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 September 30, 2020 or

☐ Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the transition period from __ to __.

LUMINEX CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	**000-30109**	**74-2747608**
(State or other jurisdiction of incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

12212 Technology Blvd., Austin, Texas	**78727**
(Address of principal executive offices)	(Zip Code)

(512) 219-8020
Registrant's Telephone Number, Including Area Code

None
Former Name, Former Address and Former Fiscal Year, if Changed Since Last Report

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

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Common Stock, $0.001 par value	LMNX	The Nasdaq Global Select Market

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 (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

☑ Yes ☐ No

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

Large accelerated filer	☑	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

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

☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

☐ Yes ☑ No

There were 46,525,493 shares of the Company's Common Stock, par value $0.001 per share, outstanding on November 5, 2020.

LUMINEX CORPORATION

FORM 10-Q
FOR THE QUARTER ENDED SEPTEMBER 30, 2020

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ITEM 1. FINANCIAL STATEMENTS

LUMINEX CORPORATION
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share amounts)

	September 30, 2020	December 31, 2019
ASSETS	**(unaudited)**	
Current assets:		
Cash and cash equivalents	$ 308,454	$ 59,173
Accounts receivable, net	60,454	55,815
Inventories, net	109,795	77,084
Prepaids and other	12,743	10,398
Total current assets	491,446	202,470
Property and equipment, net	62,667	65,515
Intangible assets, net	81,714	90,336
Deferred income taxes	21,175	27,702
Goodwill	118,145	118,145
Right of use assets	18,799	20,439
Other	16,999	19,122
Total assets	$ 810,945	$ 543,729
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 17,201	$ 17,983
Accrued liabilities	48,849	31,872
Deferred revenue - current portion	10,192	8,214
Total current liabilities	76,242	58,069
Deferred revenue	1,515	1,633
Lease liabilities	14,485	17,182
Long-term debt	200,512	—
Other long-term liabilities	2,094	1,985
Total liabilities	294,848	78,869
Stockholders' equity:		
Common stock, $0.001 par value, 200,000,000 shares authorized; issued and outstanding: 45,617,807 shares at September 30, 2020; 44,325,369 shares at December 31, 2019	46	44
Preferred stock, $0.001 par value, 5,000,000 shares authorized; no shares issued and outstanding	—	—
Additional paid-in capital	428,628	380,304
Accumulated other comprehensive loss	(837)	(1,380)
Retained earnings	88,260	85,892
Total stockholders' equity	516,097	464,860
Total liabilities and stockholders' equity	$ 810,945	$ 543,729

See the accompanying notes which are an integral part of these Consolidated Financial Statements.

LUMINEX CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands, except per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(unaudited)		(unaudited)	
Revenue	$ 106,060	$ 78,673	$ 306,003	$ 244,137
Cost of revenue	42,679	36,833	122,595	111,263
Gross profit	63,381	41,840	183,408	132,874
Operating expenses:				
Research and development	14,074	13,262	39,855	43,295
Selling, general and administrative	34,862	31,448	102,987	96,085
Amortization of acquired intangible assets	2,919	2,852	8,623	8,556
Total operating expenses	51,855	47,562	151,465	147,936
Income (loss) from operations	11,526	(5,722)	31,943	(15,062)
Interest and other expense, net	(4,506)	2	(6,889)	(96)
Loss from equity method investment	(457)	—	(1,350)	—
Income (loss) before income taxes	6,563	(5,720)	23,704	(15,158)
Income tax (expense) benefit	(4,796)	470	(8,773)	7,937
Net income (loss)	$ 1,767	$ (5,250)	$ 14,931	$ (7,221)
Net income (loss) attributable to common stockholders				
Basic	$ 1,734	$ (5,224)	$ 14,637	$ (7,187)
Diluted	$ 1,733	$ (5,224)	$ 14,638	$ (7,189)
Net income (loss) per share attributable to common stockholders				
Basic	$ 0.04	$ (0.12)	$ 0.33	$ (0.16)
Diluted	$ 0.04	$ (0.12)	$ 0.32	$ (0.16)
Weighted-average shares used in computing net income (loss) per share				
Basic	45,459	44,216	44,920	44,109
Diluted	46,343	44,216	45,777	44,109
Dividends declared per share	$ 0.09	$ 0.09	$ 0.27	$ 0.21
Other comprehensive income (loss):				
Foreign currency translation adjustments	526	(454)	543	(496)
Other comprehensive income (loss)	526	(454)	543	(496)
Comprehensive income (loss)	$ 2,293	$ (5,704)	$ 15,474	$ (7,717)

See the accompanying notes which are an integral part of these Consolidated Financial Statements.

LUMINEX CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(unaudited)		(unaudited)	
Cash flows from operating activities:				
Net income (loss)	$ 1,767	$ (5,250)	$ 14,931	$ (7,221)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:				
Depreciation and amortization	7,690	7,177	22,771	21,170
Amortization of debt issuance costs	2,565	—	3,910	—
Stock-based compensation	4,072	3,565	10,781	9,644
Deferred income tax (benefit) expense	2,310	(2,316)	4,635	(10,970)
(Gain) loss on sale or disposal of assets	(40)	59	346	231
Loss on equity method investment	457	—	1,350	—
Other	833	(510)	836	(532)
Changes in operating assets and liabilities:				
Accounts receivable, net	228	13,459	(4,636)	7,563
Inventories, net	(17,366)	(6,617)	(32,660)	(12,602)
Other assets	(1,530)	567	(339)	3,971
Accounts payable	1,170	372	(322)	4,540
Accrued liabilities	13,223	600	15,500	(6,956)
Deferred revenue	(435)	(1,661)	1,901	(610)
Net cash provided by operating activities	14,944	9,445	39,004	8,228
Cash flows from investing activities:				
Purchase of property and equipment	(3,515)	(4,993)	(11,614)	(13,115)
Proceeds from business acquisition consideration, net of cash acquired	—	—	—	1,915
Acquired technology rights	—	—	22	—
Net cash used in investing activities	(3,515)	(4,993)	(11,592)	(11,200)
Cash flows from financing activities:				
Proceeds from issuance of convertible notes, net of issuance costs	—	—	252,247	—
Purchase of convertible notes bond hedge	—	—	(54,626)	—
Proceeds from issuance of warrants	—	—	19,968	—
Proceeds from issuance of common stock	9,924	695	19,366	2,481
Shares surrendered for tax withholding	(32)	(4)	(2,365)	(2,089)
Dividends paid	(4,137)	(2,703)	(12,297)	(8,098)
Net cash provided by (used in) financing activities	5,755	(2,012)	222,293	(7,706)
Effect of foreign currency exchange rate on cash	(395)	286	(424)	288
Change in cash and cash equivalents	16,789	2,726	249,281	(10,390)
Cash and cash equivalents, beginning of period	291,665	63,325	59,173	76,441
Cash and cash equivalents, end of period	$ 308,454	$ 66,051	$ 308,454	$ 66,051

See the accompanying notes which are an integral part of these Consolidated Financial Statements.

LUMINEX CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(in thousands, except share data)
(unaudited)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive (Loss) Income	Retained Earnings	Total Stockholders' Equity
	Number of Shares	Amount				
Balance at December 31, 2019	44,325,369	$ 44	$ 380,304	$ (1,380)	$ 85,892	$ 464,860
Exercise of options, net of shares withheld	52,604	—	782	—	—	782
Issuances of restricted stock, net of shares withheld for taxes	224,435	1	(2,310)	—	—	(2,309)
Stock compensation	—	—	2,683	—	—	2,683
Net income	—	—	—	—	654	654
Foreign currency translation adjustments	—	—	—	(63)	—	(63)
Dividends	—	—	42	—	(4,143)	(4,101)
Balance at March 31, 2020	44,602,408	$ 45	$ 381,501	$ (1,443)	$ 82,403	$ 462,506
Exercise of stock options, net of shares withheld	363,878	—	7,507	—	—	7,507
Issuances of restricted stock, net of shares withheld for taxes	11,665	—	(22)	—	—	(22)
Stock compensation	—	—	4,026	—	—	4,026
Issuance of common shares under ESPP	64,100	—	1,119	—	—	1,119
Net income	—	—	—	—	12,510	12,510
Foreign currency translation adjustments	—	—	—	80	—	80
Dividends	—	—	45	—	(4,185)	(4,140)
Equity component of convertible notes, net of issuance costs	—	—	41,950	—	—	41,950
Purchases of convertible note hedge	—	—	(41,243)	—	—	(41,243)
Issuance of warrants	—	—	19,968	—	—	19,968
Balance at June 30, 2020	45,042,051	$ 45	$ 414,851	$ (1,363)	$ 90,728	$ 504,261
Exercise of stock options, net of shares withheld	572,919	$ 1	$ 9,688	$ —	$ —	$ 9,689
Issuances of restricted stock, net of shares withheld for taxes	2,837	$ —	$ (32)	$ —	$ —	$ (32)
Stock compensation	—	$ —	$ 4,073	$ —	$ —	$ 4,073
Net income	—	$ —	$ —	$ —	$ 1,767	$ 1,767
Foreign currency translation adjustments	—	$ —	$ —	$ 526	$ —	$ 526
Dividends	—	$ —	$ 48	$ —	$ (4,235)	$ (4,187)
Balance at September 30, 2020	45,617,807	$ 46	$ 428,628	$ (837)	$ 88,260	$ 516,097

See the accompanying notes which are an integral part of these Consolidated Financial Statements.

