170**	**$ 27,121**

The following table summarizes the revenues of the Company's reportable segments for the year ended June 30, 2022, (in thousands):

	Fabrication Services Revenue	Product Sales Revenue	Total Revenue with Customers
Americas	$ 1,389	$ 2,388	$ 3,777
Asia	484	8,146	8,630
Europe	—	2,930	2,930
Other	—	13	13
Total	**$ 1,873**	**$ 13,477**	**$ 15,350**

Performance Obligations

The Company has determined that contracts for product sales revenue and fabrication services revenue involve one performance obligation, which is delivery of the final product.

Contract Balances

The Company records a receivable when the title for goods has transferred. Generally, all sales are contract sales (with either an underlying contract or purchase order), resulting in all receivables being contract receivables. When invoicing occurs prior to revenue recognition a contract liability is recorded.

Note 4. Revenue Recognition from Contracts with Customers (cont.)

The following table summarizes the changes in the opening and closing balances of the Company's contract asset (included in Other current assets on the Consolidated Balance Sheet) and contract liability (included as Deferred revenue on the Consolidated Balance Sheet) for the years ended June 30, 2023 and 2022 (in thousands):

	Contract Assets	Contract Liabilities
Balance, June 30, 2022	$ 923	$ 286
Closing, June 30, 2023	1,894	70
Increase/(Decrease)	971	(216)
Balance, June 30, 2021	$ 411	$ 41
Closing, June 30, 2022	923	286
Increase/(Decrease)	512	245

The amount of revenue recognized in the year ended June 30, 2022 that was included in the opening contract liability balance consisted of $0.3 million that related to filter product sales.

Contract assets are recorded when revenue recognized exceeds the amount invoiced. The difference between the opening and closing balances of the Company's contract assets and contract liabilities primarily results from the timing difference between the Company's performance and the customer's payment. The amount of contract assets invoiced in the year ended June 30, 2023 that was included in the opening contract asset balance was $0.9 million, which primarily related to non-recurring engineering business.

Backlog of Remaining Customer Performance Obligations

As of June 30, 2023, the Company had partially unsatisfied performance obligations related to contracts with an original expected duration of greater than one year. Revenue expected to be recognized from these performance obligations was $40 thousand as of June 30, 2023. The Company's backlog may vary significantly each reporting period based on the timing of major new contract commitments. In addition, our customers have the right, under some infrequent circumstances, to terminate contracts or defer the timing of the Company's services and their payments to us.

Note 5: Inventory

Inventory consisted of the following as of June 30, 2023 and June 30, 2022 (in thousands):

	June 30, 2023	June 30, 2022
Raw Materials	$ 1,574	$ 1,077
Work in Process	3,741	1,061
Finished Goods	2,233	1,956
Total Inventory	**$ 7,548**	**$ 4,094**

Note 6. Property and equipment, net

Property and equipment consisted of the following as of June 30, 2023 and 2022 (in thousands):

	June 30, 2023	June 30, 2022	Estimated Useful Life
Land	$ 1,000	$ 1,000	n/a
Building & leasehold improvements	9,016	7,715	11 years*
Equipment	71,151	57,750	2 – 10 years
Computer equipment and software	3,168	1,966	3 – 5 years
Total	84,335	68,431	
Less: Accumulated depreciation	(26,509)	(17,274)	
Total	**$ 57,826**	**$ 51,157**	

(*) Leasehold improvements which are amortized on a straight-line basis over the term of the lease or the estimated useful lives, whichever is shorter.

The Company recorded depreciation expense of $9.2 million and $6.8 million for the years ended June 30, 2023 and 2022, respectively.

As of June 30, 2023, equipment with a net book value totaling $7.1 million had not been placed in service and therefore was not depreciated during the period. As of June 30, 2022, fixed assets with a net book value totaling $14.5 million had not been placed in service and therefore was not depreciated during the period.

Note 7. Business Acquisitions

Grinding & Dicing Services, Inc.

On January 1, 2023 (the “Closing Date”), the Company and its wholly-owned subsidiary, Akoustis, Inc. (the “Purchaser”), entered into a Stock Purchase Agreement (the “Purchase Agreement”) with GDSI and the stockholders of GDSI (the “Sellers”). Pursuant to the Purchase Agreement, the Purchaser acquired all of the outstanding capital stock of GDSI (such acquisition, the “Transaction”). The acquisition is expected to support a strategy to reshore operations to the United States, improve rapid prototype and development cycle time, and provide prototype cost savings.

The total consideration paid to the Sellers at closing of the Transaction consisted of $13.9 million in cash and approximately $1.7 million of shares of the Company’s common stock. In addition, the Company issued a secured promissory note (the “Promissory Note”) in the original principal amount of $4.0 million issued by the Purchaser to the Sellers’ representative. The Sellers’ representative is a current employee of the Company. The Promissory Note does not bear interest, is subject to partial prepayment (reduction of the outstanding principal amount down to $1.3 million) on the second anniversary of the Closing Date, and is payable in full on the third anniversary of the Closing Date. The Purchaser can reduce the principal amount of the Promissory Note (i) to satisfy certain post-closing adjustments to the Transaction purchase price, (ii) to satisfy the Sellers’ indemnification obligations under the Purchase Agreement, and (iii) if GDSI’s President is terminated for cause or due to disability or resigns without good reason prior to maturity the Promissory Note will be cancelled in its entirety. The Promissory Note is secured by certain of the Purchaser’s and GDSI’s assets. In the event of certain events of default, including failure to pay amounts due under the Promissory Note and certain bankruptcy events, the outstanding principal amount of the Promissory Note will become immediately due.

Note 7. Business Acquisitions (cont.)

The purchase price was preliminarily allocated based on the estimated fair values of the assets acquired and liabilities assumed as follows (in thousands):

Consideration:		
Cash paid	$	13,915
Common stock		1,690
Liabilities cancelled		(88)
Total consideration	$	15,517
Cash	$	334
Fixed assets		2,538
Other tangible assets		1,366
Intangible assets		8,289
Goodwill		6,508
Deferred tax liabilities		(2,394)
Liabilities assumed		(1,124)
Total assets acquired	$	15,517

The Company will continue to evaluate the fair market value and other estimates of certain assets, liabilities and tax estimates over the measurement period (up to one year from the acquisition date) as provided for in ASC 805-10.

The fair values of the intangible assets acquired included trade names of $0.19 million, developed technology of $1.98 million and customer relationships of $6.11 million and the provisional value of the fixed assets acquired was $2.5 million.

The fair value of the trade names acquired was determined based on an income approach using the "relief-from-royalty" method which estimated the value of the intangible asset by discounting the future cash flows of the asset to present value. Key inputs include a royalty rate of 0.5% and a discount rate of 19.0% as of the valuation date. The acquired trademarks assets are being amortized on a straight-line basis over their estimated useful lives of five years.

The fair value of the developed technology acquired was determined based on an income approach using the "relief-from-royalty" method which estimated the value of the intangible asset by discounting the future cash flows of the asset to present value. Key inputs include a royalty rate of 5% and a discount rate of 19.0% as of the valuation date. The acquired developed technology assets are being amortized on a straight-line basis over their estimated useful lives of seven years.

The fair value of the customer relationships acquired was determined based on an income approach using the "multi-period excess earnings" method in which the value of the intangible asset is determined by discounting the future cash flows of the asset to present value. Key inputs include a discount rate of 19.0% and an attrition rate of 7.5% as of the valuation date. These customer relationships are being amortized on a straight-line basis over their estimated useful life of seven years.

The fair value of the fixed assets acquired was primarily determined using a cost approach and used the original cost of the asset as the key input. The acquired fixed assets are being depreciated over their estimated useful life of 5 years.

The goodwill resulting from the acquisition of GDSI, which has been recorded in the Fabrication Services segment, is attributed to synergies and other benefits that are expected to be generated from this transaction and is not deductible for income tax purposes. During the year ended June 30, 2023, the Company recorded acquisition costs associated with the acquisition of GDSI totaling $0.2 million in "General and administrative expenses" in the Consolidated Statements of Operations.

