UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

☒ **Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the quarterly period ended March 31, 2019

or

☐ **Transition Report Pursuant Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the transition period from to .

Commission file number 001-36467

RESONANT INC.

(Exact name of registrant as specified in its charter)

Delaware	**45-4320930**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

175 Cremona Drive, Suite 200
Goleta, California 93117
(Address of principal executive offices, zip code)

(805) 308-9803

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value	RESN	The NASDAQ Stock Market LLC

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

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

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

Large accelerated filer	☐	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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes☐ No ☒

As of May 6, 2019, the issuer had 28,089,324 shares of common stock issued and outstanding.

RESONANT INC.

TABLE OF CONTENTS

PART I: FINANCIAL INFORMATION

Item 1. Financial Statements

RESONANT INC.
Condensed Consolidated Balance Sheets
(Unaudited)

	March 31, 2019	December 31, 2018
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 8,691,000	$ 4,394,000
Investments held-to-maturity	6,477,000	16,863,000
Accounts receivable	49,000	165,000
Prepaid expenses and other current assets	409,000	364,000
TOTAL CURRENT ASSETS	15,626,000	21,786,000
PROPERTY AND EQUIPMENT		
Property and equipment	3,901,000	3,784,000
Less: Accumulated depreciation and amortization	(2,015,000)	(1,797,000)
PROPERTY AND EQUIPMENT, NET	1,886,000	1,987,000
NONCURRENT ASSETS		
Intangible assets, net	1,426,000	1,374,000
Restricted cash	211,000	211,000
Goodwill	808,000	817,000
Operating lease right-of-use assets	2,928,000	—
Other assets	68,000	69,000
TOTAL NONCURRENT ASSETS	5,441,000	2,471,000
TOTAL ASSETS	$ 22,953,000	$ 26,244,000
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	$ 777,000	$ 695,000
Accrued expenses	275,000	464,000
Accrued salaries and payroll related expenses	1,453,000	1,835,000
Deferred revenue	204,000	271,000
Operating lease liabilities, current	134,000	—
TOTAL CURRENT LIABILITIES	2,843,000	3,265,000
LONG-TERM LIABILITIES		
Deferred rent	—	81,000
Operating lease liabilities, net of current portion	2,919,000	—
TOTAL LIABILITIES	5,762,000	3,346,000
Commitments and contingencies (Note 10)		
STOCKHOLDERS' EQUITY		
Common stock, $0.001 par value, 47,000,000 authorized and 27,648,287 outstanding as of March 31, 2019, and 27,391,290 outstanding as of December 31, 2018	27,000	27,000
Preferred stock, $0.001 par value, 3,000,000 authorized and none outstanding as of March 31, 2019 and December 31, 2018	—	—
Additional paid-in capital	116,890,000	115,450,000
Accumulated other comprehensive loss	(25,000)	(15,000)
Accumulated deficit	(99,701,000)	(92,564,000)
TOTAL STOCKHOLDERS' EQUITY	17,191,000	22,898,000
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 22,953,000	$ 26,244,000

See Accompanying Notes to Condensed Consolidated Financial Statements

RESONANT INC.
Condensed Consolidated Statements of Comprehensive Loss
(Unaudited)

	Three Months Ended March 31,	
	2019	**2018**
REVENUES	$ 134,000	$ 157,000
OPERATING EXPENSES		
Research and development	4,386,000	3,254,000
Sales, marketing and administration	2,985,000	2,665,000
TOTAL OPERATING EXPENSES	7,371,000	5,919,000
NET OPERATING LOSS	(7,237,000)	(5,762,000)
OTHER INCOME (EXPENSE)		
Interest and investment income	106,000	48,000
Other expense	(5,000)	(2,000)
TOTAL OTHER INCOME, NET	101,000	46,000
LOSS BEFORE INCOME TAXES	(7,136,000)	(5,716,000)
Provision for income taxes	1,000	—
NET LOSS	$ (7,137,000)	$ (5,716,000)
Foreign currency translation adjustment, net of tax	(10,000)	21,000
COMPREHENSIVE LOSS	$ (7,147,000)	$ (5,695,000)
NET LOSS PER SHARE - BASIC AND DILUTED	$ (0.26)	$ (0.28)
Weighted average shares outstanding — basic and diluted	**27,547,931**	**20,176,372**

See Accompanying Notes to Condensed Consolidated Financial Statements

RESONANT INC.
Condensed Consolidated Statements of Stockholders' Equity
For the Three Months Ended March 31, 2019 and 2018
(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance, January 1, 2019	27,391,290	$ 27,000	$ 115,450,000	$ (92,564,000)	$ (15,000)	$ 22,898,000
Vesting of restricted stock units	116,997	—	—	—	—	—
Stock-based compensation	—	—	1,040,000	—	—	1,040,000
Exercise of warrants	140,000	—	400,000	—	—	400,000
Net loss	—	—	—	(7,137,000)	—	(7,137,000)
Foreign currency translation adjustment, net of tax	—	—	—	—	(10,000)	(10,000)
Balance, March 31, 2019	27,648,287	$ 27,000	$ 116,890,000	$ (99,701,000)	$ (25,000)	$ 17,191,000

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance, January 1, 2018	19,511,276	$ 20,000	$ 88,447,000	$ (67,748,000)	$ (7,000)	$ 20,712,000
Vesting of restricted stock units	184,818	—	—	—	—	—
Stock-based compensation	—	—	1,108,000	—	—	1,108,000
Sales of common stock, net of offering costs	5,714,286	6,000	18,375,000	—	—	18,381,000
Exercise of warrants	15,000	—	43,000	—	—	43,000
Common stock issued in exchange for warrants	242,913	—	—	—	—	—
Net loss	—	—	—	(5,716,000)	—	(5,716,000)
Foreign currency translation adjustments, net of tax	—	—	—	—	21,000	21,000
Balance, March 31, 2018	25,668,293	$ 26,000	$ 107,973,000	$ (73,464,000)	$ 14,000	$ 34,549,000

See Accompanying Notes to Condensed Consolidated Financial Statements

RESONANT INC.
Condensed Consolidated Statements of Cash Flows
(Unaudited)

	Three months ended March 31, 2019	Three months ended March 31, 2018
CASH FLOWS FROM OPERATING ACTIVITIES		
Net Loss	$ (7,137,000)	$ (5,716,000)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	253,000	195,000
Stock-based compensation	1,354,000	963,000
Non-cash loss on disposal of assets	1,000	—
Non-cash investment income	(17,000)	—
Non-cash patent write-off	16,000	8,000
Changes in assets and liabilities:		
Accounts receivable	116,000	(95,000)
Prepaid expenses and other current assets	(45,000)	80,000
Restricted cash	—	(100,000)
Operating lease right-of-use assets	55,000	—
Other assets	1,000	—
Accounts payable	69,000	403,000
Accrued expenses	11,000	(79,000)
Accrued salaries and payroll related expenses	(696,000)	(526,000)
Customer deposits	—	130,000
Operating lease liabilities	(11,000)	—
Deferred revenue	(67,000)	—
Net cash used in operating activities	(6,097,000)	(4,737,000)
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchases of property and equipment	(303,000)	(519,000)
Expenditures for patents and domain names	(105,000)	(43,000)
Redemption of investments held-to-maturity	19,359,000	—
Purchase of investments held-to-maturity	(8,956,000)	(24,985,000)
Net cash provided by (used in) investing activities	9,995,000	(25,547,000)
CASH FLOWS FROM FINANCING ACTIVITIES		
Net proceeds from the sale of common stock from underwritten public offering	—	18,381,000
Proceeds from exercise of warrants	400,000	43,000
Net cash provided by financing activities	400,000	18,424,000
Effects of exchange rates on cash, cash equivalents and restricted cash	(1,000)	3,000
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	4,297,000	(11,857,000)
CASH, CASH EQUIVALENTS AND RESTRICTED CASH — Beginning of period	4,605,000	19,624,000
CASH, CASH EQUIVALENTS AND RESTRICTED CASH — End of period	$ 8,902,000	$ 7,767,000
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION		
Taxes Paid	$ 1,000	$ 3,000
SUPPLEMENTAL DISCLOSURE OF NON-CASH ACTIVITIES		
Restricted stock units issued in settlement of liability	$ —	$ 436,000
Property and equipment included in accounts payable	$ 124,000	$ 8,000
Property and equipment included in accrued liabilities	$ 92,000	$ —
Patents included in accounts payable	$ 23,000	$ 35,000
Patents included in accrued liabilities	$ 19,000	$ —