LUMINEX CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (cont.)
(in thousands, except share data)
(unaudited)

	Common Stock					
	Number of Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive (Loss) Income	Retained Earnings	Total Stockholders' Equity
Balance at December 31, 2018	43,899,210	$ 44	$ 365,349	$ (1,127)	$ 103,390	$ 467,656
Exercise of options, net of shares withheld	16,707	—	298	—	—	298
Issuances of restricted stock, net of shares withheld for taxes	204,216	—	(2,072)	—	—	(2,072)
Stock compensation	—	—	2,449	—	—	2,449
Net income	—	—	—	—	2,960	2,960
Foreign currency translation adjustments	—	—	—	(133)	—	(133)
Dividends	—	—	25	—	(2,726)	(2,701)
Balance at March 31, 2019	44,120,133	$ 44	$ 366,049	$ (1,260)	$ 103,624	$ 468,457
Exercise of stock options, net of shares withheld	28,327	—	499	—	—	499
Issuances of restricted stock, net of shares withheld for taxes	11,033	—	(13)	—	—	(13)
Stock compensation	—	—	3,630	—	—	3,630
Issuance of common shares under ESPP	53,865	—	966	—	—	966
Net income	—	—	—	—	(4,931)	(4,931)
Foreign currency translation adjustments	—	—	—	91	—	91
Dividends	—	—	27	—	(2,732)	(2,705)
Balance at June 30, 2019	44,213,358	$ 44	$ 371,158	$ (1,169)	$ 95,961	$ 465,994
Exercise of options, net of shares withheld	7,283	—	124	—	—	124
Issuances of restricted stock, net of shares withheld for taxes	1,507	—	(4)	—	—	(4)
Stock compensation	—	—	3,565	—	—	3,565
Net income	—	—	—	—	(5,250)	(5,250)
Foreign currency translation adjustments	—	—	—	(454)	—	(454)
Dividends	—	—	29	—	(4,097)	(4,068)
Other	—	—	—	—	—	—
Balance at September 30, 2019	44,222,148	44	374,872	(1,623)	86,614	459,907

See the accompanying notes which are an integral part of these Consolidated Financial Statements.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 — BASIS OF PRESENTATION

The accompanying unaudited condensed consolidated financial statements have been prepared by Luminex Corporation (the Company or Luminex) in accordance with United States generally accepted accounting principles (U.S. GAAP) for interim financial information and the rules and regulations of the Securities and Exchange Commission (SEC). Accordingly, they do not include all of the information and footnotes required by U.S. GAAP for complete financial statements. The condensed consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. In the opinion of management, all adjustments (consisting of normal recurring entries) considered necessary for a fair presentation have been included. Operating results for the three and nine months ended September 30, 2020 are not necessarily indicative of the results that may be expected for the year ending December 31, 2020. These financial statements should be read in conjunction with the financial statements and notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (the 2019 10-K).

NOTE 2 — INVESTMENTS AND OTHER ASSETS

Marketable Securities

The Company determines the appropriate classification of any investments in debt and equity securities at the time of purchase and re-evaluates such determinations at each balance sheet date. As of September 30, 2020, the Company had no short or long-term investments.

Available-for-sale securities consisted of the following as of September 30, 2020 (in thousands):

	Amortized Cost	Gains in Accumulated Other Comprehensive Income	Losses in Accumulated Other Comprehensive Income	Estimated Fair Value
Current:				
Money market funds	$ 707	$ —	$ —	$ 707
Total current securities	707	—	—	707
Total available-for-sale securities	$ 707	$ —	$ —	$ 707

Available-for-sale securities consisted of the following as of December 31, 2019 (in thousands):

	Amortized Cost	Gains in Accumulated Other Comprehensive Income	Losses in Accumulated Other Comprehensive Income	Estimated Fair Value
Current:				
Money market funds	$ 707	$ —	$ —	$ 707
Total current securities	707	—	—	707
Total available-for-sale securities	$ 707	$ —	$ —	$ 707

There were no proceeds from the sales of available-for-sale securities for the three and nine months ended September 30, 2020 or the year ended December 31, 2019. Realized gains and losses on sales of investments are determined using the specific identification method and are included in Other income, net in the Condensed Consolidated Statements of Comprehensive Income. There were no available-for-sale debt securities as of September 30, 2020 or December 31, 2019. All of the Company's available-for-sale securities with gross unrealized losses as of September 30, 2020 had been in a loss position for less than 12 months.

Non-Marketable Securities and Other-Than-Temporary Impairment

During the year ended December 31, 2018, the Company made a $1.8 million investment in Combinati, a private company. On October 1, 2019 the Company made an additional $7.0 million investment in Combinati, bringing the Company's ownership to approximately 28.4% of the voting interest of Combinati. Effective October 1, 2019, the Company accounted for its investment in Combinati under the equity method, given the Company's significant influence over the investee due to its larger ownership percentage and its participation on Combinati's board of directors. The Company does not have unilateral decision-making power, and therefore does not consolidate the investee. In the fourth quarter of 2019, the Company remeasured the existing, minority interest investment based on the fair value prior to the additional investment and recorded a gain of approximately $3.2 million in Other income, net in the Consolidated Statements of Comprehensive Income. The minority interest investment in Combinati was reclassified to equity method investments to distinguish it from other minority interest investments that take the fair value alternative.

As of September 30, 2020, the carrying value of the Company's total investment in Combinati was $10.2 million, which exceeded the Company's share of Combinati's net assets by approximately $8.0 million. For the quarter ended September 30, 2020, the Company recorded $0.5 million for its allocable share of Combinati's net loss in its Consolidated Statement of Comprehensive Income and as an adjustment to the invested balance.

The Company owned a minority interest in another private company based in the U.S. through its initial investment of $1.0 million in the third quarter of 2012. We were informed that this private company was dissolving and ceasing operations in 2019. We recorded impairments of $160,000 and $45,000 in Other income, net in the Consolidated Statements of Comprehensive Income during the second quarter and fourth quarter of 2019, respectively. We received the final cash payment for the remainder of our investment in the first quarter of 2020, recorded in Cash flows from investing activities in the Consolidated Statements of Cash Flows.

These investments do not have readily determinable fair values. Therefore, the Company has elected the measurement alternative for its minority interests and the investments are recorded at cost, less any impairment, including changes resulting from observable price changes. The Company regularly evaluates the carrying value of its investments for impairment and whether any events or circumstances are identified that would significantly harm the fair value of these investments. The primary indicators the Company utilizes to identify these events and circumstances are the investee's ability to remain in business, such as the investee's liquidity and rate of cash use, and the investee's ability to secure additional funding and the value of that additional funding. In the event a decline in fair value is less than the investment's carrying value, the Company will record an impairment charge in Other income, net in the Consolidated Statements of Comprehensive Income. Other than the aggregate $205,000 impairment in 2019 discussed above, the Company has not recorded any impairment charges related to these non-marketable investments.

As the inputs utilized for the Company's periodic impairment assessment are not based on observable market data, the determination of fair value of these investments is classified within Level 3 of the fair value hierarchy. See Note 5 - Fair Value Measurement to our Condensed Consolidated Financial Statements for further information on the fair value hierarchy and the three classification levels. To determine the fair value of these investments, the Company uses all available financial information related to the entities, including information based on recent or pending third-party equity investments in these entities. In certain instances, an investment's fair value is not estimated as there are no identified events or changes in the circumstances. There have been no unrealized gains or losses related to these Level 3 minority interest investments.

Other long-term assets consisted of the following (in thousands):

	September 30, 2020	December 31, 2019
Purchased technology rights (net of accumulated amortization of $8,736 and $8,300 on September 30, 2020 and December 31, 2019, respectively)	$ 5,590	$ 6,027
Minority interest investments	10,151	11,501
Other	1,258	1,594
	$ 16,999	$ 19,122

For the nine months ended September 30, 2020 and 2019, the Company recognized amortization expenses related to the amortization of purchased technology rights of approximately $437,000 and $500,000, respectively. Future amortization expenses are estimated to be $135,000 in the remaining three months of 2020, $540,000 in 2021, $522,000 in 2022, $505,000 in 2023, $501,000 in 2024 and $3,387,000 thereafter.

NOTE 3 — INVENTORIES, NET

Inventories are stated at the lower of cost or net realizable value, with cost determined according to the standard cost method, which approximates the first-in, first-out method. Net realizable value is defined as the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. The Company routinely assesses its on-hand inventory for timely identification and measurement of obsolete, slow-moving or otherwise impaired inventory. Net inventories consisted of the following (in thousands):

	September 30, 2020	December 31, 2019
Parts and supplies	$ 68,550	$ 45,459
Work-in-progress	20,416	15,532
Finished goods	20,829	16,093
	$ 109,795	$ 77,084

NOTE 4 — ACCOUNTS RECEIVABLE AND RESERVES

The Company adopted the new credit loss standard effective January 1, 2020. The primary impact for the Company was the timing of recording expected credit losses on its trade receivables. The Company's allowance for doubtful accounts is based upon its expected credit losses, which is based upon its historical loss experience. Management prepared an analysis of partner versus non-partner credit loss experience and noted that its loss experience between partners and non-partners was very comparable. These receivables have been pooled together, as similar risk characteristics exist between them. Accounts receivable consisted of the following (in thousands):

	September 30, 2020	December 31, 2019
Accounts receivable	61,808	56,956
Less: Allowance for doubtful accounts	(1,354)	(1,141)
	60,454	55,815

Balance as of December 31, 2019	$ 1,141
Net increases charged to costs and expenses	494
Write-offs of uncollectible accounts	(281)
Balance as of September 30, 2020	$ 1,354

NOTE 5 — FAIR VALUE MEASUREMENT

Accounting Standards Codification (ASC) 820 "Fair Value Measurement" (ASC 820) defines fair value, establishes a framework for measuring fair value under U.S. GAAP and enhances disclosures about fair value measurements. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. ASC 820 describes a fair value hierarchy based on the following three levels of inputs that may be used to measure fair value, of which the first two are considered observable and the last unobservable:

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

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

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

The Company determines the fair value of its investment portfolio assets by obtaining non-binding market prices from its third-party portfolio managers on the last day of the quarter, whose sources may use quoted prices in active markets for identical assets (Level 1 inputs) or inputs other than quoted prices that are observable either directly or indirectly (Level 2 inputs) in determining fair value. There were no transfers between Level 1, Level 2 or Level 3 measurements for the nine-month period ended September 30, 2020.