Note 7. Business Acquisitions (cont.)

Revenues included in the consolidated statement of operations for the year ended June 30, 2023 from this acquisition for the period subsequent to the closing of the transaction was approximately $3.8 million. Loss from operations included in the consolidated statement of operations for the year ended June 30, 2023 from this acquisition for the period subsequent to the closing of the transaction was approximately $1.4 million.

RFM Integrated Devices, Inc.

On October 15, 2021, the Company acquired a majority ownership position in RFM Integrated Device, Inc. ("RFMi"), a fabless supplier of acoustic wave RF resonators and filters, to expand product offerings and provide access to new markets. The Company acquired the 51% ownership interest in RFMi from Tai-Saw Technology Co., Ltd. ("TST") in exchange for $6.0 million in cash and approximately $2.3 million payable in common stock of the Company. On April 29, 2022, the Company exercised its option to acquire the remaining 49% ownership interest in RFMi from TST for an additional $3.5 million in cash and approximately 420,053 shares of common stock of the Company with a fair value at closing of $1.9 million.

Additionally, earn-out payments payable in cash and/or shares of common stock of the Company may be payable to TST based on the achievement of sales targets for RFMi products in each of calendar year 2022 and 2023, with potential payouts in the range of $0 to $3.0 million. The estimated fair value of the associated liability was based on the present value of the expected future payouts resulting from the projected RFMi product sales, applying a volatility rate of 30% against those future projected revenues and using a discount rate of 9.9% and 10.2% for the first and second earnouts, respectively, and thus represented a Level 3 fair value measurement. The contingent consideration is re-measured to fair value at each reporting date until the contingency is resolved, and those changes in fair value are recognized in earnings. The Company has determined that the sales targets for calendar year 2022 were not met and the related earnout payment is not owed. The fair value of the contingent consideration decreased $1.4 million during the year ended June 30, 2023.

The purchase price was allocated based on the estimated fair values of the assets acquired and liabilities assumed as follows (in thousands):

Consideration:	
Cash paid	$ 9,500
Common stock	4,162
Fair value of contingent consideration	1,099
Total consideration	$ 14,761
Cash	$ 1,921
Other tangible assets	1,346
Intangible assets	9,452
Goodwill	8,051
Liabilities assumed	(1,871)
Deferred tax liability	(1,980)
Noncontrolling interest acquired	$ (2,158)
Total assets acquired	$ 14,761

The fair value of the trademarks acquired was determined based on an income approach using the "relief-from-royalty" method which estimated the value of the intangible asset by discounting the future cash flows of the asset to present value. Key inputs include a royalty rate of 3% and a discount rate of 18.0% as of the valuation date. The acquired trademarks assets are being amortized on a straight-line basis over their estimated useful lives of five years.

The fair value of the developed technology acquired was determined based on an income approach using the "relief-from-royalty" method which estimated the value of the intangible asset by discounting the future cash flows of the asset to present value. Key inputs include a royalty rate of 4% and a discount rate of 18.0% as of the valuation date. The acquired developed technology assets are being amortized on a straight-line basis over their estimated useful lives of seven years.

Note 7. Business Acquisitions (cont.)

The fair value of the customer relationships acquired was determined based on an income approach using the "multi-period excess earnings" method in which the value of the intangible asset is determined by discounting the future cash flows of the asset to present value. Key inputs include a discount rate of 18.0%, an attrition rate of 5% and an operating expense adjustment factor of 5% as of the valuation date. These customer relationships are being amortized on a straight-line basis over their estimated useful life of seven years.

The fair value of the noncontrolling interest was determined by applying a lack of control discount of 16.7% to the implied fair value based on the total consideration paid for the 51% ownership.

The goodwill resulting from the acquisition of RFMi, which has been recorded in the RF Product segment, is attributed to synergies and other benefits that are expected to be generated from this transaction and is not deductible for income tax purposes. During the year ended June 30, 2022, the Company recorded acquisition costs associated with the acquisition of RFMi totaling $0.1 million in "General and administrative expenses" in the Consolidated Statements of Operations.

Revenues included in the consolidated statement of operations for the year ended June 30, 2022 from this acquisition for the period subsequent to the closing of the transaction was approximately $5.7 million. Loss from operations included in the consolidated statement of operations for the year ended June 30, 2022 from this acquisition for the period subsequent to the closing of the transaction was approximately $0.4 million. Also included in the loss from operations in the year ended June 30, 2022 is expense of approximately $347 thousand relating to adjustments to the fair value of earnout contingent consideration described below.

Pro Forma Results

The following unaudited pro forma financial information summarizes the results of operations for year ended June 30, 2022 and 2023, as if the RFMi and GDSI acquisitions had been completed as of July 1, 2021 (in thousands). The pro forma results were calculated applying the Company's accounting policies and include the effects of adjustments related to the amortization charges from the acquired intangibles. The unaudited pro forma information does not purport to be indicative of the results that would have been obtained if the acquisitions had actually occurred at the beginning of the year prior to acquisition, nor of the results that may be reported in the future.

	Years Ended June 30,	
	2023	2022
	Unaudited Proforma	Unaudited Proforma
Revenues	$ 30,701	$ 24,500
Net Loss	$ (65,747)	$ (58,850)
Net Loss per share	$ (1.03)	$ (1.07)

Note 8: Goodwill

The Company performs an annual test for goodwill impairment during our last fiscal quarter. Based on a qualitative assessment, the Company determined that there was no impairment to our goodwill as of June 30, 2023. The Company will also test for impairment between annual test dates if an event occurs or circumstances change that would indicate the carrying amount may be impaired.

During the year ended June 30, 2023, the Company did not identify any events or circumstances that would require an interim goodwill impairment test. The Company does not amortize goodwill as it has been determined to have an indefinite useful life. The carrying amount of goodwill as of June 30, 2023 was $14.6 million.

Note 9: Intangible Assets

Intangible assets consisted of the following as of June 30, 2023 (in thousands):

	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Useful Life in Years
Trademarks	$ 900	$ (258)	$ 642	5
Developed Technology	$ 3,867	$ (581)	$ 3,286	10
Customer Relationships	$ 13,569	$ (2,256)	$ 11,313	7
Total	$ 18,336	$ (3,095)	$ 15,241	

Intangible assets consisted of the following as of June 30, 2022 (in thousands):

	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Useful Life in Years
Trademarks	$ 702	$ (99)	$ 603	5
Developed Technology	$ 1,911	$ (221)	$ 1,690	10
Customer Relationships	$ 7,455	$ (754)	$ 6,701	7
Total	$ 10,068	$ (1,074)	$ 8,994	

Amortization expense totaled $2 million for the year ended June 30, 2023. Estimated future amortization expense of intangible assets for each of the next five fiscal years and thereafter are as follows (in thousands):

2024	$ 2,618
2025	$ 2,618
2026	$ 2,618
2027	$ 2,519
2028	2,458
Thereafter	$ 2,410
Total	**$ 15,241**

Note 10. Accounts payable and accrued expenses

Accounts payable and accrued expenses consisted of the following at June 30, 2023 and June 30, 2022 (in thousands):

	June 30, 2023	June 30, 2022
Accounts payable	$ 3,979	$ 3,630
Accrued salaries and benefits	4,781	4,641
Accrued good received not invoiced	3,700	1,472
Accrued professional fees	2,248	704
Other accrued expenses	2,319	757
Totals	**$ 17,027**	**$ 11,204**

Note 11. Notes Payable

Convertible Senior Notes due 2027

The following table summarizes convertible debt as of June 30, 2023 (in thousands):

	Maturity Date	Stated Interest Rate	Conversion Price	Face Value	Remaining Debt (Discount)	Fair Value of Embedded Derivatives	Carrying Value
Long Term convertible notes payable							
6.0% Convertible Senior Notes	06/15/2027	6.00%	$ 4.71	$ 44,000	$ (2,733)	$ 2,080	$ 43,347
Ending Balance as of June 30, 2023				**$ 44,000**	**$ (2,733)**	**$ 2,080**	**$ 43,347**

The following table summarizes convertible debt as of June 30, 2022 (in thousands):

	Maturity Date	Stated Interest Rate	Conversion Price	Face Value	Remaining Debt (Discount)	Fair Value of Embedded Derivatives	Carrying Value
Long Term convertible notes payable							
6.0% Convertible Senior Notes	06/15/2027	6.00%	$ 4.71	$ 44,000	$ (3,297)	$ 3,028	$ 43,731
Ending Balance as of June 30, 2022				**$ 44,000**	**$ (3,297)**	**$ 3,028**	**$ 43,731**

On June 9, 2022, the Company issued $44.0 million aggregate principal amount of its 6.0% Convertible Senior Notes due 2027 (the "Notes") guaranteed by its wholly-owned subsidiary, Akoustis, Inc. (the "Guarantor").