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the Condensed Consolidated Balance Sheets to the total of the same such amounts shown above:

	March 31,	
	2019	2018
Cash and cash equivalents	$ 8,691,000	$ 7,767,000
Restricted cash	211,000	—
Total cash, cash equivalents and restricted cash	$ 8,902,000	$ 7,767,000

See Accompanying Notes to Condensed Consolidated Financial Statements

RESONANT INC.
Notes to Condensed Consolidated Financial Statements

NOTE 1—ORGANIZATION AND DESCRIPTION OF BUSINESS

Overview

Resonant Inc. is a late-stage development company located in Goleta, California. We were incorporated in Delaware in January 2012 as a wholly owned subsidiary of Superconductor Technologies Inc., or STI. Resonant LLC, a limited liability company, was formed in California in May 2012. We changed our form of ownership from a limited liability company to a corporation in an exchange transaction in June 2013, when we commenced business. We are the successor of Resonant LLC. We completed our initial public offering, or IPO, on May 29, 2014. On July 6, 2016 we acquired all of the issued and outstanding capital stock of GVR Trade S.A, or GVR. GVR is a wholly owned subsidiary of Resonant Inc.

We have created an innovative software, intellectual property, or IP, and services platform that we believe has the ability to increase designer efficiency, reduce the time to market and lower unit costs in the designs of filters for radio frequency, or RF, front-ends for the mobile device industry. The RF front-end, or RFFE, is the circuitry in a mobile device responsible for analog signal processing and is located between the device's antenna and its digital circuitry. The software platform we continue to develop is based on fundamentally new technology that we call Infinite Synthesized Networks®, or ISN®, to configure and connect resonators, the building blocks of RF filters. Filters are a critical component of the RF front-end used to select desired radio frequency signals and reject unwanted signals.

We believe licensing our designs is the most direct and effective means of validating our ISN® platform and related IP libraries. Our target customers make part or all of the RFFE. We intend to retain ownership of our designs, and we expect to be compensated through license fees and royalties based on sales of RFFE filters that incorporate our designs.

Capital Resources and Liquidity

We use the net proceeds from the sales of our common stock for product development to commercialize our technology, research and development, the development of our patent strategy and expansion of our patent portfolio, as well as for working capital and other general corporate purposes.

We have earned minimal revenues since inception, and our operations have been funded with initial capital contributions and proceeds from the sale of equity securities and debt. At March 31, 2019 and December 31, 2018, we had incurred accumulated losses of $99.7 million and $92.6 million, respectively. The losses are primarily the result of research and development costs associated with commercializing our technology, combined with start-up, financing and public company costs. We expect to continue to incur substantial costs as we continue to engage customers, increase the number of devices under design and build the infrastructure to support our anticipated growth.

Our condensed consolidated financial statements account for the continuation of our business as a going concern. We are subject to the risks and uncertainties associated with a new business. Our principal sources of liquidity as of March 31, 2019 consist of existing cash, cash equivalents and investments totaling $15.2 million. In the three months ended March 31, 2019, we used approximately $6.5 million of cash and investments for operating activities, the purchase of property and equipment, and expenditures for patents. Due to these conditions, along with anticipated increases in expenses, substantial doubt exists as to our ability to continue as a going concern. After evaluation of these conditions, we believe our current resources, in the absence of material revenues, will provide sufficient funding for planned operations into the second half of 2019. If necessary, we will seek to raise additional capital from the sale of equity securities or the incurrence of indebtedness to allow us to continue operations. There can be no assurance that additional financing will be available to us on acceptable terms, or at all. Additionally, if we issue additional equity securities to raise funds, whether to existing investors or others, the ownership percentage of our existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Additionally, we may be limited as to the amount of funds we can raise pursuant to Securities and Exchange Commission, or SEC, rules and the continued listing requirements of NASDAQ. If we cannot raise needed funds, we might be forced to make substantial reductions in our operating expenses, which could adversely affect our ability to implement our business plan and ultimately our viability as a company. These condensed consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or amounts and classification of liabilities that might result from this uncertainty.

We have a Form S-3 universal shelf registration statement on file with the SEC. The universal shelf registration statement on Form S-3 permits us to sell, in one or more public offerings, shares of our common stock, shares of preferred stock or debt securities, or any combination of such securities and warrants to purchase securities, for proceeds in an aggregate amount of up to $50.0 million, subject to potential limitations on the amount of securities we may sell in any twelve-month period. The Form S-3 will expire in November 2021. No securities have been issued pursuant to the registration statement.

NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Use of Estimates—The accompanying unaudited condensed consolidated financial statements were prepared in accordance with accounting principles generally accepted in the United States ("GAAP") for interim financial information. Certain information and disclosures normally included in consolidated financial statements prepared in accordance with GAAP have been condensed or omitted. Accordingly, these condensed consolidated financial statements should be read in conjunction with our audited consolidated financial statements and the related notes included in our Annual Report for the year ended December 31, 2018 filed with the SEC on March 14, 2019. The year-end condensed balance sheet was derived from our audited consolidated financial statements. Our unaudited interim condensed consolidated financial statements include, in the opinion of management, all adjustments, consisting of normal and recurring items, necessary for the fair statement of the condensed consolidated financial statements. The operating results for the three months ended March 31, 2019 are not necessarily indicative of the results expected for the full year ending December 31, 2019. Prior period figures have been reclassified, wherever necessary, to conform to current presentation. Significant estimates made in preparing these financial statements include (a) assumptions to calculate the fair values of financial instruments, warrants and equity instruments and other liabilities and the deferred tax asset valuation allowance and (b) the useful lives for depreciable and amortizable assets. Actual results could differ from those estimates.

Consolidation —The accompanying financial statements include the accounts of the Company and its wholly-owned subsidiary, GVR Trade, S.A. All significant intercompany balances and transactions have been eliminated.

Cash and Cash Equivalents—We consider all liquid instruments purchased with a maturity of three months or less to be cash equivalents.

Concentration of Credit Risk—We maintain bank accounts atone U.S. financial institution. The U.S. bank accounts are insured by the Federal Deposit Insurance Corporation (FDIC) for up to $250,000 per account owner. GVR Trade S.A., our wholly owned Swiss-based subsidiary maintains checking accounts at one major national financial institution. Additionally, we maintain a checking account with a very minimal balance at one bank in South Korea, which is used to fund payroll and rent in South Korea. Management believes we are not exposed to significant credit risk due to the financial position of the depository institutions in which our deposits are held.

Restricted Cash—Restricted cash as of March 31, 2019 and December 31, 2018 consists of a $211,000 pledged mutual fund account which is held as collateral against a letter of credit issued in May 2018 in connection with the lease of our corporate headquarters. See also Note 9- Leases, for further details.

Investments—Securities held-to-maturity: Management determines the appropriate classification of debt securities at the time of purchase and reevaluates such designation as of each balance sheet date. Investment/debt securities are classified as held-to-maturity when we have the positive intent and ability to hold the securities to maturity. Held-to-maturity securities are stated at amortized cost, adjusted for amortization of premiums and accretion of discounts to maturity computed under the effective interest method. Such amortization is included in investment income. Interest on securities classified as held-to-maturity is included in interest and investment income.

When the fair value of an investment instrument classified as held-to-maturity is less than its amortized cost, management assesses whether or not: (i) we have the intent to sell the instrument or (ii) it is more likely than not that we will be required to sell the instrument before its anticipated recovery. If either of these conditions is met, we must recognize an other-than-temporary impairment for the difference between the instrument's amortized cost basis and its fair value, and include such amounts in other income (expense).