The following table represents the Company's fair value hierarchy for its financial assets and liabilities measured at fair value on a recurring basis as of September 30, 2020 and December 31, 2019 (in thousands):

	Fair Value Measurements as of September 30, 2020 Using			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 707	$ —	$ —	$ 707
Equity investment	$ —	$ —	$ 10,151	$ 10,151

	Fair Value Measurements as of December 31, 2019 Using			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 707	$ —	$ —	$ 707
Minority interest investments - short-term	$ —	$ —	$ 22	$ 22
Equity investment	$ —	$ —	$ 11,501	$ 11,501

NOTE 6 — GOODWILL AND OTHER INTANGIBLE ASSETS

Goodwill is reviewed for impairment at least annually at the beginning of the fourth quarter, or more frequently if impairment indicators arise. A portion of the Company's goodwill is not expected to be deductible for tax purposes. The changes in the carrying amount of goodwill during the period are as follows (in thousands):

	September 30, 2020	December 31, 2019
Balance at beginning of period	$ 118,145	$ 118,127
Flow cytometry acquisition	$ —	$ 18
Balance at end of period	$ 118,145	$ 118,145

The Company's intangible assets are reflected in the table below (in thousands, except weighted average lives):

	Finite-lived			Indefinite-lived	
	Technology, trade secrets and know-how	Customer lists and contracts	Other identifiable intangible assets	IP R&D	Total
2019					
Balance as of December 31, 2018	$ 98,469	$ 23,819	$ 10,655	$ 24,013	$ 156,956
Flow cytometry acquisition	(116)	(428)	1,154	(4,016)	(3,406)
Balance as of December 31, 2019	98,353	23,391	11,809	19,997	153,550
Less: accumulated amortization:					
Accumulated amortization balance as of December 31, 2018	(40,501)	(9,036)	(2,271)	—	(51,808)
Amortization expense	(7,784)	(2,428)	(1,194)	—	(11,406)
Accumulated amortization balance as of December 31, 2019	(48,285)	(11,464)	(3,465)	—	(63,214)
Net balance as of December 31, 2019	$ 50,068	$ 11,927	$ 8,344	$ 19,997	$ 90,336
Weighted average life (in years)	11	10	10		
2020					
Balance as of December 31, 2019	98,353	23,391	11,809	19,997	$ 153,550
Completion of IP R&D projects	2,687	—	—	(2,687)	$ —
Balance as of June 30, 2020	101,040	23,391	11,809	17,310	$ 153,550
Less: accumulated amortization:					
Accumulated amortization balance as of December 31, 2019	(48,285)	(11,464)	(3,465)	—	(63,214)
Amortization expense	(5,905)	(1,821)	(896)	—	(8,622)
Accumulated amortization balance as of September 30, 2020	(54,190)	(13,285)	(4,361)	—	(71,836)
Net balance as of September 30, 2020	$ 46,850	$ 10,106	$ 7,448	$ 17,310	$ 81,714
Weighted average life (in years)	11	10	10		

The Company currently has two in-process research and development (IP R&D) projects. The first relates to the development of the next generation VERIGENE® System, VERIGENE II. The Company is targeting the commercial launch of the VERIGENE II System in 2020. The second is a defensive IP R&D project related to the Company's next generation xMAP® System, xMAP INTELLIFLEX, which the Company currently believes will launch commercially in the first quarter of 2021. The next generation Guava System (Guava Next Gen System), acquired as part of the Company's acquisition of EMD Millipore Corporation's flow cytometry portfolio, was launched commercially in the second quarter of 2020 and transferred from IP R&D to finite-lived technology, trade secrets and know-how and is being amortized.

The estimated aggregate amortization expense for the next five fiscal years and thereafter is as follows (in thousands):

2020 (three months)	$ 2,919
2021	11,316
2022	10,070
2023	9,721
2024	9,721
Thereafter	20,657
	$ 64,404

NOTE 7 — OTHER COMPREHENSIVE (LOSS) INCOME

Other comprehensive (loss) income represents a measure of all changes in equity that result from recognized transactions and other economic events other than those resulting from investments by, and distributions to, shareholders. Other comprehensive (loss) income for the Company includes foreign currency translation adjustments and net unrealized holding gains and losses on available-for-sale investments.

The following table presents the changes in each component of accumulated other comprehensive (loss) income, net of tax (in thousands):

	Accumulated Other Comprehensive (Loss) Income Items - Foreign Currency
Balance as of December 31, 2019	$ (1,380)
Other comprehensive income	543
Net current-period other comprehensive income	543
Balance as of September 30, 2020	$ (837)

There are no material tax benefits or expenses related to the other comprehensive income for the three and nine months ended September 30, 2020.

NOTE 8 — EARNINGS PER SHARE

A reconciliation of the denominators used in computing per share net income (EPS) is as follows (in thousands, except per share amounts):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Basic:				
Net income (loss)	$ 1,767	$ (5,250)	$ 14,931	$ (7,221)
Less: allocation to participating securities	(33)	26	(294)	34
Net income (loss) attributable to common stockholders	$ 1,734	$ (5,224)	$ 14,637	$ (7,187)
Weighted average common stock outstanding	45,459	44,216	44,920	44,109
Net income (loss) per share attributable to common stockholders	$ 0.04	$ (0.12)	$ 0.33	$ (0.16)
Diluted:				
Net income (loss)	$ 1,767	$ (5,250)	$ 14,931	$ (7,221)
Less: allocation to participating securities	(34)	26	(293)	32
Net income (loss) attributable to common stockholders	$ 1,733	$ (5,224)	$ 14,638	$ (7,189)
Weighted average common stock outstanding	45,459	44,216	44,920	44,109
Effect of dilutive securities: stock options and awards	884	—	857	—
Weighted-average shares used in computing net income (loss) per share	46,343	44,216	45,777	44,109
Net income (loss) per share attributable to common stockholders	$ 0.04	$ (0.12)	$ 0.32	$ (0.16)

Basic net income (loss) per share is computed by dividing the net income (loss) for the period by the weighted average number of common shares outstanding during the period. Diluted net income (loss) per share is computed by dividing the net income (loss) for the period by the weighted average number of common and common equivalent shares outstanding during the period. Restricted stock awards (RSAs) and stock options to acquire 38,028 and 2,123,497 shares for the three months ended September 30, 2020 and 2019, and 405,928 and 1,502,841 shares for the nine months ended September 30, 2020 and 2019, respectively, were excluded from the computations of diluted earnings per share because the effect of including the RSAs and stock options would have been anti-dilutive.

We apply the two-class method of computing earnings per share, which requires the calculation of separate earnings per share amounts for our non-vested, time-based restricted stock awards with non-forfeitable dividends and for our common stock. Our non-vested, time-based restricted stock awards with non-forfeitable dividends are considered securities which participate in undistributed earnings with common stock. Under the two-class computation method, net losses are not allocated to participating securities unless the holder of the security has a contractual obligation to share in the losses. Our non-vested, time-based restricted stock awards with non-forfeitable dividends do not have such an obligation so they are not allocated losses.

Because the Company has the intention and ability to settle the principal amount of each of its Notes (defined below) in cash, the treasury stock method is expected to be used for calculating any potential dilutive effect of the conversion spread on diluted net income (loss) per share, if applicable. The conversion spread will have a dilutive impact on net income (loss) per share of common stock when the average market price of common stock for a given period exceeds the conversion price of $43.68 per share for the Notes. The warrants issued by the Company in connection with the Notes (Warrants) will have a dilutive effect when the average market price of common stock for a given period exceeds the Warrant's strike price of $69.89 per share.

NOTE 9 — STOCKHOLDERS' EQUITY AND STOCK-BASED COMPENSATION

Dividends

On September 10, 2020, the Company's Board of Directors declared a cash dividend on the Company's common stock of $0.09 per share. The dividend was payable to stockholders of record as of September 24, 2020 and was paid on October 15, 2020. The Company's current intention is to pay a continuing dividend on a quarterly basis. However, future declarations of dividends are subject to the final determination of the Company's Board of Directors.

Stock-Based Compensation

The Company's stock option activity for the nine months ended September 30, 2020 is as follows:

Stock Options	Shares (in thousands)	Weighted Average Exercise Price
Outstanding at December 31, 2019	3,793	$ 20.17
Granted	1,507	23.09
Exercised	(997)	18.18
Canceled or expired	(550)	24.43
Outstanding at September 30, 2020	3,753	$ 21.25

The Company had $12.0 million of total unrecognized compensation costs related to stock options at September 30, 2020 that are expected to be recognized over a weighted-average period of 2.83 years.

The Company's restricted share activity for the nine months ended September 30, 2020 is as follows:

Restricted Stock Awards (RSAs)	Shares (in thousands)	Weighted Average Grant Price
Non-vested at December 31, 2019	810	$ 22.28
Granted	414	23.25
Vested	(293)	21.49
Cancelled or expired	(23)	22.44
Non-vested at September 30, 2020	908	$ 22.97

Restricted Stock Units (RSUs)	Shares (in thousands)
Non-vested at December 31, 2019	522
Granted	97
Vested	(45)
Cancelled or expired	(6)
Non-vested at September 30, 2020	568

As of September 30, 2020, there were $17.9 million and $3.4 million of unrecognized compensation costs related to RSAs and RSUs, respectively. These costs are expected to be recognized over a weighted average-period of 2.56 years for the RSAs and 2.23 years for the RSUs. The Company issues a small number of cash-settled RSUs pursuant to the Company's equity incentive plan in certain foreign countries. These grants do not result in the issuance of common stock and are considered immaterial by the Company.

The following are the stock-based compensation costs recognized in the Company's Condensed Consolidated Statements of Comprehensive Income (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Cost of revenue	$ 599	$ 528	$ 1,719	$ 1,489
Research and development	642	549	1,387	1,055
Selling, general and administrative	2,854	2,509	7,777	7,172
Stock-based compensation costs reflected in net income	$ 4,095	$ 3,586	$ 10,883	$ 9,716

NOTE 10 — ACCRUED LIABILITIES

Accrued liabilities consisted of the following (in thousands):

	September 30, 2020	December 31, 2019
Compensation and employee benefits	$ 27,871	$ 17,011
Dividends payable	4,235	4,104
Income and other taxes	4,085	1,538
Warranty costs	1,696	1,641
Royalties payable	777	1,335
Current operating lease liabilities	5,915	5,053
Convertible notes interest payable	2,990	—
Other	1,280	1,190
	$ 48,849	$ 31,872

The following table summarizes the changes in the warranty accrual (in thousands):

Accrued warranty costs as of December 31, 2019	$ 1,641
Warranty adjustments/settlements	(1,791)
Accrual for warranty costs	1,846
Accrued warranty costs as of June 30, 2020	$ 1,696

NOTE 11 — CONVERTIBLE SENIOR NOTES

In May 2020, the Company issued $260.0 million principal amount of Convertible Senior Notes due in May 2025 (Notes). The interest rates for the Notes is fixed at 3.00% per annum with interest payable semi-annually on May 15 and November 15 of each year, commencing on November 15, 2020. The Notes mature on May 15, 2025, unless earlier redeemed, converted or repurchased in accordance with their terms prior to such date. Each $1,000 of principal amount of the Notes will initially be convertible into 22.8918 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately $43.68 per share. The initial conversion price for each of the Notes is subject to adjustment upon the occurrence of certain specified events.