The Notes were issued pursuant to an indenture (the "Indenture"), dated June 9, 2022, among the Company, the Guarantor and The Bank of New York Mellon Trust Company, N.A., as trustee. The Notes bear interest at a rate of 6.0% per year until maturity on June 15, 2027 (the "Maturity Date"). Interest on the Notes accrues from the date of issuance or from the most recent date to which interest has been paid and is payable semi-annually in arrears on June 15 and December 15 of each year, beginning on December 15, 2022. At the Company's option, interest may be paid in cash and/or freely tradable shares of the Company's common stock, subject to certain limitations, valued at 95% of the volume weighted average price of the common stock for the ten trading days ending on and including the trading day immediately preceding the interest payment date. The Company will settle conversions of the Notes through delivery of shares of common stock of the Company in accordance with the terms of the Indenture. The initial conversion price for the Notes is approximately $4.71 per share.

Conversion

On or after December 9, 2022, holders of the Notes may convert all or any portion of their Notes, in multiples of $1,000 principal amount, at their option at any time prior to the close of business on the business day immediately preceding the Maturity Date. If any Notes are converted prior to June 9, 2025 (the "Interest Make-Whole Date"), the Company will make a payment to the holder of such Notes equal to the sum of the remaining scheduled payments of interest that would have been made on the Notes to be converted had such Notes remained outstanding from the conversion date through and including the Interest Make-Whole Date. The Company will have the option to pay such Interest Make-Whole Payment in cash and/or common stock, subject to certain limitations, valued at 95% of the volume weighted average price of the common stock for the ten trading days ending on and including the trading day immediately preceding the redemption date.

Note 11. Notes Payable (cont.)

Issuer Redemption

The Company may redeem the Notes, in whole or in part, at any time and from time to time on or after June 9, 2023 at a redemption price equal to 100% of the principal amount plus accrued and unpaid interest on such principal, if any, up to the redemption date. The Notes will become subject to the Company's right to redeem as follows: (i) on or after June 9, 2023, up to one-third of the aggregate principal amount of the Notes initially issued; (ii) on or after June 9, 2024, up to two-thirds of the aggregate principal amount of the Notes initially issued; and (iii) on or after June 9, 2025, up to 100% of the aggregate principal amount of the Notes initially issued; provided, that at any time the Company exercises the redemption right, (1) the closing sale price per share of the Company's common stock is greater than 150% of the then-effective conversion price for each of 20 consecutive days of the 30 consecutive trading day period immediately preceding the Company's redemption notice and (2) a registration statement registering the resale of all shares of common stock into which the principal amount of the Notes is convertible and all shares of common stock issuable as interest or as Interest Make-Whole Payments upon conversion or redemption of any Notes is effective and a current prospectus related thereto remains available throughout the period from the date the redemption notice is delivered to the holders to and including the redemption date. If the Company redeems the Notes prior to the Interest Make-Whole Date, the holder will also receive an interest make-whole payment equal to the remaining scheduled interest payments that would have been made on the notes redeemed had such notes remained outstanding through the Interest Make-Whole Date (an "Interest Make-Whole Payment"). The Company will have the option to pay such Interest Make-Whole Payment in cash and/or common stock, subject to certain limitations, valued at 95% of the volume weighted average price of the common stock for the ten trading days ending on and including the trading day immediately preceding the redemption date.

Fundamental Change

If the Company undergoes a "qualifying fundamental change," as defined in the Indenture, under certain circumstances holders who convert their Notes in connection with such a qualifying fundamental change will be entitled to receive, at each holder's option either (i) a "qualifying fundamental change payment" with respect to such converted Notes based on a make-whole table set forth in the Indenture, or (ii) if greater, the amount of any Interest Make-Whole Payment due in respect of the converted Notes. Subject to certain limitations, qualifying fundamental change payments will be made all in shares of common stock unless the Company gives written notice to the Note holders that it intends to make such payments either all or partially in cash. For purposes of determining any cash payment to be made in respect of a qualifying fundamental change payment, each share of common stock will be valued at 95% of the "Stock Price" (as determined in accordance with the Indenture).

The Company analyzed the components of the convertible notes for embedded derivatives and the application of the corresponding accounting treatment. This analysis determined that certain features of the notes represented derivatives that require bifurcation from the host contract. The fair value of these components of $3.0 million was recorded as a debt discount and will be adjusted to fair value at the end of each future reporting period. The Company recorded total debt discount and debt issuance costs of $3.3 million, to be amortized over five years using an effective interest method. Debt discount and debt issuance costs include the fair value of the embedded features at the issuance date of $3.0 million and debt issuance costs paid totaling $0.3 million.

Interest expense on the Notes during the year ended June 30, 2023 included contractual interest of $2,640 thousand and debt discount amortization of $564 thousand. Interest expense on the Notes during the year ended June 30, 2022 included contractual interest of $154 thousand and debt discount amortization of $29 thousand.

Promissory Note

The Company issued a secured promissory note (the "Promissory Note") in the original principal amount of $4.0 million issued by the Purchaser to the Sellers' representative. The Sellers' representative is a current employee of the Company. The Promissory Note does not bear interest, is subject to partial prepayment (reduction of the outstanding principal amount down to $1.3 million) on the second anniversary of the Closing Date, and is payable in full on the third anniversary of the Closing Date. The Purchaser can reduce the principal amount of the Promissory Note (i) to

Note 11. Notes Payable (cont.)

satisfy certain post-closing adjustments to the Transaction purchase price, (ii) to satisfy the Sellers' indemnification obligations under the Purchase Agreement, and (iii) if GDSI's President is terminated for cause or due to disability or resigns without good reason prior to maturity the Promissory Note will be cancelled in its entirety. The Promissory Note is secured by certain of the Purchaser's and GDSI's assets. In the event of certain events of default, including failure to pay amounts due under the Promissory Note and certain bankruptcy events, the outstanding principal amount of the Promissory Note will become immediately due. The Promissory Note will be recognized on a straight line basis over the term of the Promissory Note as compensation expense. The Company recorded compensation expense totaling $667 thousand for the year ended June 30, 2023 in "General and administrative expenses" in the Consolidated Statements of Operations with the associated liability included in "Promissory notes payable" in the Consolidated Balance Sheets.

Note 12. Concentrations

Customers

Customer concentration as a percentage of revenue for the years ended June 30, 2023 and 2022 are as follows:

	Year Ended 06/30/2023	Year Ended 06/30/2022
Customer 1	14%	26%
Customer 2	18%	10%

Customer concentration as a percentage of accounts receivable for the years ended June 30, 2023 and 2022 are as follows:

	Year Ended 06/30/2023	Year Ended 06/30/2022
Customer 1	15%	26%
Customer 2	21%	—

Vendors

Vendor concentration as a percentage of purchases for the years ended June 30, 2023 and 2022 are as follows:

	Year Ended 06/30/2023	Year Ended 06/30/2022
Vendor 1	11%	—

Note 13. Stockholders' Equity

Equity Offering Program

On May 2, 2022, the Company entered into an ATM Sales Agreement with Oppenheimer & Co. Inc., Craig-Hallum Capital Group LLC, and Roth Capital Partners, LLC pursuant to which the Company may sell from time-to-time shares of its common stock having an aggregate offering price of up to $50,000,000 (the "2022 Equity Offering Program"), of which $48 million remains available to be sold. On May 25, 2022, the Company announced that it was suspending sales under the 2022 Equity Offering Program. If, in the future, the Company determines to resume sales pursuant to the 2022 Equity Offering Program, it intends to notify investors by the filing of a Current Report on Form 8-K, other SEC filings or other public announcement.