For investment instruments that do not meet the above criteria and are not expected to be recovered at the amortized cost basis, the instrument is considered other-than-temporarily impaired. For these instruments, we separate the total impairment into the credit loss component and the amount of the loss related to other factors. In order to determine the amount of the credit loss, we calculate the recovery value by performing a discounted cash flow analysis based on the current cash flows and future cash flows management expects to recover. The discount rate is the effective interest rate implicit in the underlying instrument. The amount of the total other-than-temporary impairment related to credit loss is recognized in earnings and is included in other income (expense). The amount of the total other-than-temporary impairment related to other factors is recognized in other comprehensive income. For investment instruments that have other-than-temporary impairment recognized through earnings, if through subsequent evaluation there is a significant increase in the cash flow expected, the difference between the amortized cost basis and the cash flows expected to be collected is accreted as interest income.

Fair Value of Financial Instruments—We measure certain financial assets and liabilities at fair value based on the exit price notion, or price that would be received for an asset or paid to transfer a liability, in an orderly transaction between the market participants at the measurement date. The carrying amounts of our financial instruments, including cash equivalents, restricted cash, investments held-to-maturity, accounts payable, and accrued liabilities, approximate fair value due to their short maturities.

Accounts Receivable—Trade accounts receivable are stated net of allowances for doubtful accounts. Management estimates the allowance for doubtful accounts based on review and analysis of specific customer balances that may not be collectible, customer payment history and any other customer-specific information that may impact ability to collect the receivable. Accounts are considered for write-off when they become past due and when it is determined that the probability of collection is remote. There was no allowance for doubtful accounts at March 31, 2019 and December 31, 2018.

Property and Equipment—Property and equipment consists of leasehold improvements associated with our corporate offices, software purchased during the normal course of business, equipment and office furniture and fixtures, all of which are recorded at cost. Depreciation and amortization is recorded using the straight-line method over the respective useful lives of the assets ranging from three to five years. Leasehold improvements are amortized over the shorter of lease term or useful life. Long-lived assets are reviewed for impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable.

Intangible Assets, net —Intangible assets are recorded at cost and amortized over the useful life. In the case of business combinations, intangible assets are recorded at fair value. At March 31, 2019 and December 31, 2018, intangible assets, net, includes patents and a domain name and other intangible assets purchased as part of our acquisition of GVR, including customer relationships, technology and a trademark. Intangible assets are reviewed for impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable. In certain cases, patents may expire or be abandoned as we no longer plan to pursue them. In such cases we write off the capitalized patent costs as patent abandonment costs which are included in research and development expenses.

Goodwill—At December 31, 2018 and March 31, 2019, goodwill represents the difference between the price paid to acquire GVR and the fair value of the assets acquired, net of assumed liabilities. We review goodwill for impairment annually and whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable. As of January 1, 2019, we have adopted ASU No. 2017-04, *Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, which simplifies the accounting for goodwill impairments by eliminating step 2 from the goodwill impairment test.

Revenue Recognition—We recognize revenue in accordance with the Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 606, *Revenue from Contracts with Customers.*

Revenue is recognized upon the transfer of control of promised goods or services to the customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. Revenue consists primarily of upfront non-refundable fees received in connection with filter design projects with customers and royalties. Our performance obligation is to design a licensable filter in accordance with customer specifications. The license of the completed design is considered part of this performance obligation as the design and licensing of the filter are highly interdependent. We recognize revenue over the course of the design development phase as our customers are able to benefit from our design services as they are provided, primarily by marketing the in-process design to their customers. We recognize revenue from our design services based on efforts expended to date. At the end of each reporting period, we reassess our measure of progress and adjust revenue when appropriate. We record the expenses related to these projects in the periods incurred and they are generally included in research and development expense.

In most cases, upfront non-refundable payments are recognized over a period of 12 to 18 months. Contracts generally include upfront non-refundable fees, intended to support our initial engineering product development efforts, and may include milestone payments based upon the successful completion of certain deliverables. Milestone payments represent variable consideration, and we use the "most likely amount" approach to determine the amount we ultimately expect to receive. At contract inception, we assess the likelihood of achieving milestones to estimate the total consideration we believe we will receive for our services.

Upon completion of design services, our customers retain a license over the completed design. The license will typically last for a minimum of two years, and in many cases for the life of the design. Royalties are sales-based, and we recognize royalty revenue upon shipment, by our customer, of products that include our licensed design. Payment is generally due within 30 days.

We apply the practical expedients available in ASC 606 to not disclose information about 1) remaining performance obligations that have original expected durations of one year or less and 2) variable consideration that is a sales-based or usage-based royalty.

Research and Development—Costs and expenses that can be clearly identified as research and development are charged to expense as incurred in accordance with ASC Topic 730-10, *Research and Development*.

Operating Leases—We lease office space and research facilities under operating leases. Certain lease agreements contain free or escalating rent payment provisions. As of January 1, 2019, we have adopted ASU No. 2016-02, *Leases (Topic 842)* as well as other clarifying and practical updates issued under *Leases (Topic 842)* applicable to us.

We determine if an arrangement is a lease at lease inception. Operating leases are included in right-of-use ("ROU") lease assets, other current liabilities (current portion of lease obligations), and long term lease obligations on our balance sheets. ROU lease assets represent our right to use an underlying asset for the lease term and lease obligations represent our obligation to make lease payments arising from the lease. Operating ROU lease assets and obligations are recognized at the commencement date based on the present value of lease payments over the lease term. As most of our leases do not provide an implicit rate, we use an incremental borrowing rate based on the information available at the commencement date in determining the present value of lease payments. The ROU lease asset also includes any lease payments made and excludes lease incentives. We evaluate renewal options at lease inception and on an ongoing basis, and include renewal options which we are reasonably certain to exercise in our expected lease term when classifying leases and measuring lease liabilities. We allocate the consideration between lease and nonlease components and exclude nonlease components from our recognized lease assets and liabilities. See also *Recent Accounting Pronouncements* and *Note 9*.

Minimum lease payments, including scheduled rent increases, are recognized as lease expenses on a straight-line basis over the applicable lease term. We recognize lease expenses within research and development and sales, marketing and administration expenses on a straight-line basis over the lease term.

We are not party to any leases for which we are the lessor.

Stock-Based Compensation—We account for stock options in accordance with ASC Topic 718, *Compensation-Stock Compensation.* We use the Black-Scholes option valuation model for estimating fair value at the date of grant.

We account for restricted stock units issued at fair value, based on the market price of our stock on the date of grant, net of estimated forfeitures. Compensation expense is recognized for the portion of the award that is ultimately expected to vest over the period during which the recipient renders the required services to the Company generally using the straight-line single option method.

In the case of award modifications, we account for the modification in accordance with ASU No. 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting*, whereby we recognize the effect of the modification in the period the award is modified.

As of January 1, 2019, we adopted ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Non-employee Share-Based Payment Accounting*, which aligns the accounting of share-based payment awards issued to employees and non-employees. The adoption did not materially impact our condensed consolidated financial statements.

Stock-based compensation expense is included in research and development expenses and general and administrative expenses.

Earnings Per Share, or EPS—EPS is computed in accordance with ASC Topic 260, *Earnings per Share*, and is calculated using the weighted average number of common shares outstanding during each period. Diluted EPS assumes the conversion, exercise or issuance of all potential common stock equivalents unless the effect is to reduce a loss or increase the income per share. Potential common shares consist of the incremental common shares issuable upon the exercise of stock options (using the treasury stock method), the exercise of warrants (using the if-converted method) and the vesting of restricted stock unit awards.

Income Taxes—We account for income taxes in accordance with ASC Topic 740, *Income Taxes*, or ASC 740, which requires the recognition of deferred tax assets and liabilities for the future consequences of events that have been recognized in our condensed consolidated financial statements or tax returns. The measurement of the deferred items is based on enacted tax laws. In the event the future consequences of differences between financial reporting bases and the tax bases of our assets and liabilities result in a deferred tax asset, ASC 740 requires an evaluation of the probability of being able to realize the future benefits indicated by such asset. A valuation allowance related to a deferred tax asset is recorded when it is more likely than not that some portion or the entire deferred tax asset will not be realized. As part of the process of preparing our condensed consolidated financial statements, we are required to estimate our income tax expense in each of the jurisdictions in which we operate. We also assess temporary differences resulting from differing treatment of items for tax and accounting differences. We record a valuation allowance to reduce the deferred tax assets to the amount of future tax benefit that is more likely than not to be realized. For the period when we were organized as a limited liability company, we were treated as a partnership for federal and state income tax purposes under the entity classification domestic default rules. As of March 31, 2019 and December 31, 2018, no liability for unrecognized tax benefits was required to be reported. We recognize interest and penalties related to income tax matters in income taxes, and there were none for the three months ended March 31, 2019 and 2018.