Holders may convert their Notes at their option at any time prior to the close of business on the business day immediately preceding November 15, 2024 only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on June 30, 2020 (and only during such calendar quarter), if the last reported sale price of the Company's common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;

- during the five business day period after any five consecutive trading day period (Measurement Period) in which the trading price (as defined in the relevant indenture governing the Notes) per $1,000 principal amount of Notes for each trading day of the Measurement Period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day; or

- upon the occurrence of specified corporate events, including but not limited to (a) the bankruptcy, insolvency or reorganization of the Company or any of its significant subsidiaries, or (b) the continued failure after five business days to provide a repurchase notice after (i) a public tender offer; (ii) a recapitalization, share exchange or merger where common stock is converted into cash; (iii) a sale/lease/transfer of all or substantially all of the Company's assets; (iv) stockholder approval of a plan of liquidation; or (v) the delisting of the Company's common stock.

On or after November 15, 2024 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert all or any portion of their Notes at any time, regardless of the foregoing circumstances. Upon conversion, the Company will pay or deliver cash, shares of its common stock or a combination of cash and shares of its common stock, at the Company's election. The Company currently intends to settle the principal amount of the Notes in cash, and settle any excess amount with shares of the Company's common stock, upon conversion.

If a fundamental change (as defined in the relevant indenture governing the Notes) occurs prior to the maturity date, holders of each of the Notes may require the Company to repurchase all or a portion of their Notes for cash at a repurchase price equal to 100% of the principal amount of the Notes, plus any accrued and unpaid interest up to, but excluding, the fundamental change repurchase date. As of September 30, 2020, the Notes were not yet convertible.

In accounting for the issuance of the Notes, the Company separated each of the Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value, as of the date of issuance, of a similar debt without the conversion feature. The effective interest rate used for the liability component was 8.50%. The liability component of the Notes is recorded in long-term debt, and the interest payable within the next twelve months is recorded in accrued liabilities on the Condensed Consolidated Balance Sheets as of June 30, 2020. The carrying amount of the equity component representing the conversion feature was determined by deducting the fair value of the liability components from the total initial proceeds. The difference between the par amount of the Notes and the carrying amount of the liability component represents debt discounts that are amortized to interest expense over the respective terms of the Notes using the effective interest rate method. The equity components are not remeasured as long as they continue to meet the conditions for equity classification.

In accounting for the $7.7 million of issuance costs related to the Notes, the Company allocated the total amount of issuance costs incurred to the liability and equity components in proportion to the allocation of the proceeds from issuance to the liability and equity components. Issuance costs attributable to the liability components are amortized to interest expense over the respective terms of the Notes using the effective interest rate method. The issuance costs attributable to the equity components were netted against the respective equity components in additional paid-in capital.

Issuance costs attributable to the liability component, totaling $6.0 million, are being amortized to expense over the expected life of the Notes using the effective interest method. Issuance costs attributable to the equity component related to the conversion feature, totaling $1.7 million, were netted with the equity component.

The Notes consist of the following:

	As of September 30, 2020
Liability component:	
Principal	$ 260,000
Unamortized debt discount	(53,760)
Unamortized debt issuance costs	(5,728)
Net carrying amount	$ 200,512
Equity component:	
Net carrying amount	$ 41,950

The following table sets forth total interest expense recognized related to the Notes:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Contractual interest expense	$ 1,950	$ —	$ 2,990	$ —
Amortization of debt issuance costs	208	—	315	—
Amortization of debt discount	2,358	—	3,596	—
Total	$ 4,516	$ —	$ 6,901	$ —

As of September 30, 2020, the remaining period over which the debt discount and debt issuance costs will be amortized was 4.6 years.

Convertible Note Hedge Transactions

Concurrent with the offering of the Notes, the Company entered into privately negotiated convertible note hedge transactions (Convertible Note Hedge Transactions) with certain financial institutions (Option Counterparties) related to the issuance of the Notes. The Convertible Note Hedge Transactions are generally expected to reduce the potential dilution to the Company's common stock upon any conversion of Notes or offset any cash payments the Company is required to make in excess of the principal amount of converted Notes.

The Company also entered into separate privately negotiated Warrant Transactions with each of the Option Counterparties pursuant to which the Company issued Warrants that will be exercisable into a number of shares of the Company's common stock at a price per share equal to $69.89, subject to certain adjustments under the terms of the Warrant Transactions. The Warrant Transactions could separately have a dilutive effect on the Company's common stock if the market value per share of the Company's common stock exceeds the applicable strike price of the Warrants. However, subject to certain conditions, the Company may elect to settle the Warrants in cash.

The Convertible Note Hedge Transactions and the Warrant Transactions are separate transactions, in each case, entered into by the Company with the same Option Counterparties and are not part of the terms of the Notes and will not affect any holder's rights under the Notes. The holders of the Notes will not have any rights with respect to the Convertible Note Hedge Transactions or Warrant Transactions. The Company used approximately $34.7 million of the net proceeds of the issuance of the Notes to pay the costs of the Convertible Note Hedge Transactions, after such cost was partially offset by the proceeds to the Company from the sale of the Warrants in the Warrant Transactions. The Convertible Note Hedge Transactions and Warrant Transactions do not meet the criteria for derivative accounting as they are indexed to the Company's stock. The amounts paid for the Convertible Note Hedge Transactions and the proceeds received from the Warrant Transactions have been included as a net reduction to additional paid-in capital.

NOTE 12 — REVENUE RECOGNITION

The Company recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the Company expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that the Company determines are within the scope of ASC 606 "Revenue from Contracts with Customers" (the Standard), the Company performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when the Company satisfies a performance obligation. The Company only applies the five-step model to contracts when it is probable that the Company will collect the consideration it is entitled to in exchange for the goods or services it transfers to the customer. At contract inception, once the contract is determined to be within the scope of the Standard, the Company assesses the goods or services promised within each contract, identifies the performance obligations and assesses whether each promised good or service is distinct. The Company allocates the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling price of the promised good or service underlying each performance obligation and recognizes this as revenue when such performance obligation is satisfied.

U.S. Government Contracts

In March 2020, the Biomedical Advanced Research and Development Authority (BARDA) awarded the Company two milestone-based contracts, with a value of $642,450 each, funding approximately 36% of the overall cost of development. BARDA is part of the U.S. Department of Health and Human Services (HHS) and is tasked with protecting the U.S. against emerging infectious diseases and other threats. Through public-private partnerships, BARDA supports the development of vaccines, drugs, and diagnostics. One of BARDA's current goals is to develop medical countermeasures to enhance health security and protect against 2019 novel coronavirus disease (COVID-19) infections. The Company's management believes these two contracts help to enable an expansion of the Company's current portfolio of diagnostics for SARS-CoV-2 (the virus that causes COVID-19). The Company recorded government contract revenue of $642,450 in each of the quarters ended March 31, 2020 and June 30, 2020 as all of the milestones were completed for the first BARDA contract in the first quarter and for the second BARDA contract in the second quarter.

In September 2020, BARDA awarded the Company two additional milestone-based contracts valued at $5,389,813 and $683,500, respectively, related to completing a 510(k) filing for Luminex's expanded NxTAG® Respiratory Pathogen Panel (RPP), which will include the SARS-CoV-2 virus for COVID-19 testing and to support the enhancement of the Company's xMAP® SARS-CoV-2 Multi-Antigen IgG Assay. The Company intends to submit this enhanced serology assay for an Emergency Use Authorization (EUA) when this project is completed. No government contract revenue has been recorded to date for either of these two BARDA contracts.

Contract assets are included within accounts receivables, net and contract liabilities are included in deferred revenue on the Company's Condensed Consolidated Balance Sheets. The following table presents the opening and closing balances of the Company's contract assets and liabilities as of September 30, 2020 (in thousands):

	Balance as of September 30, 2020	Balance as of December 31, 2019
Contract assets:		
Unbilled receivables - Royalties	$ 11,747	$ 12,257
Total contract assets	$ 11,747	$ 12,257
Contract liabilities - Short-term:		
Deferred revenue - Service	$ 9,564	$ 7,771
Deferred revenue - Licenses	197	207
Deferred revenue - Instruments	—	2
Deferred revenue - Other	431	234
Total contract liabilities - Short-term	$ 10,192	$ 8,214
Contract liabilities - Long-term:		
Deferred revenue - Service	$ 998	$ 968
Deferred revenue - Licenses	517	665
Total contract liabilities - Long-term	$ 1,515	$ 1,633

During the nine months ended September 30, 2020, the Company recognized the following revenues as a result of changes in the contract asset and contract liability balances in the period (in thousands):

	Nine Months Ended September 30, 2020
Revenue recognized in the period:	
Amounts included as contract liabilities at the beginning of the period	$ 4,961
Performance obligations satisfied in previous periods	-

NOTE 13 — INCOME TAXES

At the end of each interim reporting period, an estimate is made of the effective tax rate expected to be applicable for the full year. The estimated full year's effective tax rate is used to determine the income tax rate for each applicable interim reporting period. Tax effects of enacted legislation, including changes in the value of deferred tax assets and liabilities, is recognized in the period of the enactment date. The effective tax rate for the nine months ended September 30, 2020 was 37%, including amounts recorded for discrete events. This differs from the statutory rate of 21% primarily from the effect of foreign operations. The Company's tax expense reflects the full federal, various state, and foreign blended statutory rates. The Company currently expects a 2020 full-year effective tax rate of 35% to 45%, excluding amounts recorded for discrete events, which is increased compared to our estimate of the full-year effective tax rate in the second quarter of 20% to 30%. This increase is a result of a change in the forecast mix of earnings in the Company's U.S. and foreign jurisdictions and related tax effects pursuant to the provisions of the 2017 Tax Cuts and Jobs Act. The Company will be subject to provisions regarding U.S. federal taxation of foreign intangible income and has included in its estimate of income tax the effects of this tax. The Company is utilizing its net operating losses (NOLs) and tax credits in the U.S., Canada and the Netherlands.

In the first and second quarters of 2020, legislation for coronavirus aid and tax relief was enacted in certain of the jurisdictions in which the Company or one of its subsidiaries files income tax returns. The Company recorded an immaterial income tax benefit for the effect of tax relief legislation for its Hong Kong subsidiary in the first quarter of 2020. Tax relief legislation enacted in the first and second quarters of 2020 did not affect the Company's income tax provision in its other jurisdictions at this time, and thus no discrete tax items in other jurisdictions have been recorded.