No sales were made through the 2022 Equity Offering Program during the year ended June 30, 2023.

Note 13. Stockholders' Equity (cont.)

Underwritten Offering of Common Stock

On January 19, 2023, the Company closed an underwritten public offering of 12,545,454 shares of its Common Stock at a price to the public of $2.75 per share pursuant to an underwriting agreement with B. Riley Securities, Inc., as representative of the several underwriters named therein. The shares of Common Stock issued at closing included 1,636,363 shares issued pursuant to the underwriters' over-allotment option, which was exercised in full. Gross proceeds totaled $34.5 million before deducting the underwriting discount and offering expenses of approximately $2.5 million resulting in net proceeds from the offering of approximately $32.0 million. Certain of the Company's directors and officers participated in the offering by purchasing shares on the same terms and conditions as other investors.

Equity incentive plans

On November 1, 2018, the Board of Directors adopted and approved the Company's 2018 Stock Incentive Plan (as amended, the "2018 Plan"), which authorizes the grant to participants of nonqualified stock options, incentive stock options, restricted stock awards, restricted stock units, performance grants and other stock awards. The 2018 Plan initially reserved a total of 3,000,000 shares of common stock for issuance thereunder. On September 24, 2019, the Company's stockholders approved an amendment to the 2018 Plan increasing the number of shares reserved for issuance thereunder to 6,000,000. On November 10, 2022, the Company's stockholders approved an amendment to the 2018 Plan increasing the number of shares reserved for issuance thereunder to 12,000,000. As of June 30, 2023, 4,638,242, shares remained available for future grants under the 2018 Plan. The Company previously maintained the 2015 Equity Incentive Plan (the "2015 Plan") and the 2016 Stock Incentive Plan (the "2016 Plan"). No additional shares will be issued under the 2015 Plan or the 2016 Plan. The Company settles awards issued under all plans with newly issued common shares.

In addition, the number of shares of our common stock subject to the 2015 Plan, 2016 Plan and 2018 Plan, any number of shares subject to any numerical limit in the Plans, and the number of shares and terms of any incentive awards thereunder would be adjusted in the event of any change in our outstanding common stock by reason of any stock dividend, spin-off, split-up, stock split, reverse stock split, recapitalization, reclassification, merger, consolidation, liquidation, business combination or exchange of shares or similar transaction.

Options granted under the 2015 Plan, 2016 Plan and 2018 Plan vest as determined by the Company's board of directors and expire over varying terms, but not more than ten years from the date of grant. In the case of an Incentive Stock Option that is granted to a 10% shareholder on the date of grant, such Option shall not be exercisable after the expiration of five years from the date of grant.

The fair values of the Company's options were estimated at the dates of grant using a Black-Scholes option pricing model with the following assumptions:

	June 30, 2023	June 30, 2022
Exercise price	$2.83 – $4.23	$3.79 – $10.15
Expected term (years)	4.00 – 5.00	4.75 – 5.00
Risk-free interest rate	3.49 – 4.59%	0.76 – 3.38%
Volatility	67 – 70%	66 – 67%
Dividend yield	0%	0%
Weighted Average Grant Date Fair Value of Options granted during the period	$1.95	$4.71

Expected term: The Company's expected term is based on the period the options are expected to remain outstanding. The Company estimated this amount utilizing the "Simplified Method" in that the Company does not have sufficient historical experience to provide a reasonable basis to estimate an expected term.

Note 13. Stockholders' Equity (cont.)

Risk-free interest rate: The Company uses the risk-free interest rate of a U.S. Treasury Note with a similar term on the date of the grant.

Volatility: The Company calculates the expected volatility of the stock price using the historical volatilities of the Company's common stock traded on the Nasdaq Capital Market.

Dividend yield: The Company uses a 0% expected dividend yield as the Company has not paid dividends to date and does not anticipate declaring dividends in the near future.

The following is a summary of the option activity:

	Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding – June 30, 2022	3,020,002	6.49		
Granted	297,798	3.48		
Exercised	—	—		
Forfeited/Cancelled	(161,763)	7.12		
Outstanding – June 30, 2023	3,156,037	6.61	3.50	231
Exercisable – June 30, 2023	2,032,665	6.24	2.51	218

The total intrinsic value of options exercised during the fiscal years ended June 30, 2023 and June 30, 2022 was $0 thousand and $286 thousand, respectively.

Unrecognized stock-based compensation expense and weighted-average years to be recognized are as follows (in thousands):

	As of June 30, 2023	
	Unrecognized stock-based compensation	Weighted-average years to be recognized
Options	$ 1,771	1.91
Restricted stock awards/units	$ 9,838	2.06

For the years ended June 30, 2023 and 2022, the Company recorded $9.4 million and $10.2 million, respectively, in stock-based compensation which is reflected in total operating expenses in the consolidated statements of operations as follows (in thousands):

	2023	2022
Research and Development	$ 3,692	$ 5,586
General and Administrative	5,715	4,661
Total	$ 9,407	$ 10,247

Note 13. Stockholders' Equity (cont.)

Restricted Stock Units and Restricted Stock Awards

A summary of unvested restricted stock awards ("RSAs") and restricted stock unit awards ("RSUs") outstanding as of June 30, 2023 and changes during the year ended is as follows:

	Number of RSAs/RSUs	Weighted Average Fair Value per Share/Unit
Outstanding – June 30, 2022	2,177,585	$ 8.30
Granted	2,135,760	3.20
Vested	(1,030,674)	6.50
Forfeited/Cancelled/Repurchased	(249,436)	7.54
Outstanding – June 30, 2023	3,033,235	$ 5.39

The weighted average grant date fair value per share for awards granted during the fiscal years ended June 30, 2023 and June 30, 2022 was $3.20 and $8.16, respectively. The total fair value of restricted awards that vested during the fiscal years ended June 30, 2023 and June 30, 2022 was $3.5 million and $5.1 million, respectively.

During the years ended June 30, 2023 and 2022, the Company recorded stock-based compensation expense of $6.5 million and $7.7 million, respectively related to the RSAs and RSUs that have been issued to date.

As of June 30, 2023, the Company had approximately $7.7 million in unrecognized stock-based compensation expense related to the unvested shares.

Market Value Stock Unit Awards

During the year ended June 30, 2023 the Company awarded certain employees grants of an aggregate of approximately 0.42 million RSUs with market value appreciation conditions ("MVSUs") with a weighted average grant date fair value of $7.60. The MVSUs will be expensed over the requisite service period. The terms of the MVSUs include vesting provisions based on continued service. The number of shares of the Company's common stock earned at vesting is based on the Company's stock price performance with amounts earned subject to a vesting multiplier ranging from 0% to 200%. If the service criteria are satisfied, the MVSUs will vest over 3 years.

A summary of unvested MVSUs outstanding as of June 30, 2023 and changes during the year ended is as follows:

	Number of MVSUs	Weighted Average Fair Value per Share/Unit
Outstanding – June 30, 2022	—	$ —
Granted	415,000	7.60
Vested	—	—
Forfeited/Cancelled/Repurchased	20,000	7.86
Outstanding – June 30, 2023	395,000	7.58

The weighted average grant date fair value per share for MVSU awards granted during the fiscal year ended June 30, 2023 was $7.60. No MVSU awards were granted during the fiscal year ended June 30, 2022. No MVSU awards vested during the fiscal years ended June 30, 2023 and June 30, 2022.

Note 13. Stockholders' Equity (cont.)

During the years ended June 30, 2023 and 2022, the Company recorded stock-based compensation expense of $0.9 million and $0.0 million, respectively related to the MVSUs that have been issued to date.