We have filed, or are in the process of filing, tax returns that are subject to audit by the relevant tax authorities. Although the ultimate outcome would be unknown, we believe that any adjustments that may result from tax return audits are not likely to have a material, adverse effect on our condensed consolidated results of operations, financial position or cash flows.

Foreign Currency Translation—The Swiss Franc has been determined to be the functional currency for the net assets of our Swiss-based subsidiary. We translate the assets and liabilities to U.S. dollars at each reporting period using exchange rates in effect at the balance sheet date and record the effects of the foreign currency translation in accumulated other comprehensive loss in shareholders' equity. We translate the income and expenses to U.S. dollars at each reporting period using the average exchange rate in effect for the period and record the effects of the foreign currency translation as other comprehensive income (loss) in the condensed consolidated statements of comprehensive loss. Gains and losses resulting from foreign currency transactions are included in net loss in the condensed consolidated statements of comprehensive loss.

Recent Accounting Pronouncements

Leases—In February 2016, the FASB issued ASU No. 2016-02,*Leases (Topic 842)*, which, among other things required the recognition of lease assets and lease liabilities on the balance sheet for substantially all leases, including operating leases. Expanded disclosures with additional qualitative and quantitative information are also required. ASU 2016-02 and its amendments are effective for interim and annual reporting periods beginning after December 15, 2018 and early adoption was permitted. The standard allows for two methods of transition, one of which allows for the guidance to be applied to all leases existing at the adoption date with a cumulative effect adjustment to the opening balance sheet of retained earnings. Under this transition approach, comparative periods presented in the financial statements remain under legacy lease guidance.

We adopted the standard, as well as certain practical expedients included therein, utilizing the optional transition method as of January 1, 2019. Therefore, we have not restated comparative periods in our 2019 financial statements and prior periods are not included in our leased properties footnote. The adoption did not have any cumulative adjustment impact on retained earnings. We elected the package of practical expedients permitted under the transition guidance, which allowed us to carry forward our historical assessments of: (1) whether contracts are or contain leases, (2) lease classification and (3) initial direct costs. In addition, we did not elect the hindsight practical expedient to determine the reasonably certain lease term for existing leases. We also elected a policy of not recording leases on our condensed consolidated balance sheets when the leases have a term of 12 months or less and we are not reasonably certain to elect an option to purchase the leased asset.

The adoption of the standard on January 1, 2019 caused us to recognize approximately $3.0 million in each, right-of-use assets and lease liabilities, in our condensed consolidated financial statements. The right-of-use asset balance reflects the impact of other liability amounts, specifically deferred rent, that has been effectively reclassified. The standard did not materially impact consolidated net income or liquidity.

NOTE 3—REVENUE RECOGNITION

We record contract assets and contract liabilities in connection with revenue recognized for filter design projects.

Contract Assets - Contract assets, other than accounts receivable, consist of unbilled revenue and generally arise when revenue is recognized on a contract whose transaction price includes an estimate of variable consideration from milestone payments. We do not have material amounts of contract assets as we have relatively few contracts, only modest design service fees and a small number of contracts containing milestone payments. Contract asset balances are included in prepaid expenses and other current assets in our condensed consolidated balance sheets.

Contract Liabilities - Our contract liabilities consist of customer deposits and deferred revenue. We classify contract liabilities as current or noncurrent based on the timing of when we expect to recognize revenue. Generally, our contract liabilities are expected to be recognized in one year or less. Customer deposits and deferred revenue are separately stated in our condensed consolidated balance sheets.

Summary of changes in contract assets and liabilities for the quarter ended March 31, 2019 and 2018:

	Three Months Ended March 31,	
	2019	2018
Contract assets		
Contract assets, beginning	$ 36,000	$ 67,000
Contract assets at beginning of year transferred to accounts receivable	—	(42,000)
Contract assets recorded on contracts during the period	13,000	2,000
Contract assets, ending	$ 49,000	$ 27,000
Contract liabilities		
Contract liabilities, beginning	$ 271,000	$ 140,000
Recognition of revenue included in beginning of year contract liabilities	(112,000)	(72,000)
Contract liabilities, net of revenue recognized on contracts during the period	45,000	208,000
Foreign currently translation	$ —	$ 2,000
Contract liabilities, ending	$ 204,000	$ 278,000

The following table presents our disaggregated revenue by region and source:

	Three Months Ended March 31,	
	2019	2018
Revenue by geographic region:		
United States	$ 134,000	$ 137,000
Switzerland	—	20,000
Total revenue	$ 134,000	$ 157,000
Revenue by source:		
Design services	$ 125,000	$ 107,000
Royalties	9,000	50,000
Total revenue	$ 134,000	$ 157,000

NOTE 4—INVESTMENTS HELD-TO-MATURITY

We classify investments as held-to-maturity when we have the positive intent and ability to hold the securities to maturity.

During the three months ended March 31, 2019, we invested in commercial papers that were classified as investments held-to-maturity. As of March 31, 2019, both amortized cost value and fair value were $6.5 million with zero unrealized gain or loss. Remaining commercial papers in the amounts of $2.5 million, $1.5 million, $1.5 million and $1.0 million mature in April, May, June and August of 2019, respectively. We did not recognize an other-than-temporary impairment or comprehensive gain or loss for the three months ended March 31, 2019.

We recorded interest and investment income of $106,000 and $48,000 for the three months ended March 31, 2019 and 2018, respectively, associated with our cash and investment accounts.

NOTE 5—WARRANTS

From time to time, we have issued warrants to purchase shares of common stock. These warrants have been issued in connection with the financing transactions and consulting services. Our warrants are subject to standard anti-dilution provisions applicable to shares of our common stock.

In January 2018, we entered into an agreement with our founders to exchange warrants to purchase an aggregate of 249,999 shares of our common stock, with an exercise price of $0.20 per share, for an amount of shares that would equal the number of shares they would have received if exercised under a cashless exercise. The effect of exchanging the warrants for shares of our common stock was considered a modification of the award which required us to record expense for the excess of the fair value of the common stock issued over the fair value of the exchanged warrants. On the date of the exchange the fair value of the warrants was determined to be $1.6 million and the fair value of the shares of common stock issued were $1.6 million. There was a difference in fair value of $2,000 which was recorded to sales, marketing and administration expenses during the three months ended March 31, 2018. No expense was recorded in the three months ended March 31, 2019.

A roll-forward of warrant share activity from January 1, 2018 to March 31, 2018 is shown in the following table:

	Issued and Outstanding Warrants as of January 1, 2018	Warrants Exercised/ Expired		Issued and Outstanding Warrants as of March 31, 2018
Bridge Warrants	249,999	(249,999)	(1)	—
Consulting Warrants	12,223	—		12,223
Financing Warrants	62,530	—		62,530
Underwriting Warrants	310,500	—		310,500
IR Consulting Warrants	6,000	—		6,000
Private Placement Warrants - 2016	891,063	(15,000)	(2)	876,063
Underwriting Warrants - Public Offering 2016	122,175	—		122,175
Private Placement Warrants - September 2017	1,976,919	—		1,976,919
Placement Agent Warrants	98,846	—		98,846
	3,730,255	(264,999)		3,465,256

(1) During the three months ended March 31, 2018, there were 249,999 warrants that were exchanged for 242,913 shares of common stock in an exchange transaction where the warrant holders exchanged the warrants for the same number of shares they would have been entitled to in a cashless exercise.

(2) During the three months ended March 31, 2018, there were 15,000 warrants exercised for cash.