The Company or one of its subsidiaries files income tax returns in the U.S. federal jurisdiction, Australia, Canada, China, France, Germany, Hong Kong, Japan, the Netherlands, the U.K., and various U.S. states. Due to NOLs, the U.S., Canadian and Netherlands tax returns dating back to 2016, 2007, and 2013, respectively, can still be reviewed by the taxing authorities. The Company does not expect any material changes to the unrecognized tax benefit liability within the next twelve months. The Company recognizes interest and penalties related to uncertain tax positions in the provision for income taxes.

NOTE 14 — COMMITMENTS AND CONTINGENCIES

In the normal course of business, the Company is subject to claims, lawsuits and legal proceedings. When it appears probable in management's judgment, and based upon consultation with outside counsel, that we will incur monetary damages or other costs in connection with any claims or proceedings, and such costs can be reasonably estimated, we record the estimated liability in the financial statements. If only a range of estimated losses can be estimated, we record an amount within the range that, in management's judgment, reflects the most likely outcome; if none of the estimates within that range is a better estimate than any other amount, we record the liability at the low end of the range of estimates. Any such accrual would be charged to expense in the appropriate period. We disclose significant contingencies when the loss is not probable and/or the amount of the loss is not estimable, when we believe there is at least a reasonable possibility that a loss has been incurred. We recognize costs associated with legal proceedings in the period in which the services were provided.

Leases

We have leased all of our research, manufacturing and office space and have entered into various other agreements in conducting our business. Our leases have remaining lease terms of 1 year to 6 years, and some of our leases include options to extend the leases for up to 10 years, tenant improvement allowances, rent holidays and rent escalation clauses. At inception, we determine whether an agreement represents a lease, and at commencement, we evaluate each lease agreement to determine whether the lease is an operating or financing lease.

Pursuant to the lease guidance issued by the Financial Accounting Standards Board (FASB), all of the Company's leases outstanding on January 1, 2019 continued to be classified as operating leases. With the adoption of the new lease guidance, the Company recorded an operating lease right-of-use asset and an operating lease liability on its balance sheet. Right-of-use lease assets represent the Company's right to use the underlying asset for the lease term and the lease obligation represents the Company's commitment to make the lease payments arising from the lease. Right-of-use lease assets and obligations are recognized at the commencement date based on the present value of remaining lease payments over the lease term. As the Company's leases do not provide an implicit rate, we have used an estimated incremental borrowing rate of 5.75%, based on the information available at the commencement date in determining the present value of lease payments. The right-of-use lease asset includes any lease payments made prior to commencement and excludes any lease incentives. The lease term may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Operating lease expense is recognized on a straight-line basis over the lease term, subject to any changes in the lease or expectations regarding the terms. Variable lease costs such as common area costs and property taxes are expensed as incurred. For all lease agreements, we combine lease and non-lease components. Leases with an initial term of twelve months or less are not recorded on the balance sheet.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Operating lease cost[(a)]	$ 2,429	$ 2,419	$ 7,251	$ 7,010

(a) Includes short-term lease expense costs, which were immaterial in the three and nine months ended September 30, 2020 and 2019.

Supplemental cash flow information related to leases was as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Cash paid for amounts included in the measurement of lease liabilities	$ 1,778	$ 1,682	$ 5,208	$ 4,856

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

	September 30, 2020	December 31, 2019
Operating leases:		
Operating lease right-of-use assets	$ 18,799	$ 20,439
Operating lease liabilities	$ 20,400	$ 22,235
Weighted Average Remaining Lease Term	3.71 years	4.36 years
Weighted Average Discount Rate	5.75 %	5.75 %

Maturities of lease liabilities for the next five fiscal years and thereafter are as follows (in thousands):

	Operating Leases
2020 (three months)	$ 1,807
2021	7,076
2022	5,407
2023	4,377
2024	3,102
Thereafter	934
Total lease payments	22,703
Less: imputed interest	(2,303)
Lease liabilities at September 30, 2020	$ 20,400

NOTE 15 — RECENT ACCOUNTING PRONOUNCEMENTS

Recently adopted accounting guidance

In June 2016, the FASB issued guidance on financial instruments and related credit losses. The guidance requires that financial assets measured at amortized cost be presented at the net amount expected to be collected. The allowance for credit losses is a valuation account that is deducted from the amortized cost basis. The statement of comprehensive income reflects the measurement of credit losses for newly recognized financial assets, as well as the expected credit losses during the period. The measurement of expected credit losses is based upon historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the reported amount. Credit losses relating to available-for-sale debt securities will be recorded through an allowance for credit losses rather than as a direct write-down to the security. The updated guidance is effective for annual periods beginning after December 15, 2019, and is applicable to the Company in fiscal 2020. The Company adopted the new standard effective January 1, 2020. The primary impact for the Company was the timing of recording expected credit losses on its trade receivables. The Company does not have a history of significant credit losses and this guidance did not have a material impact on its consolidated financial statements.

Recent accounting guidance not yet adopted

In December 2019, the FASB issued final guidance that simplifies the accounting for income taxes by eliminating some exceptions to the general approach in ASC 740, Income Taxes. The guidance amended certain disclosure requirements that had become redundant, outdated or superseded. Additionally, this guidance includes provisions for investment company reporting modernization, amends accounting for the interim period effects of changes in tax laws or rates, and simplifies aspects of the accounting for franchise taxes. The guidance is effective for annual periods beginning after December 15, 2020, and is applicable for the Company in fiscal 2021. Early adoption is permitted. The Company does not anticipate that this guidance will have a material impact on its consolidated financial statements.

In August 2020, the FASB issued ASU No. 2020-06, Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity, which simplifies accounting for convertible instruments by removing major separation models required under U.S. GAAP. This update also amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions and requires the application of the if-converted method for calculating diluted earnings per share. The update also requires entities to provide expanded disclosures about the terms and features of convertible instruments and how the instruments have been reported in the entity's financial statements. The guidance is effective for interim and annual periods beginning after December 15, 2021. Early adoption is permitted, but no earlier than January 1, 2021. The Company is currently evaluating the impact of this standard on its condensed consolidated financial statements and related disclosures.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following information should be read in conjunction with the condensed consolidated financial statements and the accompanying notes included in Part I, Item 1 of this Quarterly Report on Form 10-Q, and the "Risk Factors" included in Part I, Item 1A of our 2019 10-K, as updated by Part II, Item 1A of our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2020, the quarter ended June 30, 2020, and this Quarterly Report on Form 10-Q.

SAFE HARBOR CAUTIONARY STATEMENT

This Quarterly Report on Form 10-Q contains statements that are forward-looking statements under the Private Securities Litigation Reform Act of 1995. Forward-looking statements provide our current expectations of forecasts of future events. All statements other than statements of current or historical fact contained in this Quarterly Report on Form 10-Q, including statements regarding our future financial position, business strategy, impact of the reimbursement landscape, products including ARIES®, VERIGENE®, NxTAG®, Muse®, Guava®, easyCyte™, InCyte™, Amnis®, ImageStream®, FlowSight® and CellStream®, assay sales, consumable sales patterns and bulk purchases, budgets, system sales, anticipated gross margins, liquidity, cash flows, projected costs and expenses, taxes, deferred tax assets, regulatory approvals or the impact of laws or regulations applicable to us, plans and objectives of management for future operations, and impact of prior acquisitions or future acquisitions, integration and the expected benefit of our acquisitions are all forward-looking statements. The words "anticipate," "believe," "continue," "should," "estimate," "expect," "intend," "may," "plan," "projects," "will" and similar expressions as they relate to us, are intended to identify forward-looking statements. These statements are based on our current plans and actual future activities, and our financial condition and results of operations may be materially different from those set forth in the forward-looking statements as a result of known or unknown risks and uncertainties, including, among other things:

- the ongoing uncertainty caused by the COVID-19 pandemic, including uncertainty regarding its extent, duration and impact, the uncertainty regarding the long-term impacts of the COVID-19 pandemic on our and our customers', suppliers', partners' and other business relations' business, prospects, financial condition, operating results, liquidity and personnel, as well as its impacts on capital markets and general economic conditions, and the actions by government officials at the federal, state or local level in connection with the COVID-19 pandemic;

- concentration of our revenue in a limited number of direct customers and strategic partners, some of which may be experiencing decreased demand for their products utilizing or incorporating our technology, budget or finance constraints in the current economic environment, or periodic variability in their purchasing patterns or practices as a result of internal resource planning challenges;

- risks and uncertainties relating to market demand and acceptance of our products and technology, including ARIES®, MultiCode®, xMAP®, xMAP® INTELLIFLEX, VERIGENE®, VERIGENE® II, Guava®, Muse®, Amnis®, and NxTAG® products;

- timing of and process for regulatory approvals;

- our ability to scale manufacturing operations (particularly with respect to our products that recently received U.S. Food and Drug Administration (FDA) EUA clearance) and manage operating expenses, gross margins and inventory levels;

- potential shortages, or increases in costs, of components or other disruptions to our manufacturing operations;

- our ability to obtain and enforce intellectual property protections on our products and technologies;

- our ability to successfully develop and launch new products in a timely manner;

- competition and competitive technologies utilized by our competitors;

- dependence on strategic partners for development, commercialization and distribution of products;

- reliance upon the accuracy and completeness of the information received from strategic partners to determine the appropriate financial reporting;

- risks and uncertainties associated with implementing our acquisition strategy, and our challenge to identify acquisition targets, including our ability to obtain financing on acceptable terms;

- our ability to integrate acquired companies or selected assets into our consolidated business operations, and the ability to fully realize the benefits of our acquisitions;

- fluctuations in quarterly results due to a lengthy and unpredictable sales cycle, fluctuations in bulk purchases of consumables, fluctuations in product mix and the seasonal nature of some of our assay products;

- our ability to comply with applicable laws, regulations, policies and procedures;
- the impact of the ongoing uncertainty in global finance markets and changes in governmental and governmental agency funding, including its effects on the capital spending policies of our partners and end users and their ability to finance purchases of our products;
- changes in principal members of our management staff;
- our increasing dependency on information technology to enable us to improve the effectiveness of our operations and to monitor financial accuracy and efficiency;
- implementation, including any modification, of our strategic operating plans;
- uncertainty regarding the outcome or expense of any litigation brought against or initiated by us;
- risks relating to our foreign operations, including fluctuations in exchange rates, tariffs, customs and other barriers to importing/exporting materials and products in a cost-effective and timely manner; difficulties in accounts receivable collections; our ability to monitor and comply with foreign and international laws and treaties; and our ability to comply with changes in international taxation policies;
- budget or finance constraints in the current economic environment, or periodic variability in customer purchasing patterns or practices as a result of material resource planning challenges;
- reliance on third party distributors for distribution of specific Luminex-developed and manufactured assay products; and
- risks related to the issuance of the Notes and with respect to the Convertible Note Hedge Transactions.