As of June 30, 2023, the Company had approximately $2.1 million in unrecognized stock-based compensation expense related to the unvested MVSU shares.

Employee Stock Purchase Plan

Effective November 1, 2018, the Company adopted the Akoustis Technologies, Inc. Employee Stock Purchase Plan 2018 (the "ESPP"), which was approved by the stockholders on the same date, The ESPP is intended to qualify as an "employee stock purchase plan" under Section 423 of the Code. All regular full-time employees of the Company (including officers) and all other employees who meet the eligibility requirements of the plan may participate in the ESPP. The ESPP provides eligible employees an opportunity to acquire the Company's common stock at 85.0% of the lower of the closing price per share of the Company's common stock on the first or last day of each six-month purchase period. At June 30, 2023, 0.02 million shares were available for future issuance under this plan. The Company makes no cash contributions to the ESPP but bears the expenses of its administration. The Company issued 0.09 million, and 0.14 million shares under the ESPP in fiscal years 2023 and 2022, respectively. The Company settles awards issued under the ESPP with newly issued common shares.

For the years ended June 30, 2023 and 2022, the Company recorded $0.25 million and $0.25 million, respectively, in stock-based compensation related to grants of ESPP shares.

Note 14. Leases

The Company leases office space in Huntersville, NC, Carrollton, TX, San Jose, CA and Taiwan and leases equipment in Canandaigua, NY. Its leases have remaining lease terms of up to five years, some of which include options to extend the leases for up to twenty-four months. Following adoption of ASC 842, lease expense excludes capital area maintenance and property taxes.

The components of lease expense were as follows (in thousands):

	Year Ended June 30, 2023	Year Ended June 30, 2022
Operating Lease Expense	$ 519	$ 348

Supplemental balance sheet information related to leases was as follows (in thousands):

	Classification on the Consolidated Balance Sheet	June 30, 2023	June 30, 2022
Assets			
Operating lease assets	Other non-current assets	$ 1,374	$ 1,126
Liabilities			
Other current liabilities	Current liabilities	439	313
Operating lease liabilities	Other non-current liabilities	976	811
Weighted Average Remaining Lease Term:			
Operating leases		2.97 Years	3.42 Years
Weighted Average Discount Rate:			
Operating leases		12.77%	10.03%

Note 14. Leases (cont.)

The following table outlines the minimum future lease payments for the next five years and thereafter (in thousands):

For the year ending June 30,	
2024	$ 589
2025	606
2026	374
2027	66
Thereafter	79
Total lease payments (Undiscounted cash flows)	1,714
Less imputed interest	(299)
Total	$ 1,415

Note 15. Commitments and Contingencies

Ontario County Industrial Development Authority Agreement

On February 27, 2018, the Company entered into a Lease and Project Agreement (the "Lease and Project Agreement") and a Company Lease Agreement (the "Company Lease Agreement" and together with the Lease and Project Agreement, the "Agreements"), each dated as of February 1, 2018, with the Ontario County Industrial Development Agency, a public benefit corporation of the State of New York (the "OCIDA"). Pursuant to the Agreements, the Company will lease for $1.00 annually to the OCIDA an approximately 9.995 acre parcel of land in Canandaigua, New York, together with the improvements thereon (including the Company's New York fabrication facility), and transfer title to certain related equipment and personal property to the OCIDA (collectively, the "Facility"). The OCIDA will lease the Facility back to the Company for annual rent payments specified in the Lease and Project Agreement for the Company's primary use as research and development, manufacturing, warehouse and professional office space in its business, and to be subleased, in part, by the Company to various existing tenants. The Company estimates substantial tax savings during the term of the Agreements, which expire on December 31, 2028. In addition, subject to the terms of the Lease and Project Agreement, certain purchases and leases of eligible items will be exempt from the imposition of sales and use taxes. Subject to the terms of the Lease and Project Agreement, the OCIDA has also granted to the Company an exemption from certain mortgage recording taxes for one or more mortgages securing an aggregate principal amount not to exceed $12.0 million, or such greater amount as approved by the OCIDA in its sole and absolute discretion. Benefits totaling approximately $0.4 million provided to the Company through June 2023 pursuant to the terms of the Lease and Project Agreement are subject to claw back over the life of the Agreements upon certain recapture events, including certain events of default.

Litigation, Claims and Assessments

On October 4, 2021, the Company was named as a defendant in a complaint filed by Qorvo, Inc. ("Qorvo") in the United States District Court for the District of Delaware alleging, among other things, patent infringement, false advertising, false patent marking, and unfair competition. The complaint alleges that the defendants misappropriated proprietary information, made misleading statements about the characteristics of certain of its products, and sold products infringing on certain of the plaintiff's patents. The plaintiff seeks an injunction enjoining the Company from the alleged infringement and damages, including punitive and statutory enhanced damages, in an unspecified amount. The Company filed a motion to dismiss all of the claims other than the direct patent infringement claims, but the court permitted the plaintiff to file an amended complaint which the court subsequently determined was sufficient for pleading purposes. The Court denied the Company's motion in May 2022. The Court held a claims construction hearing in November 2022, issuing its claim construction order on March 15, 2023. On February 8, 2023, Qorvo filed a second amended complaint adding allegations of misappropriation of trade secrets, racketeering

Note 15. Commitments and Contingencies (cont.)

activities, and civil conspiracy. The Company continues to develop its defenses and mitigation strategies, and intends to proceed in defending itself vigorously against the claims asserted by Qorvo. However, the Company can provide no assurance as to the outcome of such dispute, and such action may result in judgments against the Company for an injunction, significant damages or other relief, such as future royalty payments to Qorvo or restrictions on certain of the Company's activities.

On April 20, 2023, the Company filed a complaint against Qorvo in the United States District Court for the Eastern District of Texas alleging infringement by Qorvo of a patent licensed exclusively to the Company by Cornell University. The complaint alleges Qorvo's willful infringement of the Cornell patent and seeks remedies including enhanced damages and attorneys' fees. On July 24, 2023, Qorvo filed a motion to dismiss the complaint. On August 11, 2023, Qorvo filed a motion to strike Akoustis' infringement contentions. The Company intends to vigorously pursue its claims against Qorvo but can provide no assurance as to the outcome of this dispute.

Resolution of each of the matters described above may be prolonged and costly, and the ultimate result or judgment is uncertain due to the inherent uncertainty in litigation and other proceedings. An adverse result in the matters described above would have a material adverse effect on the Company and its business. Even if ultimately settled or resolved in the Company's favor, the matters described above and other possible future actions may result in significant expenses, diversion of management and technical personnel attention and disruptions and delays in the Company's business and product development, and other collateral consequences, all of which could have a material adverse effect on its business, financial condition, and results of operations. Any out-of-court settlement of the above matters or other actions may also have an adverse effect on the Company's business, financial condition and results of operations, including, but not limited to, substantial expenses, the payment of royalties, licensing or other fees payable to third parties, or restrictions on its ability to develop, manufacture, and sell its products.

From time to time, the Company may become involved in other lawsuits, investigations, and claims that arise in the ordinary course of business. The Company believes it has meritorious defenses against such other pending claims and intends to vigorously pursue them. While it is not possible to predict or determine the outcomes of any such other pending actions, the Company believes the amount of liability, if any, with respect to such other pending actions, would not materially affect its financial position, results of operations, or cash flows.

Tax Credit Contingency

The Company accrues a liability for indirect tax contingencies when it believes that it is both probable that a liability has been incurred and that it can reasonably estimate the amount of the loss. The Company reviews these accruals and adjusts them to reflect ongoing negotiations, settlements, rulings, advice of legal counsel and other relevant information. To the extent new information is obtained and the Company's views on the probable outcomes of claims, suits, assessments, investigations or legal proceedings change, changes in the Company's accrued liabilities would be recorded in the period in which such determination is made.

The Company's gross unrecognized indirect tax credits totaled $0.1 million as of June 30, 2023 and $0.1 million as of June 30, 2022 and are recorded on the Consolidated Balance Sheet as a long-term liability.