A roll-forward of warrant share activity from January 1, 2019 toMarch 31, 2019 is shown in the following table:

	Exercise Price	Expiration Date	Issued and Outstanding Warrants as of January 1, 2019	Warrants Exercised/ Expired	Issued and Outstanding Warrants as of March 31, 2019
Consulting Warrants	$0.01	6/17/2020	6,667	—	6,667
Financing Warrants	$3.35	6/17/2020	62,530	—	62,530
Underwriting Warrants	$7.50	5/28/2019	310,500	—	310,500
Private Placement Warrants - 2016	$2.86	4/25/2019	818,063	(140,000) (1)	678,063
Underwriting Warrants - Public Offering 2016	$4.25	9/9/2019	122,175	—	122,175
Private Placement Warrants - September 2017	$4.85	9/28/2020	1,966,319	—	1,966,319
Placement Agent Warrants	$4.85	9/28/2020	98,846	—	98,846
			3,385,100	(140,000)	3,245,100

(1) During the three months ended March 31, 2019, there were 140,000 warrants exercised for cash.

NOTE 6—STOCKHOLDERS' EQUITY AND LOSS PER SHARE

Common Stock

Pursuant to our amended and restated certificate of incorporation, we are authorized to issue47,000,000 shares of common stock. Holders of our common stock are entitled to dividends as and when declared by the Board of Directors, subject to rights and holders of all classes of stock outstanding having priority rights to dividends. There have been no dividends declared to date. Each share of common stock is entitled to one vote.

On March 27, 2018, we completed the sale of5,714,286 shares of common stock at a price of$3.50 per share in an underwritten public offering. Gross proceeds were $20.0 million with net proceeds of $18.4 million after deducting underwriter fees and offering expenses. The shares were issued pursuant to a shelf registration statement that we filed with the SEC, which became effective in May 2016. On April 6, 2018, following exercise by the underwriter of its overallotment option, we sold an additional857,142 shares at a price of $3.50, resulting in gross proceeds of$3.0 million and net proceeds of $2.8 million after deducting underwriter fees and offering expenses.

We have a Form S-3 universal shelf registration statement on file with the SEC. The universal shelf registration statement on Form S-3 permits us to sell, in one or more public offerings, shares of our common stock, shares of preferred stock or debt securities, or any combination of such securities and warrants to purchase securities, for proceeds in an aggregate amount of up to $50.0 million, subject to potential limitations on the amount of securities we may sell in any twelve-month period. The Form S-3 will expire in November 2021. No securities have been issued pursuant to the registration statement.

Preferred Stock

Pursuant to our amended and restated certificate of incorporation, we are authorized to issue3,000,000 shares of preferred stock. The Board of Directors has the authority, without action by our stockholders, to designate and issue shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. To-date, no preferred shares have been issued.

Stock Repurchase Program

On November 26, 2018, we announced that our board of directors had authorized a program to repurchase up to$4.0 million of our common stock over a 12-month period, either in the open market or through privately negotiated transactions. As of December 31, 2018, we had repurchased approximately $152,000. No purchases were made in the quarter ended March 31, 2019.

Loss Per Share

The following table presents the number of shares excluded from the calculation of diluted net loss per share attributable to common stockholders for the periods below:

	Three Months Ended March 31,	
	2019	2018
Common stock warrants	3,245,100	3,465,256
Common stock options	1,294,028	1,080,152
Non-vested restricted stock unit awards	2,548,400	1,555,769
Total shares excluded from net loss per share attributable to common stockholders	7,087,528	6,101,177

NOTE 7— STOCK-BASED COMPENSATION

2014 Omnibus Incentive Plan

In January 2014, our board of directors approved the 2014 Omnibus Incentive Plan and amended and restated the plan in March 2014. Our stockholders approved the Amended and Restated 2014 Omnibus Incentive Plan, or the 2014 Plan, in March 2014. Our 2014 Plan initially permitted for the issuance of equity-based instruments covering up to a total of 1,400,000 shares of common stock. In June 2016, our board of directors and stockholders approved an increase of 1,300,000 shares and in June 2017 approved an additional increase of 3,250,000 shares of common stock bringing the total shares allowed under the plan to 5,950,000.

Option Valuation

We account for stock options in accordance with ASC Topic 718, *Compensation-Stock Compensation*. As of January 1, 2019, we adopted ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Non-employee Share-Based Payment Accounting*, which aligns the accounting of share-based payment awards issued to employees and non-employees.

We use the Black-Scholes option valuation model for estimating fair value at the date of grant. Option forfeitures are estimated at the time of valuation and reduce expense ratably over the vesting period. This estimate will be adjusted periodically based on the extent to which actual option forfeitures differ, or are expected to differ, from the previous estimate, when it is material. The expected term used for options is the estimated period of time that options granted are expected to be outstanding. We have estimated the expected life of stock options using the "simplified" method, whereby, the expected life equals the arithmetic average of the vesting term and the original contractual term of the option due to our lack of sufficient historical data. Since our stock has not been publicly traded for a sufficiently long period of time, we are utilizing an expected volatility figure based on a review of the historical volatilities, over a period of time, equivalent to the expected life of the instrument being valued, of similarly positioned public companies within our industry. The risk-free interest rate was determined from the implied yields from U.S. Treasury zero-coupon bonds with a remaining term consistent with the expected term of the instrument being valued.

Stock Options

During the three months ended March 31, 2018, we granted incentive stock options for the purchase of 37,500 shares of our common stock. The stock options have an exercise price range of $5.01 per share to $5.96 per share with a term of 10 years. The stock options vest quarterly over sixteen quarters. The options granted had an aggregate grant date fair value of $141,000 utilizing the Black-Scholes option valuation model.

During the three months ended March 31, 2019, we granted incentive stock options for the purchase 40,000 shares of our common stock. The stock options have an exercise price range of $1.52 per share to $2.98 per share with a term of 10 years. The stock options vest quarterly over sixteen quarters. The options granted had an aggregate grant date fair value of $60,000 utilizing the Black-Scholes option valuation model.

We estimated the fair value of stock options awarded during the three months ended March 31, 2019 and 2018 using the Black-Scholes option valuation model. The fair values of stock options granted for the periods were estimated using the following assumptions:

	Stock Option Grants Awarded During the Three Months Ended March 31, 2019	Stock Option Grants Awarded During the Three Months Ended March 31, 2018
Stock Price	$1.52 to $2.98	$5.01 to $5.96
Dividend Yield	0.00%	0.00%
Expected Volatility	70%	70%
Risk-free interest rate	2.52% - 2.62%	2.50% - 2.61%
Expected Life	7 years	7 years

Stock-based compensation expense related to stock options was$96,000 and $107,000 for the three months ended March 31, 2019 and 2018, respectively, exclusive of options issued in connection with our incentive programs. For all stock options, we estimate forfeitures at the time of grant, and revise those estimates in subsequent periods if actual forfeitures differ from our estimates. We use historical data to estimate pre-vesting option forfeitures and record stock-based compensation expense only for those awards that are expected to vest. To the extent that actual forfeitures differ from our estimates, the difference is recorded as a cumulative adjustment in the period the estimates were revised. During the three months ended March 31, 2019 and 2018, we applied a forfeiture rate of 10% and 6%, respectively, which is reflected in our stock-based compensation expense related to stock options.

Stock Option Award Activity

The following is a summary of our stock option activity during thethree months ended March 31, 2019:

	Number of Options	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Weighted Average Remaining Life In Years
Outstanding, January 1, 2019	1,255,280	$ 4.82	$ 3.03	7.75
Granted	40,000	2.23	1.51	9.84
Exercised	—	—	—	—
Canceled / Forfeited	(1,252)	4.62	2.79	—
Outstanding, March 31, 2019	1,294,028	$ 4.74	$ 2.98	7.57

	Number of Options	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Weighted Average Remaining Life In Years
Exercisable, January 1, 2019	843,019	$ 5.02	$ 3.13	7.23
Vested	42,436	4.37	2.74	8.01
Exercised	—	—	—	—
Canceled / Forfeited	(1,252)	4.62	2.79	—
Exercisable, March 31, 2019	884,203	$ 4.99	$ 3.11	7.04

The following table presents information related to stock options outstanding and exercisable atMarch 31, 2019:

Options Outstanding		Options Exercisable	
Exercise Price	Outstanding Number of Options	Weighted Average Remaining Life In Years	Exercisable Number of Options
$1.52 – $3.00	201,183	6.87	109,889
$3.25 – $4.92	651,045	8.21	413,854
$5.01 – $6.00	281,500	5.70	220,775
$6.18 – $7.20	70,000	5.79	56,255
$7.54 – $7.80	67,800	5.88	60,930
$8.06 – $12.98	22,500	5.80	22,500
	1,294,028	7.04	884,203

As of March 31, 2019, there was $1.0 million of unrecognized compensation expense related to unvested employee stock options, which is expected to be recognized over a weighted-average period of approximately 2.7 years. The aggregate intrinsic values of outstanding stock options and vested stock options as of March 31, 2019 were $208,000 and $114,000, respectively, which represent options whose exercise price was less than the closing fair market value of our common stock on March 31, 2019 of $3.00 per share.