Many of these risks, uncertainties and other factors are beyond our control and are difficult to predict. Any or all of our forward-looking statements in this Quarterly Report on Form 10-Q may turn out to be inaccurate. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy and financial needs. New factors could also emerge from time to time that could adversely affect our business. The forward-looking statements herein can be affected by inaccurate assumptions we might make or by known or unknown risks, uncertainties and assumptions, including the risks, uncertainties and assumptions outlined above and described in the 2019 10-K (as updated by Part II, Item 1A of our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2020, the quarter ended June 30, 2020, and this Quarterly Report on Form 10-Q). In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this Quarterly Report on Form 10-Q may not occur and actual results could differ materially from those anticipated or implied in the forward-looking statements. When you consider these forward-looking statements, you should keep in mind these risk factors and other cautionary statements in this Quarterly Report on Form 10-Q including in this "Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations" and in our other annual and periodic reports.

Our forward-looking statements speak only as of the date made. We undertake no obligation to publicly update or revise forward-looking statements, whether as a result of new information, future events or otherwise. All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements contained in this Quarterly Report on Form 10-Q.

Unless the context requires otherwise, references in this Quarterly Report on Form 10-Q to "Luminex," the "Company," "we," "us" and "our" refer to Luminex Corporation and its subsidiaries.

OVERVIEW

We develop, manufacture and sell proprietary biological testing technologies and products with applications throughout the life sciences industries, including diagnostics, pharmaceutical and research. These industries depend on a broad range of tests, called assays, to perform diagnostic testing and conduct life science research. We have established a position in several segments of the life sciences industries by developing and delivering products that satisfy a variety of customer needs in specific market segments, including multiplexing, accuracy, precision, sensitivity, specificity, reduction of labor and ability to test for proteins and nucleic acids. These needs are addressed by our proprietary technologies.

Multiplexing, the foundation of our Company, allows the end user in a laboratory to generate multiple laboratory results from a single sample with a single assay. This is important because our end user customers, which include laboratory professionals performing discovery and research, and clinical laboratories performing tests on patients as ordered by physicians and other laboratories, have a fundamental need to perform high quality testing as efficiently as possible. Until the availability of multiplexing technology, the laboratory professional had to perform one assay at a time in a sequential manner, and if additional testing was required on a sample, a second assay would be performed to generate the second result, and so on until all the necessary tests were performed.

Our xMAP Technology

Our xMAP technology is an open architecture, multiplexing technology that combines existing biological testing techniques with illumination, advanced digital signal processing, detection and proprietary software. With our technology, discrete assays are performed on the surface of color-coded microspheres. These microspheres are read in a compact analyzer that utilizes lasers or light emitting diodes, detectors, charge-coupled device imaging and high-speed digital signal processing to simultaneously identify the assay and measure the individual assay results. The key features of xMAP technology include the following:

- Multi-analyte/multi-format

  xMAP technology has been designed to simultaneously perform up to 500 distinct assays in a single tube or well of a microtiter plate using only a small amount of sample. Moreover, unlike most existing technologies that are dedicated to only one type of assay, xMAP can perform multiple types of assays including enzymatic, genetic and immunologic tests on the same instrument platform.

- Flexibility/scalability

  xMAP technology allows for flexibility in customizing test panels. Panels can be modified to include new assays in the same tube by adding additional microsphere sets. It is also scalable, meaning that there is no change in the manufacturing process and only minimal changes to the labor are required to produce a small or large number of microsphere-based tests.

- Both protein and nucleic acid applications on a single platform

  xMAP technology has an advantage due to its ability to analyze both proteins and nucleic acids. This allows customers to utilize a single platform to evaluate samples across more biological parameters to generate a more complete assessment of these samples. Alternative technologies are typically restricted to either proteins or nucleic acid, requiring customers to use two or more technologies from other vendors to get the same information.

- High throughput

  Our technology can perform up to 500 tests in a single well, permitting up to 96,000 tests to be detected in approximately one hour with only a small amount of sample. Rapid sample analysis permits efficient use for high-throughput applications.

- Ease of use

  Most xMAP-based assays are simple to perform. A test sample is added to a solution containing microspheres that have been coated with reagents. The solution is then processed through one of our xMAP Systems, which incorporate proprietary software to automate data acquisition and analysis in real-time.

- Cost-effective

  By performing multiple assays at one time, xMAP technology is designed to be cost-effective for customers, compared to competitive techniques such as enzyme-linked immuno-sorbent assay and real-time polymerase chain reaction (PCR). By analyzing only those assays in which a customer is interested, xMAP is also more cost-effective than most competing microarray technologies. In addition, microsphere-based assays are inexpensive compared to other technologies, such as chip-based microarrays.

Two types of microspheres, polystyrene microspheres and polystyrene magnetic microspheres, are both fundamental components of our xMAP technology. We purchase and manufacture microspheres and, in a proprietary process, dye them with varying intensities of proprietary dyes to achieve up to 500 distinct colors. The specific dye proportions permit each color-coded microsphere to be readily identified based on its distinctive fluorescent signature. Our customers create assays by attaching different biochemical reactants to each distinctly colored microsphere set. These unique reactants bind, or capture, specific substances present in the test sample. The microsphere sets can then be combined in test panels as required by the user, with a maximum of 500 tests per panel. Customers can order either standard microspheres or magnetic microspheres.

To perform an assay using xMAP technology on our systems, a researcher attaches biomarker detectors such as antibodies or nucleic acid oligos to one or more sets of color-coded microspheres, which are then mixed with a test sample. This mixture is injected into the xMAP analyzer, such as the Luminex 200 instrument, where the microspheres pass single-file in a fluid stream through two laser beams. The first laser excites the internal dyes that are used to identify the color of the microsphere and the test being performed on the surface of the microsphere. The second laser excites a fluorescent dye captured on the surface of the microspheres that is used to detect the result of the assay taking place. Our proprietary optics, digital signal processors and software record the fluorescent signature of each microsphere and compare the results to the known identity of that color-coded microsphere set. The results are analyzed and displayed in real-time with data stored on the computer database for reference, evaluation and analysis.

Our xMAP technology is currently being used within various segments of the life sciences industries, including the fields of drug discovery and development, and for clinical diagnostics, COVID-19, bio-defense, food safety and biomedical research.

We have a full range of instruments using our xMAP Technology: our LUMINEX® 100/200™ Systems offer 100-plex testing; our FLEXMAP 3D® System is our high-throughput, 500-plex testing system; and our MAGPIX® System provides 50-plex testing at a lower cost using imaging rather than flow cytometry. By using our xMAP technology, end users are able to be more efficient by generating multiple simultaneous results per sample. We believe that this technology may also offer advantages in other industries, such as in food safety, animal health and bio-defense/bio-threat markets. Using the xMAP products Luminex has available today, up to 500 simultaneous analyte results can be determined from a single sample.

Our Amnis/Guava® Technologies

We acquired EMD Millipore Corporation's flow cytometry portfolio (the Acquisition) on December 31, 2018, including the Amnis® and Guava® Technologies. Amnis Systems are a family of imaging flow cytometry products for cell-based analysis. With the proprietary Amnis® charge-coupled device detection and time-delayed integration technology, the CellStream® System provides fluorescence and small particle sensitivity in a highly customizable flow cytometer. FlowSight® and ImageStream® imaging flow cytometers combine the speed and sensitivity of flow cytometry with the functional detail and spatial information of microscopy. The Guava® portfolio of products, which are versatile, easy-to-use cytometry systems based on microcapillary fluidics technology, include the Muse® Cell Analyzer, a simple, compact, and affordable system for absolute cell counting, viability, and basic cell health analyses, and the Guava easyCyte™ System, a versatile benchtop platform for additional, multi-dimensional cell health and biological assessments.

The Acquisition expanded Luminex's existing offering of flow-based detection systems, which is centered around our innovative xMAP® multiplexing technology, with approximately 17,700 xMAP Systems sold worldwide (some of which may be retired or otherwise not in use). The results of operations for the Acquisition have been included in Luminex's consolidated financial statements beginning January 1, 2019.

Our Non-Automated Technologies

Our xTAG technology consists of several components, including multiplexed PCR or target identification primers, DNA Tags, xMAP microspheres and data analysis software. xTAG technology permits the development of molecular diagnostic assays for clinical use by hospital and reference laboratories. xTAG technology has also been applied to human genetic assays, pharmacogenetic assays and infectious disease assays.

Our MultiCode technology is based upon a unique assay chemistry that is a flexible platform for both real-time PCR and multiplex PCR-based applications. MultiCode-based PCR assays are primarily used for the detection of infectious diseases and genetic-based conditions. We have multiple molecular diagnostic (MDx) assays based on the MultiCode chemistry. MultiCode products are based upon the unique MultiCode bases, isoC and isoG. The synthetic isoC:isoG DNA base pair differs from the naturally occurring base pairs in its hydrogen bonding pattern. As a result, the MultiCode bases, isoC and isoG, can only pair with each other, but can co-exist with naturally occurring nucleotide pairs. This property enables site-specific incorporation of the isobases during amplification. The MultiCode base pair is recognized by naturally occurring enzymes and can be used for the specific placement of reporter molecules and to increase the molecular recognition capabilities of hybridization-based assays. The MultiCode base pair enables solutions to complex molecular challenges that were previously not possible with natural nucleic acid alone.

We have multiple assay development activities ongoing and these activities are focused in the areas of infectious diseases, human genetics and pharmacogenomics.

Our ARIES® Technology

The ARIES® System is our sample-to-answer platform for our MultiCode®-RTx technology, including In Vitro Diagnostic (IVD) assays. The ARIES® System is a clinical test system which automates and integrates extraction of nucleic acid from a clinical sample, performs real-time PCR, and detects multiple signals generated by target-specific probes. The ARIES® System is used with specific assays to measure multiple analytes indicative of infectious disease. The ARIES® System uses internal barcode scanning and other advanced features to minimize operator errors. Each independent module supports from one to six cassettes, allowing for both STAT and batch testing. The ARIES® System can run both IVD and MultiCode® Analyte Specific Reagents simultaneously with a common Universal Assay Protocol.