Note 16. Income Taxes

The components of income tax expense (benefit) for the years ended June 30, 2023 and June 30, 2022 are as follows (in thousands):

	June 30, 2023	June 30, 2022
Current:		
Federal	$ (38)	$ 134
State and Local	(16)	15
Total Current Tax Provision (Benefit)	(54)	149
Deferred:		
Federal	(2,179)	(2,000)
State and Local	(215)	18
Total Deferred Tax Provision (Benefit)	(2,394)	(1,982)
Total Tax Provision (Benefit)	$ (2,448)	$ (1,833)

The provision for/(benefit from) income tax differs from the amount computed by applying the statutory federal income tax rate to income before the provision for/(benefit from) income taxes. The sources and tax effects of the differences are as follows:

	For the Year Ended June 30, 2023	For the Year Ended June 30, 2022
Income taxes at Federal statutory rate	(21.00)%	(21.00)%
State income taxes, net of Federal income tax benefit	(1.35)%	(0.29)%
Tax Credits	(1.56)%	(1.49)%
Stock-based compensation	1.21%	0.28%
Other	(0.53)%	0.14%
Change in Valuation Allowance	19.15%	19.32%
Effect of changes in income tax rate applied to net deferred taxes	0.37%	0.04%
Income Tax Provision	**(3.71)%**	**(3.00)%**

The tax effects of temporary differences that give rise to the Company's deferred tax assets and liabilities are as follows, (in thousands):

	June 30, 2023	June 30, 2022
Deferred Tax Assets		
Net Operating Loss Carryforwards	$ 53,755	$ 47,031
Stock-based compensation	4,373	3,680
Credits	3,753	2,725
Research and development expenditures	8,145	—
Other	1,387	1,022
	71,413	54,458
Deferred Tax Liabilities		
Intangibles	(3,338)	(1,808)
Accumulated depreciation/basis differences	(9,945)	(7,158)
	(13,283)	(8,966)
Valuation Allowance	(58,130)	(45,492)
Net Deferred Tax Assets	$ —	$ —

Note 16. Income Taxes (cont.)

At June 30, 2023, the Company had federal loss carryovers of approximately $34.2 million that will expire in stages beginning in 2034 if unused and federal loss carryovers of $213.1 million that will carry forward indefinitely. The North Carolina, New York, California, Florida, Massachusetts, and Pennsylvania state loss carryovers of approximately $29.9 million, $11.5, $17.1, $0.4, $0.1, and $0.3 million, respectively, will begin to expire in 2029 if unused. Federal research credits of $3.7 million will expire beginning in 2034 if not utilized.

The company has not performed a detailed analysis to determine whether an ownership change under IRC Section 382 has occurred during the year ended June 30, 2023 or during any earlier year. If upon a complete analysis the company were to determine that an ownership change under Section 382 had occurred the effect of the ownership change would be the imposition of annual limitations on the use of NOL carryforwards. Any limitation may result in the expiration of a portion or all of the NOLs before utilization.

Based on a history of cumulative losses at the Company and the results of operations for the years ended June 30, 2023 and 2022, the Company determined that it is more likely than not it will not realize benefits from the deferred tax assets. The Company will not record income tax benefits in the financial statements until it is determined that it is more likely than not that the Company will generate sufficient taxable income to realize the deferred income tax assets. As a result of the analysis, the Company determined that a full valuation allowance against the deferred tax assets is required. The net change in the valuation allowance during the year ended June 30, 2023 was an increase of approximately $12.6 million.

The Company's gross unrecognized tax benefits totaled $0.5 million as of June 30, 2023 and $0.4 million as of June 30, 2021. Of these amounts, $0.5 million and $0.4 million as of June 30, 2023 and June 30, 2022, respectively, represent the amounts of unrecognized tax benefit that, if recognized, would impact the effective tax rate in each of the fiscal years.

A reconciliation of the beginning and ending amount of gross unrecognized tax benefits for the years ended June 30, 2023 and June 30, 2022 is as follows (in thousands):

	June 30, 2023	June 30, 2022
Beginning Balance	$ 427	$ 326
Additions based on positions related to the current year	70	80
Additions for tax positions in prior years	44	21
Reductions for tax positions in prior years	—	—
Expiration of statute of limitations	—	—
Ending Balance	**$ 541**	**$ 427**

The unrecognized tax benefit of $541 thousand at the end of June 30, 2023 is recorded on the Consolidated Balance Sheet as a reduction to the carrying value of the gross deferred tax assets.

The Company's fiscal 2018 federal and state returns and all subsequent years remain open for examination, as well as all attributes brought forward into those years. The Company is not currently under examination by any taxing authorities.

Note 17. Segment Information

Operating segments are defined as components of an enterprise about which separate financial information is available and evaluated regularly by the chief operating decision maker, or decision — making group, in deciding how to allocate resources and in assessing performance. The Company's chief operating decision maker is its Chief Executive Officer. The Company operates in two segments, Fabrication Services, which consists of engineering review services and backend packaging services, and RF Filters which consists of amplifier and filter product sales.

Note 17. Segment Information (cont.)

The Company evaluates performance of its operating segments based on revenue and operating profit (loss). Segment information for the years ended June 30, 2023 and 2022 are as follows (in thousands):

	Fabrication Services	RF Filters	Total
Year ended June 30, 2023			
Revenue	$ 8,984	$ 18,137	$ 27,121
Cost of revenue	5,512	24,725	30,237
Gross margin	3,472	(6,588)	(3,116)
Research and development	—	33,243	33,243
General and administrative	3,341	26,368	29,710
Income/(Loss) from Operations	**$ 131**	**$ (66,199)**	**$ (66,069)**
Year ended June 30, 2022			
Revenue	$ 1,870	$ 13,480	$ 15,350
Cost of Revenue	2,452	17,035	19,487
Gross Margin	(582)	(3,555)	(4,137)
Research and development	—	35,708	35,708
General and administrative	—	20,710	20,710
Loss from Operations	**$ (582)**	**$ (59,973)**	**$ (60,555)**
As of June 30, 2023			
Accounts receivable	$ 1,124	$ 3,629	$ 4,753
Property and equipment, net	2,394	55,432	57,826
As of June 30, 2022			
Accounts receivable	$ 572	$ 3,221	$ 3,793
Property and equipment, net	—	51,157	51,157

Note 18. Loss Per Share

Basic net loss per common share is computed by dividing net loss attributable to common stockholders by the weighted-average number of common shares outstanding during the period. Diluted net loss per common share is determined using the weighted-average number of common shares outstanding during the period, adjusted for the dilutive effect of common stock equivalents. In periods when losses are reported, which is the case for the years ended June 30, 2023 and 2022 presented in these consolidated financial statements, the weighted-average number of common shares outstanding excludes common stock equivalents because their inclusion would be anti-dilutive.

The Company had the following common stock equivalents at June 30, 2023 and 2022:

	June 30, 2023	June 30, 2022
Convertible Notes	9,341,825	9,341,825
Options	3,156,037	3,020,002
Warrants	—	41,103
Total	12,497,862	2,664,686

Note 19. Fair Value Measurement

Fair value is defined as the price that would be received upon selling an asset or the price paid to transfer a liability on the measurement date. It focuses on the exit price in the principal or most advantageous market for the asset or liability in an orderly transaction between willing market participants. A three-tier fair value hierarchy is established as a basis for considering such assumptions and for inputs used in the valuation methodologies in measuring fair value. This 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 values are as follows:

Level 1: Observable prices in active markets for identical assets and liabilities.

Level 2: Observable inputs other than quoted prices in active markets for identical assets and 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 and liabilities.