Restricted Stock Units Activity

We account for restricted stock units issued at fair value, based on the market price of our stock on the date of grant, net of estimated forfeitures. RSUs issued in connection with our employee incentive programs typically vest within 10 days of grant. All other RSUs, primarily issued as long term incentives, generally vest annually over three to four years.

During the three months ended March 31, 2019 and 2018 we recorded $938,000 and $566,000, respectively, of stock-based compensation related to the restricted stock unit shares that had been issued to-date.

A summary of restricted stock unit activity for the three months ended March 31, 2019 is as follows:

	Number of Restricted Share Units	Weighted-Average Grant-Date Fair Value Per Share
Outstanding at January 1, 2019	1,921,594	$ 4.78
Granted	743,803	3.25
Vested	(116,997)	5.50
Forfeited	—	—
Outstanding at March 31, 2019	2,548,400	$ 4.30

As of March 31, 2019, there was $7.8 million of unrecognized compensation expense related to unvested restricted stock unit agreements which is expected to be recognized over a weighted-average period of approximately 2.4 years. For restricted stock unit awards subject to graded vesting, we recognize compensation cost on a straight-line basis over the service period for the entire award.

Market-based Awards

In August 2016, we granted 250,000 market-based restricted stock units to an executive. The restricted stock units are subject to market-based vesting requirements, measured quarterly, based on the average of (a) the average high daily trading price of our common stock for each trading day during the last month of the applicable calendar quarter and (b) the average low daily trading price of our common stock for each trading day during the last month of the applicable calendar quarter, each as reported by The Nasdaq Stock Market, LLC. The restricted stock units are eligible to be earned on a quarterly basis based on a linear interpolation of the applicable share price, or in the case of a liquidation event, on the day of (or in connection with) such liquidation event based on the applicable transaction price. Once earned, the restricted stock units vest 50% on the date such restricted stock units become earned and 50% on September 30, 2019. We recognize compensation expense for restricted stock units with market conditions using a graded vesting model, based on the probability of the performance condition being met, net of estimated pre-vesting forfeitures. The share price on the date of issuance was $5.06 per share. For the three months ended March 31, 2019 and 2018, we recognized $6,000 and $6,000, respectively, of stock compensation expense in connection with this award, which is included in general and administrative expenses. The unamortized expense related to this award is$12,000 and is expected to be recognized over0.5 years.

Incentive Bonus Awards

We provide eligible employees, including executives, the opportunity to earn bonus awards upon achievement of predetermined performance goals and objectives. The purpose is to reward attainment of company goals and/or individual performance objectives, with award opportunities expressed as a percentage of base salary. Bonuses can be measured and paid quarterly and/or annually, and are paid in cash, equity or a combination of cash and equity, in the discretion of our compensation committee. During the three months ended March 31, 2019 and 2018 we recorded $314,000 and $284,000, respectively, of stock-based compensation related to incentive bonus award programs.

Total stock-based compensation recorded in the condensed consolidated statements of comprehensive loss is allocated as follows:

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018
Research and development	$ 633,000	$ 531,000
Sales, marketing and administration	721,000	432,000
Total stock-based compensation	$ 1,354,000	$ 963,000

NOTE 8—INCOME TAXES

Income tax for the three months ended March 31, 2019 was$1,000. Income tax for the three months ended March 31, 2018 was$0. The effective tax rate for the three months ended March 31, 2019 and 2018 differed from the statutory rate primarily due to the valuation allowance recorded against the Company's deferred tax assets.

NOTE 9— LEASES

We lease facilities under two non-cancelable operating leases. The leases expire between January 2022 and August 2024 and include renewal provisions fortwo to five years, provisions which require us to pay taxes, insurance, maintenance costs or provisions for minimum rent increases. We also lease facilities and equipment under short-term agreements for a period of 12 months or less. All of the information presented below, with the exception of total lease costs, relates to our two non-cancelable operating leases.

One lease requires us to maintain a cash security deposit of$50,000 and also a $200,000 letter of credit in favor of the lessor. The letter of credit steps down $50,000 at each anniversary date if there have been no monetary defaults. The letter of credit is secured by a pledge in favor of the issuing bank of a $211,000 mutual fund account which is classified as restricted cash in our balance sheet.

Lease renewal options are at our discretion. No renewal options have been recognized in our right-of-use assets and lease liabilities as of March 31, 2019. Our lease agreements do not require material variable minimum lease payments, residual value guarantees or restrictive covenants.

The table below presents the operating lease assets and liabilities recognized on the condensed consolidated balance sheet as ofMarch 31, 2019:

	Balance Sheet Line Item	March 31, 2019
Operating lease assets	Operating lease right-of-use assets	$ 2,928,000
Current operating lease liabilities	Operating lease liabilities, current	$ 134,000
Noncurrent operating lease liabilities	Operating lease liabilities	$ 2,919,000
Total operating lease liabilities	N/A	$ 3,053,000

The depreciable lives of operating lease assets and leasehold improvements are limited by the expected lease term.

Our leases generally do not provide an implicit rate, and therefore we use our incremental borrowing rate as the discount rate when measuring operating lease liabilities. The incremental borrowing rate represents an estimate of the interest rate we would incur at lease commencement to borrow an amount equal to the lease payments on a collateralized basis over the term of the lease. We used a weighted average incremental borrowing rate of 4.75% as of January 1, 2019 for operating leases that commenced prior to that date. The discount rates applied to each lease reflect our estimated incremental borrowing rate. This includes an assessment of our credit rating to determine the rate that we would have to pay to borrow, on a collateralized basis for a similar term, an amount equal to our lease payments in a similar economic environment.

The Company's weighted average remaining lease term and weighted average discount rate for operating leases as ofMarch 31, 2019 is shown below:

	March 31, 2019
Weighted average remaining lease term (years)	4.93
Weighted average discount rate (%)	4.75

The table below reconciles the undiscounted future minimum lease payments (displayed by year and in the aggregate) under non-cancelable leases with terms of more than one year to the total operating lease liabilities recognized on the condensed consolidated balance sheets as of March 31, 2019:

		March 31, 2019
April 1, 2019 through December 31, 2019	$	485,000
2020		726,000
2021		748,000
2022		557,000
2023		555,000
2024		376,000
Total undiscounted future minimum lease payments	$	3,447,000
Less: imputed interest	$	394,000
Total operating lease liabilities	$	3,053,000

Operating lease costs were $264,000 for the three months ended March 31, 2019, of which $197,000 and $67,000 are included in research and development expenses and sales, marketing and administration expenses, respectively. Prior to the adoption of ASC 842, we recorded rent expense for the three months ended March 31, 2018 of $142,000, which was included in sales, marketing and administration expenses.

Cash paid for amounts included in the measurement of operating lease liabilities were$134,000 for the three months ended March 31, 2019, and this amount is included in operating activities in the condensed consolidated statements of cash flows.

The future minimum obligations under operating leases in effect as of December 31, 2018 having a noncancelable term in excess of one year as determined prior to the adoption of ASU 942 are as follows:

		December 31, 2018
2019	$	620,000
2020		726,000
2021		748,000
2022		557,000
2023		555,000
2024		376,000
Future minimum obligations	$	3,582,000

NOTE 10— COMMITMENTS AND CONTINGENCIES

Legal Proceedings—We are not party to any legal proceedings. We may, from time to time, be party to litigation and subject to claims incident to the ordinary course of business. As our growth continues, we may become party to an increasing number of litigation matters and claims. The outcome of litigation and claims cannot be predicted with certainty, and the resolution of any future matters could materially affect our future financial position, results of operations or cash flows.