Our VERIGENE Technology

Our offering in the molecular diagnostic market segment includes proprietary diagnostic tools that enable rapid and accurate detection of respiratory, gastrointestinal and bloodstream infections. Our FDA cleared VERIGENE® Gram-Positive Blood Culture (BC-GP) and Gram-Negative Blood Culture (BC-GN) test panels for the early detection of pathogens associated with bloodstream infections are leading products in the high-growth bloodstream infection testing segment. In addition to detecting bacteria, these panels also detect yeast and identify antibiotic resistance markers. In contrast to traditional methodologies, which can take several days, these assays enable physicians to identify pathogens, including any associated resistance markers, and prescribe the most appropriate antibiotic regimen, all within 2.5 hours after identification of a positive blood culture. The ability for clinicians to make earlier, better informed therapeutic decisions results in improved patient outcomes and lower healthcare costs. Our VERIGENE product offering also includes FDA-cleared products for the detection of gastrointestinal and respiratory infections. These consist of a targeted product for the detection of *C. difficile*, as well as highly multiplexed molecular enteric, blood and respiratory pathogen panels which test for a wide spectrum of microorganisms often associated with these types of infections. With the combination of the ARIES® and VERIGENE platforms, Luminex offers customers automated molecular platforms for both targeted and syndromic molecular diagnostic testing.

The VERIGENE System is an automated multiplex-capable system that rapidly and accurately detects infectious pathogens and drug resistance markers. The VERIGENE System consists of: (i) VERIGENE Test Cartridges, which are single-use, self-contained test units, and (ii) VERIGENE instrumentation, including the VERIGENE Processor SP, which is a modular benchtop analyzer that combines automated nucleic acid extraction, purification, amplification (if needed), and hybridization in each module, as well as the VERIGENE Reader, which manages sample information and reads results from processed cartridges. Tests that run on the VERIGENE System are primarily designed to identify infections in the bloodstream, respiratory tract, and gastrointestinal tract.

The VERIGENE System utilizes advanced automation and proprietary chemistry to enable rapid sample-to-result detection of nucleic acid and protein targets. NanoGrid Technology, a unique gold nanoparticle probe chemistry, is the driving force behind all VERIGENE tests, providing a foundation for the VERIGENE System’s menu of clinically meaningful diagnostics.

In addition to our menu of infectious disease tests, we are currently developing a next generation VERIGENE System, VERIGENE II, that we expect will deliver an improved user experience. This next generation system is designed to provide a reduced time to result, an improved user interface and a room temperature cartridge, all in a fully automated sample-to-result system with an optimized footprint. In addition, customers using this system will have the ability to select both individual and groups of targets on assays using *Flex*™ pricing. This approach to target selection allows customers to save money by only paying for the targets they wish to see, which will often align with healthcare standard of care guidelines, when available. If these results do not provide a conclusive diagnosis, additional targets that were tested for but not released can immediately be viewed for an incremental charge.

Our Market Approach

We primarily serve the life sciences industries by marketing products, including our specific testing equipment and assays, to various types of testing laboratories. We have a large base of installed systems that has grown primarily from the following:

- Placements made by customers within our Licensed Technologies Group (LTG) in which customers either:
    - license our xMAP technology and develop products that incorporate our xMAP technology into products that they then sell to end users, or
    - purchase our proprietary xMAP laboratory instrumentation and our proprietary xMAP microspheres and sell xMAP-based assays and/or xMAP-based testing services, which run on the xMAP instrumentation, and pay a royalty to us; and
- A direct sales force that focuses on the sale of molecular diagnostic assays that run on our systems.

As of September 30, 2020, Luminex had 84 strategic partners, of which 56 have released commercialized reagent-based products utilizing our technology. Our remaining partners are in various stages of development and commercialization of products that incorporate our technology. Luminex and these partners have sold approximately 17,700 xMAP-based instruments in laboratories worldwide as of September 30, 2020 (some of which may be retired or otherwise not in use). Our remaining LTG customers are in various stages of development and commercialization of products incorporating our technology.

A primary focus for our growth is the development and sale of molecular diagnostic assays utilizing our proprietary MultiCode® and VERIGENE technologies for use on our installed base of systems. We utilize a direct sales model for commercialization of these products, which is intended to take advantage of our increasing installed base of instruments. Our assays are primarily focused on multiplexed applications for the human molecular clinical diagnostics market. Our assays are also currently focused on three segments of the molecular diagnostic testing market: infectious diseases, personalized medicine and human genetics.

The following systems and assays are available on the market as of September 30, 2020:

	FDA		CE-IVD MARK	
	Clearance	Commercial Launch	Declaration	Commercial Launch
ARIES® HSV 1&2 Assay	☑	2015 - Q4	☑	2016 - Q1
ARIES® Flu A/B & RSV Assay	☑	2016 - Q2	☑	2016 - Q2
ARIES® Group B Streptococcus (GBS) Assay	☑	2017 - Q1	☑	2016 - Q4
ARIES® Bordetella Assay	☑	2017 - Q2	☑	2017 - Q3
ARIES® Norovirus Assay			☑	2017 - Q2
ARIES® C. Difficile Assay	☑	2017 - Q3	☑	2017 - Q3
ARIES® Group A Strep Assay	☑	2017 - Q4	☑	2017 - Q4
ARIES® MRSA Assay	☑	2019 - Q3		
ARIES® SARS-CoV-2 Assay	☑	2020 - Q2		
Muse® Auto CD4/CD4% Reagent Kit			☑	2018 - Q4
NxTAG® CoV Extended Panel	☑	2020 - Q1		
NxTAG® Respiratory Pathogen Panel (RPP)	☑	2016 - Q1	☑	2015 - Q4
VERIGENE® Clostridium Difficile Test (CDF)	☑	2012 - Q4	☑	2013 - Q2
VERIGENE® Enteric Pathogens Test (EP)	☑	2014 - Q4	☑	2015 - Q4
VERIGENE® Gram-Negative Blood Culture Test (BC-GN)	☑	2014 - Q2	☑	2013 - Q1
VERIGENE® Gram-Positive Blood Culture Test (BC-GP)	☑	2012 - Q4	☑	2012 - Q1
VERIGENE® Respiratory Pathogens Flex Test (RP Flex)	☑	2015 - Q4	☑	2015 - Q2
xMAP® SARS-CoV-2 Multi-Antigen IgG Assay	☑	2020 - Q3		
xTAG® CYP2C19 Kit v3	☑	2013 - Q4	☑	2013 - Q4
xTAG® CYP2D6 Kit v3	☑	2011 - Q2	☑	2013 - Q2
xTAG® Cystic Fibrosis (CFTR) 39 Kit v2	☑	2009 - Q4	☑	2012 - Q1
xTAG® Cystic Fibrosis (CFTR) 60 Kit v2	☑	2010 - Q1		
xTAG® Cystic Fibrosis (CFTR) 71 Kit v2			☑	2009 - Q3
xTAG® Gastrointestinal Pathogen Panel (GPP)	☑	2013 - Q1	☑	2011 - Q2
xTAG® Respiratory Viral Panel (RVP)	☑	2008 - Q1	☑	2007 - Q4
xTAG® Respiratory Viral Panel (RVP) FAST v2			☑	2011 - Q4

We plan to submit additional assays to regulatory authorities in 2020, including the FDA and foreign equivalents, for market authorization in order to comply with established guidelines across the jurisdictions in which we participate.

Third Quarter 2020 Highlights

- Consolidated revenue was $106.1 million for the quarter ended September 30, 2020, a 35% increase over the prior year period.
- Total assay revenue increased to $55.6 million for the quarter ended September 30, 2020, an 89% increase over the prior year period.
- Sample-to-answer assay revenue increased to $26.0 million for the quarter ended September 30, 2020, a 68% increase over the prior year period.

- Received two BARDA awards related to completing a 510(k) filing for Luminex's expanded NxTAG® Respiratory Pathogen Panel (RPP), which will include the SARS-CoV-2 virus for COVID-19 testing, and to support the enhancement of the Company's xMAP® SARS-CoV-2 Multi-Antigen IgG Assay.

- Given the increased demand resulting from COVID-19, the Company ended the third quarter with booked orders of over $36 million, consisting of orders placed for future delivery and orders we were unable to provide by the end of the quarter, which will be filled in the fourth quarter. The Company believes that orders it was unable to ship in the third quarter as a result of capacity constraints will be fulfilled in the fourth quarter.

- Cash generation of approximately $16.8 million for the quarter ended September 30, 2020.

- Received FDA EUA for the xMAP® SARS-CoV-2 Multi-Antigen IgG Assay on July 16, 2020.

COVID-19 Considerations

Since December 2019, COVID-19 has spread rapidly, with most countries and territories worldwide having confirmed cases, and a high concentration of cases in the U.S. and many other countries in which we operate. The rapid spread has resulted in authorities around the world implementing numerous measures to contain the virus, such as travel bans and restrictions, quarantines, shelter-in-place orders and business shutdowns. The pandemic and these containment measures have had, and are expected to continue to have, a substantial negative impact on businesses around the world and on global, regional and national economies.

Our priorities during the COVID-19 pandemic have been, among others, protecting the health and safety of our employees; providing multiple solutions to the marketplace, including our EUA SARS-CoV-2 tests; and ramping up manufacturing to help our customers meet and overcome their current challenges.

Our overall revenues were materially enhanced by COVID-19-related product sales. For the quarter ended September 30, 2020, the COVID-19 pandemic was the primary driver behind our 35% increase in revenue over the third quarter of 2019. We experienced an overall 89% increase in assay revenue, with our combined respiratory-related products up more than 100% as a result of the use of our products related to the pandemic. At the beginning of the pandemic, our customers initially used our products to rule out other respiratory illnesses. However, once we received EUAs for our COVID-19 molecular diagnostic tests, our volume shifted towards our COVID-19 specific products.

The increases in assay sales revenue and system sales were partially offset by a decrease in revenue from consumable sales and royalty revenue as a result of pressures faced by some of our partners. System sales increased in the current quarter, primarily driven by higher system placements of sample-to-answer, flow cytometry, and multiplexing systems in the current quarter as compared to the prior year quarter. Sample-to-answer sales continued to benefit in part from the COVID-19 pandemic and flow cytometry instrument sales showed improvement in the current quarter, with increases of more than 40% as compared to the second quarter of 2020. However, we expect that full year 2020 flow cytometry revenue will be down compared to 2019. We sold 288 multiplexing analyzers in the three months ended September 30, 2020, as compared to 255 multiplexing analyzers sold in the comparable period in 2019. In addition, consumable and royalty revenue from our partners declined in the current quarter, primarily driven by a reduction in bulk purchases from certain large partners and the pressures faced by academic research and diagnostic institutions as a result of the pandemic in the U.S.