The following table classifies the liabilities measured at fair value on a recurring basis into the fair value hierarchy as of June 30, 2023 and 2022:

	Fair value at June 30, 2023	Level 1	Level 2	Level 3
Contingent consideration	$ —	$ —	$ —	$ —
Derivative liabilities	2,080	—	—	2,080
Total fair value	$ 2,080	$ —	$ —	$ 2,080

	Fair value at June 30, 2022	Level 1	Level 2	Level 3
Contingent consideration	$ 1,446	$ —	$ —	$ 1,446
Derivative liabilities	3,028	—	—	3,028
Total fair value	$ 4,474	$ —	$ —	$ 4,474

There were no transfers between levels during the year ended June 30, 2023.

The following table sets forth a summary of the changes in the fair value of Level 3 contingent consideration that are measured at fair value on a recurring basis:

Contingent consideration	June 30, 2023
Beginning balance	$ 1,446
Change in fair value of contingent consideration	(1,446)
Ending balance	**$ —**

The fair value of contingent consideration liabilities that was classified as Level 3 in the table above was estimated using a Monte Carlo simulation in an option pricing framework with significant inputs that are not observable in the market and thus represents a Level 3 fair value measurement as defined in ASC 820. The significant inputs in the Level 3 measurement not supported by market activity include the probability assessments of expected future sales revenue of RFMi products in each of calendar year 2022 and 2023 and the volatility of those revenues, appropriately discounted considering the uncertainties associated with the obligation, and as calculated in accordance with the terms of the acquisition agreements. The development and determination of the unobservable inputs for Level 3 fair value measurements and the fair value calculations are the responsibility of the Company’s chief financial officer and are approved by the chief executive officer.

Note 19. Fair Value Measurement (cont.)

During the year ended June 30, 2023, the Company reduced the contingent consideration liabilities to zero as the Company determined that the sales targets for calendar year 2022 were not met and the related earnout payment is not owed and the Company has estimated that the sales targets for calendar year 2023 will not be met.

The fair value of the contingent consideration liabilities on the balance sheet dates were valued with the following assumptions:

	June 30, 2023	June 30, 2022
Discount Rate	—	14.3% – 14.5%
Revenue volatility	30%	30%
Risk free interest rate	—	1.71% – 3.04%
Remaining term (years)	0.50	1.29 – 2.29

Fair Value of Embedded Derivatives	June 30, 2023
Beginning balance	$ 3,028
Initial fair value of make whole provision in convertible note	—
Initial fair value of change in control provision in convertible note	—
Change in fair value of convertible note derivatives	(948)
Ending balance	**$ 2,080**

The fair value of the embedded derivatives in our convertible note that were classified as Level 3 in the table above were estimated using a with and without approach on a lattice model framework with significant inputs that are not observable in the market and thus represent a Level 3 fair value measurement as defined in ASC 820. The significant inputs in the Level 3 measurement not supported by market activity include the probability and timing assessments of expected future change of control events, the volatility of our share price and the discount rate used to present value future cash payments under the convertible debt obligation. The development and determination of the unobservable inputs for Level 3 fair value measurements and the fair value calculations are the responsibility of the Company's chief financial officer and are approved by the chief executive officer.

The fair value of the embedded derivatives in our convertible notes on the issuance date and at the balance sheet date were valued with the following assumptions:

	June 30, 2023	June 30, 2022
Stock Price	$ 3.18	$ 3.70
Volatility of stock price	70%	70%
Risk free interest rate	4.32%	3.01%
Debt yield	40.6%	41.5%
Remaining term (years)	4.0	5.0

Note 20. Subsequent Events

The Company performed a review of events subsequent to the balance sheet date through the date the financial statements were issued and determined that there were no such events requiring recognition or disclosure in the financial statements.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Managements Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934 is (1) recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms and (2) accumulated and communicated to our management, including our principal executive officer and principal financial officer, to allow timely decisions regarding required disclosure.

As of June 30, 2023, our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934). Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost- benefit relationship of possible controls and procedures. Our Chief Executive Officer and Chief Financial Officer have concluded based upon the evaluation described above that, as of June 30, 2023, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Our internal control over financial reporting is designed to provide reasonable assurance to our management and board of directors regarding the preparation and fair presentation of published financial statements. Under the supervision and with the participation of our management, including our Chief Executive Officer and our Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control — Integrated Framework (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Based on our evaluation under the framework in Internal Control — Integrated Framework, our management concluded that our internal control over financial reporting was effective as of June 30, 2023.

The audited financial statements of the Company included in this annual report on Form 10-K include the results of acquisitions from their respective dates of acquisition. Management's assessment of internal control over financial reporting for the year ended June 30, 2023 does not include an assessment of GDSI, a majority owned subsidiary of the Company that was acquired on January 01, 2023. The financial statements of GDSI reflect total assets and net revenues constituting 14% and 14%, respectively, of the related consolidated financial statement amounts as of and for the year ended June 30, 2023. Refer to "Note 7 — Business Acquisitions" for a description of the acquisition of GDSI.

A control system, no matter how well designed and operated, can only provide reasonable, not absolute, assurance that the objectives of the control system are met. Because of these inherent limitations, management does not expect that our internal controls over financial reporting can prevent all error and all fraud. Our system contains self-monitoring mechanisms, and actions are taken to correct deficiencies as they are identified.

As we are not an "accelerated filer" under SEC rules, we are not required to provide an auditor's attestation of management's assessment of internal control over financial reporting as of June 30, 2023.

Changes in Internal Control over Financial Reporting

During the quarter ended June 30, 2023, there were no changes in our internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15(d)-15(f) promulgated under the Securities Exchange Act of 1934, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item is incorporated by reference to our Proxy Statement on Schedule 14A relating to our 2023 annual meeting of stockholders.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item is incorporated by reference to our Proxy Statement on Schedule 14A relating to our 2023 annual meeting of stockholders.

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

The information required by this Item is incorporated by reference to our Proxy Statement on Schedule 14A relating to our 2023 annual meeting of stockholders.

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

The information required by this Item is incorporated by reference to our Proxy Statement on Schedule 14A relating to our 2023 annual meeting of stockholders.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item is incorporated by reference to our Proxy Statement on Schedule 14A relating to our 2023 annual meeting of stockholders.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

The following Consolidated Financial Statements as set forth in Part II, Item 8 of this report are filed herein.

Consolidated Financial Statements

Consolidated Balance Sheets F-4
Consolidated Statements of Operations F-5
Consolidated Statements of Changes in Stockholders' Equity F-6
Consolidated Statements of Cash Flows F-7
Notes to Consolidated Financial Statements F-9

Financial Statement Schedules

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

Exhibits

EXHIBIT INDEX

Exhibit Number	Description
2.1	Plan of Conversion, dated December 15, 2016 *(incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed with the SEC on December 16, 2016)*
2.2	Definitive Asset Purchase Agreement dated March 23, 2017 by and between The Research Foundation for the State University of New York and the Company *(incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed with the SEC on March 24, 2017)*
2.3	Definitive Real Property Purchase Agreement dated March 23, 2017, by and between Fuller Road Management Corporation and the Company *(incorporated by reference to Exhibit 2.2 to the Company's Current Report on Form 8-K filed with the SEC on March 24, 2017)*
3.1	Articles of Conversion of the Company, filed with the Nevada Secretary of State on December 15, 2016 *(incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the SEC on December 16, 2016)*
3.2	Certificate of Conversion of the Company, filed with the Delaware Secretary of State on December 15, 2016 *(incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K filed with the SEC on December 16, 2016)*
3.3	Certificate of Incorporation, filed with the Delaware Secretary of State on December 15, 2016 *(incorporated by reference to Exhibit 3.3 to the Company's Current Report on Form 8-K filed with the SEC on December 16, 2016)*
3.4	Amended and Restated Bylaws of the Company *(incorporated by reference to Exhibit 3.5 to the Company's Quarterly Report on Form 10-Q filed with the SEC on May 1, 2020)*
3.5	Certificate of Amendment to the Certificate of Incorporation of the Company, filed with the Delaware Secretary of State on November 4, 2019 *(incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the SEC on November 6, 2019)*
3.6	Certificate of Amendment to the Certificate of Incorporation of the Company, filed with the Delaware Secretary of State on November 10, 2022 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the SEC on November 14, 2022)
4.1	Description of Common Stock of the Registrant Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (*incorporated by reference to Exhibit 4.8 to the Company's Annual Report on Form 10-K filed with the SEC on August 21, 2020)*
4.2	Indenture, dated as of June 9, 2022 by and among the Company, Akoustis, Inc. and The Bank of New York Mellon Trust Company, N.A. (*incorporated by reference to Exhibit 4.1 to the Company' Current Report on Form 8-K filed with the SEC on June 10, 2022*)
4.3	Form of 6.0% Convertible Senior Note due 2027 (*included in Exhibit 4.2*)