Legal fees and other costs associated with legal proceedings are expensed as incurred. We assess, in conjunction with our legal counsel, the need to record a liability for litigation and contingencies. Litigation accruals are recorded when and if it is determined that a loss related matter is both probable and reasonably estimable. Material loss contingencies that are reasonably possible of occurrence, if any, are subject to disclosure. We evaluate developments in legal proceedings and other matters on a quarterly basis. As of March 31, 2019 and 2018, there was no litigation or contingency with at least a reasonable possibility of a material loss. No losses have been recorded during the three months ended March 31, 2019 and 2018, respectively, with respect to litigation or loss contingencies.

Intellectual Property Indemnities—We indemnify certain customers and manufacturers against liability arising from third-party claims of intellectual property rights infringement related to our products. These indemnities may appear in license agreements, development agreements and manufacturing agreements, may not be limited in amount or duration and generally survive the expiration date of the contract. Given that the amount of any potential liabilities related to such indemnities cannot be determined until an infringement claim has been made, we are unable to determine the maximum amount of losses that we could incur related to such indemnifications.

Director and Officer Indemnities and Contractual Guarantees—We have entered into indemnification agreements with our directors and executive officers, which require us to indemnify such individuals to the fullest extent permitted by Delaware law. Our indemnification obligations under such agreements are not limited in amount or duration. Certain costs incurred in connection with such indemnifications may be recovered under certain circumstances under various insurance policies. Given that the amount of any potential liabilities related to such indemnities cannot be determined until a lawsuit has been filed, we are unable to determine the maximum amount of losses that we could incur relating to such indemnities.

We have also entered into severance and change in control agreements with certain of our executives. These agreements provide for the payment of specific compensation benefits to such executives upon the termination of their employment with us.

Guarantees and Indemnities—In the normal course of business, we are occasionally required to undertake indemnification for which we may be required to make future payments under specific circumstances. We review our exposure under such obligations no less than annually, or more frequently as required. The amount of any potential liabilities related to such obligations cannot be accurately determined until a formal claim is filed. Historically, any such amounts that become payable have not had a material negative effect on our business, financial condition or results of operations. We maintain general and product liability insurance which may provide a source of recovery to us in the event of an indemnification claim.

NOTE 11— SUBSEQUENT EVENTS

In April 2019 we received approximately $1.0 million from Park City Capital, one of our largest investor's exercise of Private Placement Warrants - 2016, which resulted in the issuance of 345,000 shares of our common stock.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. The words "believe," "may," "will," "potentially," "estimate," "continue," "anticipate," "intend," "could," "would," "project," "plan," "expect" and similar expressions that convey uncertainty of future events or outcomes are intended to identify forward-looking statements. These forward-looking statements speak only as of the date of this Form 10-Q and are subject to uncertainties, assumptions and business and economic risks. As such, our actual results could differ materially from those set forth in the forward-looking statements as a result of the factors referenced in the subsection "Risk Factors" set forth in Part II, Item 1A of this Report and Part I, Item 1A of our Annual Report, and similar discussions in our other reports filed with the Securities and Exchange Commission. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this Form 10-Q to conform these statements to actual results or to changes in our expectations, except as required by law.

The following discussion should be read in conjunction with our unaudited condensed consolidated financial statements and notes thereto appearing elsewhere in this Quarterly Report on Form 10-Q with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Overview

We are a late-stage development company that designs filters for the mobile device industry. We have not yet realized material revenues and our focus is on continuing to engage new customers, expand the number of contracts for filter designs and build the necessary infrastructure to support anticipated growth. Consequently, our expenses will continue to modestly increase as we position for a ramp in royalty revenues.

We plan to expand our IP libraries and further the development of our ISN® platform. While we remain a filter design licensing company, we are also investigating the potential of licensing part or all of our ISN® software design suite and certain patents to potential customers in the RFFE industry. However, we intend to retain ownership of our technology, software, designs and related improvements. Our goal is to establish and leverage alliances with new and existing customers, who will help grow the market for our designs by integrating them with their own proprietary technology and products, or by using our software products for their own designs, thus combining their own particular strengths with ours to provide an extensive array of solutions.

Our costs include employee salaries and benefits, compensation paid to consultants, capital costs for research and other equipment, costs associated with development activities including travel and administration, legal expenses, sales and marketing costs, general and administration expenses, and other costs associated with a late-stage development, publicly-traded technology company. We continue to add employees to support the development of our ISN® platform, applications and system test, research and development, as well as sales, marketing and administration functions, to support our efforts.

The amounts that we actually spend for any specific purpose may vary significantly and will depend on a number of factors including, but not limited to, our expected cash resources, the pace of progress of our commercialization and development efforts, actual needs with respect to product testing, research and development, market conditions, and changes in or revisions to our marketing strategies. In addition, we may invest in complementary products, technologies or businesses.

Critical Accounting Policies and Estimates

Our discussion and analysis of financial condition and results of operations is based upon our condensed consolidated financial statements, which have been prepared in conformity with accounting principles generally accepted in the United States of America. 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 their 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.

A description of our critical accounting policies that represent the more significant judgments and estimates used in the preparation of our financial statements was provided in the Management's Discussion and Analysis of Financial Condition and Results of Operations section of our Annual Report on Form 10-K for the year ended December 31, 2018. Except for the adoption of ASU No. 2016-02, *Leases (Topic 842)* and ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Non-employee Share-Based Payment Accounting*, there have been no changes to our critical accounting policies and estimates described in the Annual Report on Form 10-K for the year ended December 31, 2018 that have had a material impact on our condensed consolidated financial statements and related notes.

Recently Issued and Adopted Accounting Pronouncements

Recent accounting pronouncements are detailed in Note 2 to our condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Results of Operations

Comparison of the Three Months Ended March 31, 2019 and 2018

Revenues. Revenues consist of the recognized portion of amounts received from customers for the development of our filter designs, milestone payments based on the achievement of specific milestones and royalties from shipments of our licensed designs. Revenues consist of the recognized portion of the transaction price associated with our contracts from customers recognized over time as the obligations under the terms of the contract are satisfied. Generally, the transaction price includes both upfront and milestone payments which we expect to receive in exchange for providing services. For the three months ended March 31, 2019 and 2018, we recognized a total of $134,000 and $157,000, respectively, of revenue. We expect revenues to continue to be recorded due to the $204,000 of deferred revenue we have recorded as of March 31, 2019. Additionally, we expect to continue to recognize royalty revenue from our license agreements.

Research and Development. These expenses relate to direct engineering and other costs associated with the development and commercialization of our technology, including the development of filter designs for our customers and consist primarily of the compensation costs of employees, including stock-based compensation, and to a lesser extent, development related costs for consultants, equipment, software and supplies. We also include the costs for our intellectual property development program under research and development. This program focuses on patent strategy and invention extraction.

Research and development expenses increased $1.1 million, from $3.3 million in the first quarter of 2018 to $4.4 million in the first quarter of 2019. The increase was primarily related to higher compensation expense of $477,000 from increased headcount, as well as higher development costs of $307,000 related to expanded activity on our ISN® platform, XBAR™ and filter design development. The remainder of the increase relates to increased occupancy costs and miscellaneous other expenses. We have increased our research and development employees over the past twelve months. We anticipate that our research and development expenses will continue to increase as a result of our planned growth.

Sales, Marketing and Administration Expenses. These expenses relate to our sales and marketing efforts and our back-office support and include compensation costs of employees, including stock-based compensation. They also include expenses for facilities, travel expenses, telecommunications, investor relations, insurance and professional and consulting fees.

Sales, marketing and administration expenses increased $0.3 million, from $2.7 million in the first quarter of 2018 to $3.0 million in the first quarter of 2019. The increase primarily results from increased payroll costs of $511,000 related to increased headcount, partially offset by decreased professional fees of $185,000 occurring in the three months ended March 31, 2018 relating to an anticipated proxy contest which did not occur again in the three months ended March 31, 2019. We anticipate that our sales, marketing and administration expenses will likely continue to increase as a result of planned growth.