Exhibit Number	Description
4.4*	Secured Promissory Note issued to the representative of sellers of Grinding & Dicing Services, Inc.
10.1.1†	Akoustis, Inc. 2014 Stock Plan *(incorporated by reference to Exhibit 10.10 to the Company's Transition Report on Form 10-K filed with the SEC on October 31, 2016)*
10.1.2†	Declaration of Amendment to the Akoustis, Inc. 2014 Stock Plan *(incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed with the SEC on November 14, 2017)*
10.2.1†	Akoustis Technologies, Inc. 2015 Equity Incentive Plan *(incorporated by reference to Exhibit 10.10 to the Company's Current Report on Form 8-K filed with the SEC on May 29, 2015)*
10.2.2†	Form of Stock Option Agreement under the Akoustis Technologies, Inc. 2015 Equity Incentive Plan *(incorporated by reference to Exhibit 10.11 to the Company's Current Report on Form 8-K filed with the SEC on May 29, 2015)*
10.2.3†	Form of Restricted Stock Agreement, under the Akoustis Technologies, Inc. 2015 Equity Incentive Plan *(incorporated by reference to Exhibit 10.17 to the Company's Annual Report on Form 10-K filed with the SEC on June 29, 2016)*
10.3†	Employment Agreement between the Company and Jeffrey Shealy dated as of June 15, 2015 *(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on June 19, 2015)*
10.4†	Offer Letter from the Company to David M. Aichele *(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on May 30, 2017)*
10.5.1†	Akoustis Technologies, Inc. 2016 Stock Incentive Plan *(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on December 16, 2016)*
10.6.2†	Form of Restricted Stock Award Agreement under the Akoustis Technologies, Inc. 2016 Stock Incentive Plan *(incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed with the SEC on February 14, 2017)*
10.7.3†	Revised Form of Restricted Stock Award Agreement under the Akoustis Technologies, Inc. 2016 Stock Incentive Plan *(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on June 23, 2017)*
10.8.1	Akoustis Technologies, Inc. Director Compensation Program, effective September 7, 2020 *(incorporated by reference to Exhibit 10.8.1 to the Company's Annual Report on Form 10-K filed with the SEC on September 12, 2022)*
10.8.2	Akoustis Technologies Inc. Director Compensation Program, effective August 26, 2022 *(incorporated by reference to Exhibit 10.8.2 to the Company's Annual Report on Form 10-K filed with the SEC on September 12, 2022)*
10.09	Grant Agreement, dated as of July 24, 2018, by and among Akoustis Technologies, Inc., Akoustis, Inc. and the Town of Canandaigua *(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on July 27, 2018)*
10.10.1	Akoustis Technologies, Inc. 2018 Stock Incentive Plan *(incorporated by reference to Exhibit 10.40 of the Company's Annual Report on Form 10-K filed with the SEC on September 13, 2019)*
10.10.2†	Amendment to 2018 Stock Incentive Plan *(incorporated by reference to Appendix B of the Company's definitive proxy statement for its 2019 Annual Meeting of Stockholders, filed September 24, 2019)*
10.10.3†	Amendment to 2018 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed November 14, 2022)
10.10.4†	Form of Restricted Stock Unit Award Agreement under the Akoustis Technologies, Inc. 2018 Stock Incentive Plan *(incorporated by reference to Exhibit 4.10 to the Company's Registration Statement on Form S-8 filed with the SEC on November 16, 2018)*
10.10.5†	Form of Performance-Based Restricted Stock Unit Award Agreement under the Akoustis Technologies, Inc. 2018 Stock Incentive Plan *(incorporated by reference to Exhibit 4.11 to the Company's Registration Statement on Form S-8 filed with the SEC on November 16, 2018)*
10.10.6†	Form of Nonqualified Option Award Agreement under the Akoustis Technologies, Inc. 2018 Stock Incentive Plan (incorporated by reference to Exhibit 4.12 to the Company's Registration Statement on Form S-8 filed with the SEC on November 16, 2018)
10.11†	Akoustis Technologies, Inc. Employee Stock Purchase Plan *(incorporated by reference to Exhibit 10.41 of the Company's Annual Report on Form 10-K filed with the SEC on September 13, 2019)*

Exhibit Number	Description
10.12	Registration Rights Agreement, dated as of June 9, 2022, by and among the Company, Akoustis Inc. and the purchasers named therein (*incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on June 10, 2022*)
10.13	Separation Agreement & Release, dated as of July 5, 2022, by and between the Company and Rohan Houlden *(incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K filed with the SEC on September 12, 2022)*
10.14	Independent Contractor Agreement, dated as of July 5, 2022, by and between the Company and Rohan Houlden *(incorporated by reference to Exhibit 10.15 to the Company's Annual Report on Form 10-K filed with the SEC on September 12, 2022)*
10.15	Lease Agreement, dated November 2019, by and between CB Office 10, Ltd. and RFM Integrated Device Inc. *(incorporated by reference to Exhibit 10.16 to the Company's Annual Report on Form 10-K filed with the SEC on September 12, 2022)*
10.16*	Lease Agreement, dated January 1, 2023, by and among Saira Haq, Trustee of the Haq Family Trust, and Saira Haq, Trustee of the Non-Exempt Marital Trust dated May 26, 2006, and Grinding and Dicing Services, Inc.
10.17*	Stock Purchase Agreement, dated January 1, 2023, by and among the Company, Akoustis, Inc., Grinding & Dicing Services, Inc. and its stockholders
21.1*	Subsidiaries of the Company
23.1*	Consent of Marcum LLP
31.1*	Rule 13(a)-14(a)/15(d)-14(a) Certification of Principal Executive Officer
31.2*	Rule 13(a)-14(a)/15(d)-14(a) Certification of Principal Financial and Accounting Officer
32.1*	Section 1350 Certification of Principal Executive Officer
32.2*	Section 1350 Certification of Principal Financial and Accounting Officer
101*	Interactive Data Files of Financial Statements and Notes.
101.INS*	Inline XBRL Instance Document
101.SCH*	Inline XBRL Taxonomy Extension Schema Document.
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104*	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

* Filed herewith
† Management contract or compensatory plan or arrangement
†† Confidential portions of this exhibit have been omitted.

SIGNATURES

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

AKOUSTIS TECHNOLOGIES, INC.

Dated: September 6, 2023

By: /s/ Jeffrey B. Shealy
Jeffrey B. Shealy
President and Chief Executive Officer

In accordance with the Exchange Act, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

SIGNATURE	TITLE	DATE
/s/ Jeffrey B. Shealy Jeffrey B. Shealy	Chief Executive Officer (Principal Executive Officer), Director	September 6, 2023
/s/ Kenneth E. Boller Kenneth E. Boller	Chief Financial Officer (Principal Financial and Accounting Officer)	September 6, 2023
/s/ Arthur E. Geiss Arthur E. Geiss	Co-Chairman of the Board	September 6, 2023
/s/ Jerry D. Neal Jerry D. Neal	Co-Chairman of the Board	September 6, 2023
/s/ Steven P. DenBaars Steven P. DenBaars	Director	September 6, 2023
/s/ Jeffrey K. McMahon Jeffrey K. McMahon	Director	September 6, 2023
/s/ Suzanne B. Rudy Suzanne B. Rudy	Director	September 6, 2023
/s/ J. Michael McGuire J. Michael McGuire	Director	September 6, 2023
/s/ Michelle Petock Michelle Petock	Director	September 6, 2023