Interest and Investment Income. Interest and investment income increased by $58,000 from $48,000 in the first quarter of 2018 to $106,000 in the first quarter of 2019, primarily due to increased cash and investment balances outstanding. We expect interest income to fluctuate in proportion to our cash and investment balances.

Income Taxes. We have earned minimal revenues and are currently operating at a loss. In the three months ended March 31, 2019 and 2018, our only tax liability was for minimum taxes in the states where we conduct business.

Liquidity and Capital Resources

Financing Activities

We have earned minimal revenues since inception. Our operations have been funded with initial capital contributions and proceeds from the sale of equity securities and debt.

As of March 31, 2019, we have raised aggregate gross proceeds of $85.4 million through the use of loans, convertible debt and equity through an IPO, private placement financings and secondary offering of our common stock.

We had current assets of $15.6 million and current liabilities of $2.8 million at March 31, 2019, resulting in working capital of $12.8 million. This compares to working capital of $30.9 million at March 31, 2018 and $18.5 million at December 31, 2018. The change in working capital is primarily the result of use of cash in our normal business operations.

Our condensed consolidated financial statements account for the continuation of our business as a going concern. We are subject to the risks and uncertainties associated with a new business. Our principal sources of liquidity as of March 31, 2019 consist of existing cash, cash equivalents and investments totaling $15.2 million. In the three months ended March 31, 2019, we used approximately $6.5 million of cash and investments for operating activities, the purchase of property and equipment, and expenditures for patents. Due to these conditions, along with anticipated increases in expenses, substantial doubt exists as to our ability to continue as a going concern. After evaluation of these conditions, we believe our current resources, in the absence of material revenues, will provide sufficient funding for planned operations into the second half of 2019. If necessary, we will seek to raise additional capital from the sale of equity securities or the incurrence of indebtedness to allow us to continue operations. There can be no assurance that additional financing will be available to us on acceptable terms, or at all. Additionally, if we issue additional equity securities to raise funds, whether to existing investors or others, the ownership percentage of our existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Additionally, we may be limited as to the amount of funds we can raise pursuant to SEC rules and the continued listing requirements of NASDAQ. If we cannot raise needed funds, we might be forced to make substantial reductions in our operating expenses, which could adversely affect our ability to implement our business plan and ultimately our viability as a company. These condensed consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or amounts and classification of liabilities that might result from this uncertainty.

Cash Flow Analysis

Operating activities used cash of $6.1 million in the first three months of 2019 and $4.7 million in the first three months of 2018. The increase is primarily the result of our increased loss.

Investing activities provided cash of $10.0 million in the first three months of 2019 and used cash of $25.5 million in the first three months of 2018. In 2019, the cash provided was a result of net redemptions of investments held to maturity, offset by the cash used to purchase property and equipment and expenditures for patents. In 2018, the cash used was a result of the net purchases of investments held to maturity and cash used to purchase property and equipment and expenditures for patents.

Financing activities provided cash of $0.4 million in the first three months of 2019 as a result of the exercise of Private Placement Warrants - 2016, which resulted in the issuance of 140,000 shares of common stock. Financing activities provided cash of $18.4 million in the first three months of 2018 as a result of the net proceeds from the sale of equity securities in an underwritten public offering completed in March 2018 along with the underwriter overallotment option exercised in April 2018.

Off-Balance Sheet Transactions

We do not have any off-balance sheet arrangements.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Not Applicable

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

The phrase "disclosure controls and procedures" refers to controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended, or the Exchange Act, such as this Quarterly Report on Form 10-Q, is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the U.S. Securities and Exchange Commission, or SEC. Disclosure controls and procedures are also designed to ensure that such information is accumulated and communicated to our management, including our chief executive officer, or CEO, and chief financial officer, or CFO, as appropriate to allow timely decision regarding required disclosure.

Our management, with the participation of our CEO and CFO, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of March 31, 2019, the end of the period covered by this Quarterly Report on Form 10-Q. Based on such evaluation, our CEO and CFO have concluded that as of March 31, 2019, our disclosure controls and procedures were designed at a reasonable assurance level and were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the rules and forms of the SEC, and that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Controls over Financial Reporting

There was no change in our internal control over financial reporting identified in management's evaluation pursuant to Rules 13a-15(d) or 15d-15(d) of the Exchange Act during the quarter ended March 31, 2019 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Effectiveness of Controls and Procedures

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Table of Contents

PART II: OTHER INFORMATION

Item 1. Legal Proceedings

We are not party to any legal proceedings. We may, from time to time, be party to litigation and subject to claims incident to the ordinary course of business. As our product offerings continue to develop, we may become party to an increasing number of litigation matters and claims. The outcome of litigation and claims cannot be predicted with certainty, and the resolution of any future matters could materially affect our future financial position, results of operations or cash flows.

Item 1A. Risk Factors

This Quarterly Report on Form 10-Q contains forward-looking statements, which are subject to a variety of risks and uncertainties. Other actual results could differ materially from those anticipated in those forward-looking statements as a result of various factors, including those set forth in the risk factors relating to our business and common stock contained in Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2018. There have been no material changes to such risk factors during the period ended March 31, 2019.

Item 5. Other Information

On May 6, 2019, the Compensation Committee of our Board of Directors approved quarterly bonus awards to our executive officers pursuant to our 2019 Incentive Bonus Program for their performance during the first quarter of 2019. The bonus awards were paid in the form of restricted stock units for shares of our common stock in the amounts set forth below. The restricted stock units vest in full on May 15, 2019.

Executive Officers	Number of RSU Shares
Martin McDermut	9,041
Robert Hammond	4,247
Neal Fenzi	3,072

Item 6. Exhibits

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File Number	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation of the Registrant	8-K	001-36467	3.1	6/5/2014	
3.2	Amended and Restated Bylaws of the Registrant	8-K	001-36467	3.2	6/5/2014	
31.1	Certification of Principal Executive Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1#	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.INS	XBRL Instance Document					X
101.SCH	XBRL Taxonomy Extension Schema Document					X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					X

The information in this exhibit is furnished and deemed not filed with the Securities and Exchange Commission for purposes of section 18 of the Exchange Act of 1934, as amended, and is not to be incorporated by reference into any filing of Resonant Inc. under the Securities Act of 1933, as amended, or the Exchange Act of 1934, as amended, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Date: May 8, 2019	**Resonant Inc.**	
	By:	/s/ Martin S. McDermut
		Martin S. McDermut
		Chief Financial Officer
		(Principal Financial and Accounting Officer)

Exhibit 31.1

Certification of Principal Executive Officer Pursuant To
Exchange Act Rules 13a-14(a) and 15d-14(a),
As Adopted Pursuant To
Section 302 of Sarbanes-Oxley Act of 2002

I, George B. Holmes, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Resonant Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: May 8, 2019

/s/ George B. Holmes

George B. Holmes
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

**Certification of Principal Financial Officer Pursuant To
Exchange Act Rules 13a-14(a) and 15d-14(a),
As Adopted Pursuant To
Section 302 of Sarbanes-Oxley Act of 2002**

I, Martin S. McDermut, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Resonant Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 8, 2019

/s/ Martin S. McDermut

Martin S. McDermut
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

**Certifications of Principal Executive Officer and Principal Financial Officer
Pursuant to 18 U.S.C. Section 1350, As Adopted Pursuant To
Section 906 of the Sarbanes-Oxley Act of 2002**

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. 1350), George B. Holmes, Chief Executive Officer (Principal Executive Officer) and Martin S. McDermut, Chief Financial Officer (Principal Financial and Accounting Officer) of Resonant Inc. (the "Company"), hereby certifies that, to the best of his knowledge:

1. Our Quarterly Report on Form 10-Q for the quarter endedMarch 31, 2019, to which this Certification is attached as Exhibit 32.1 (the "Report"), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 8, 2019

/s/ George B. Holmes
George B. Holmes
Chief Executive Officer
(Principal Executive Officer)

/s/ Martin S. McDermut
Martin S. McDermut
Chief Financial Officer
(Principal Financial and Accounting Officer)