Given the increased demand for certain of our assay products in the third quarter of 2020, the pandemic has not negatively impacted the Company's liquidity position to date. As of September 30, 2020, we believe that we have the cash necessary to meet our short-term liquidity needs. We also have not observed any material impairments of our assets or a significant change in the fair market value of our assets due to the COVID-19 pandemic.

Our additional research and development efforts related to our recent EUA SARS-CoV-2 tests were partially funded by two BARDA contracts awarded to the Company for the development, testing and submission of these tests. In September, 2020, we were awarded two additional BARDA contracts related to completing a 510(k) filing for Luminex's expanded NxTAG® Respiratory Pathogen Panel (RPP), which includes the SARS-CoV-2 virus for COVID-19 testing and to support the enhancement of the company's xMAP® SARS-CoV-2 Multi-Antigen IgG Assay. Please refer to "BARDA Contracts" below for further discussion.

During the quarter ended September 30, 2020, we focused our energies on increasing our manufacturing capacity (nearly doubling prior capability since the beginning of the year), while portions of our workforce worked remotely as their positions allowed. Our ability to continue to operate without any significant negative operational impact from the COVID-19 pandemic will, in part, depend on our ability to protect our employees and maintain our supply chain. Continued rapid expansion of capacity may be constrained by long lead-time purchased items and capital equipment needs. The Company continues to endeavor to follow the recommended actions of government and health authorities to protect our employees, with particular measures in place for employees who manufacture our products. For the three months ended September 30, 2020, we maintained the consistency of our operations during the COVID-19 pandemic. We intend to continue to adhere to our employee safety measures to ensure that any disruptions to our operations remain minimal during the pandemic. However, the complications resulting from the pandemic could result in unforeseen disruptions to our workforce and supply chain (e.g., the inability of a key supplier or transportation supplier to source, transport and supply materials to the Company that are necessary for continued operations) that could negatively impact our operations.

We believe the extent of the COVID-19 pandemic's impact on our operating results and financial condition will be driven by many factors, most of which are beyond our control and ability to forecast. Such factors include, but are not limited to, the severity and duration of the pandemic, our ability to timely develop, commercialize and manufacture solutions related to the pandemic, the extent and the effectiveness of responsive actions taken by authorities of impacted countries, the impact of these and other factors on our employees, customers and suppliers, as well as any resulting impact of the economic uncertainty and volatility that could affect demand for our products. Because of these and other uncertainties, we cannot estimate the length or extent of the impact of the pandemic on our business. For additional information on risk factors related to the pandemic or other risks that could impact our results, please refer to "Risk Factors" included in Part I, Item 1A of our 2019 10-K, and as updated by Part II, Item 1A of our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2020, the quarter ended June 30, 2020, and this Quarterly Report on Form 10-Q.

BARDA Contracts

In March 2020, BARDA awarded the Company two milestone-based contracts, with a value of $642,450 each, funding approximately 36% of the overall cost of development, testing and submission for two EUAs to provide rapid answers to patients believed to have COVID-19. Luminex funded the remaining 64% of the total program costs, representing $1.1 million each. In March 2020, the Company received FDA EUA for its new NxTAG CoV Extended Panel, a high-throughput test for detecting SARS-CoV-2 that provides results for up to 96 samples in approximately four hours. The NxTAG CoV Extended Panel runs on Luminex's easy-to-use, compact MAGPIX® System. In April 2020, the Company received FDA EUA for its new ARIES® SARS-CoV-2 Assay, which is designed to provide rapid answers to patients believed to have COVID-19, generating results in approximately two hours. The test can be run on both 6-unit and 12-unit ARIES® Systems.

In September, BARDA awarded the Company two additional milestone-based contracts valued at $5,389,813 and $683,500, respectively, related to completing a 510(k) filing for Luminex's expanded NxTAG® RPP, which includes the SARS-CoV-2 virus for COVID-19 testing and to support the enhancement of the company's xMAP® SARS-CoV-2 Multi-Antigen IgG Assay. The Company intends to submit this enhanced serology assay for an EUA when this project is completed. No government contract revenue has been recorded to date for either of these two new BARDA contracts.

FDA Matters

On June 26, 2020, the Company received a warning letter (Warning Letter) from the FDA relating to the operations of the Company's Austin, Texas and Northbrook, Illinois facilities (Facilities) and the Company's VERIGENE® Processor SP System. The Warning Letter resulted from inspections held at the Facilities from February 10, 2020 to February 14, 2020. The Warning Letter primarily relates to the Company's VERIGENE® SP instrument and its hybridization heater in connection with FDA requirements under the Quality System Regulation (21 C.F.R. Part 820) and the regulation of Medical Device Corrections and Removals (21 C.F.R. Part 806).

The Company took the matters identified in the Warning Letter very seriously and timely submitted a response to the FDA regarding the issues raised in the Warning Letter, as requested by the FDA, and continues working diligently and expeditiously to resolve the issues raised by the FDA. The Warning Letter did not restrict the manufacture, production or shipment of any of the Company's products, nor require the withdrawal of any product from the marketplace. The Company believes it is taking appropriate measures to address the items identified by the FDA with respect to the VERIGENE SP instrument and its hybridization heater, and the Company included communication of these measures in its response to the Warning Letter. Specifically, we recalled all non-Luminex generated temperature verification fixtures from the field and replaced them with in-house built and verified fixtures by September 18, 2020. Additionally, we are executing a field action to re-calibrate all VERIGENE SP instruments deployed in the field with in-house built and verified temperature verification fixtures by March 18, 2021. In addition, the Company continues to evaluate what further corrective or preventive action may be required.

The Company has responded to the FDA's concerns raised in the Warning Letter but cannot give assurances that the FDA will be satisfied with its response to the Warning Letter or that such response will resolve the issues identified in the Warning Letter. Failure to promptly and fully address the issues raised in the Warning Letter to the FDA's satisfaction or to comply with U.S. medical device regulatory requirements in general could result in further regulatory and enforcement actions being initiated by the FDA. These actions could result in, among other things, product recalls, product seizures, injunctions, civil monetary penalties, further delays in obtaining marketing authorization for products, an impact on federal contracts, limitations on our ability to export products, and criminal enforcement action. Any such actions could disrupt our ongoing business and operations and potentially have a material adverse effect on our business, financial condition and results of operations.

Consumables Sales and Royalty Revenue Trends

We have experienced significant fluctuations in consumable revenue over the past several years. Overall, the fluctuations were partially due to periodic changes in volume from our largest purchasing customers. On a quarterly basis, our largest customers account for approximately 70% of our total consumable sales volume. We expect these fluctuations to continue as the ordering patterns and inventory levels of our largest bulk purchasing partners remain variable. Additionally, even though we experience variability in consumable revenue, the key indicator of the success of our partners' commercialization efforts is the rising level of royalties and reported royalty-bearing sales.

Growth in Inventory

Our inventory has increased from $76.1 million as of September 30, 2019 to $109.8 million as of September 30, 2020, primarily as a result of increases in COVID-19 assay finished goods and instrument inventory to support significant increases in demand. We anticipate inventory levels will further increase in the last quarter of 2020, primarily as a result of stocking COVID-19-related products to further support current and anticipated demand and new product launches.

Future Operations

We expect our areas of focus over the next twelve months to be:

- delivering on our revenue growth goals;
- development and commercialization of SARS-CoV-2-related diagnostic and serology tests, as well as support of partner activities focused on testing, treatment, and vaccines for SARS-CoV-2;
- maintenance and improvement of our existing products and the timely development, completion and successful commercial launch of our pipeline products;
- completing development and commercialization of the next generation sample-to-answer system, VERIGENE II, our next generation xMAP System and xMAP INTELLIFLEX;
- accelerating development and commercialization of the assays on our sample-to-answer diagnostic systems;
- monitoring and mitigating the effect of the ongoing uncertainty and volatility in global finance markets and changes in government funding on planned purchases by end users;

- improvement of ARIES® and VERIGENE gross margins;
- placements of our VERIGENE and ARIES® Systems, our sample-to-answer platforms and assays;
- increasing the growth of our LTG revenue through enrichment of our existing partner relationships and the addition of new partners;
- adoption and use of our platforms and consumables by our customers for their testing services; and
- expansion and enhancement of our installed base of systems and our market position within our identified target market segments.

We anticipate continued revenue concentration in our higher margin items (assays, consumables and royalties). Additionally, we believe that a sustained investment in research and development is necessary in order to meet the needs of our marketplace and to provide a sustainable new product pipeline. We may experience volatility in research and development expenses as a percentage of revenue on a quarterly basis as a result of the timing of development expenses, clinical validation and clinical trials in advance of the commercial launch of our new products.

CRITICAL ACCOUNTING POLICIES

The discussion and analysis of our financial condition and results of operations are based upon our condensed consolidated financial statements, which have been prepared in accordance with U.S. GAAP for interim financial statements. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Estimates and assumptions are reviewed periodically. Actual results may differ from these estimates under different assumptions or conditions.

Except for the new accounting policies related to the issuance of the Notes disclosed above in Part I, Item 1 “Notes to Condensed Consolidated Financial Statements—Note 11 - Convertible Senior Notes” in this Quarterly Report on Form 10-Q, there were no other significant changes in our critical accounting policies or estimates that we disclosed as our critical accounting policies and estimates in Management’s Discussion and Analysis of Financial Condition and Results of Operations in the 2019 10-K.

KEY PERFORMANCE INDICATORS

We present certain key performance indicators (KPIs) that management uses when assessing our results. We intend for this Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A) to provide the reader with information that will assist in better understanding our financial condition and results of operations. Management uses these KPIs for decisions about the allocation of resources, and we believe they are useful to investors because they provide additional information about our underlying operational performance and trends. These KPIs may not be defined or calculated in the same way as similar KPIs used by other companies. Throughout this MD&A, we commonly discuss the following performance metrics:

- Revenues, disaggregated by revenue source, into the following primary categories:
  - Systems sales revenue. System sales revenue is generated from the sale of our xMAP multiplexing analyzers and peripherals, our VERIGENE readers and processors, our ARIES® Systems and our flow cytometers and cellular analysis instruments. We believe growth in system sales revenue and the number of units sold (some of which may be retired or otherwise not in use) is useful to investors because we depend upon the placement of units as a basis for growth in each of the other revenue categories.
  - Consumables sales revenue. Consumable sales revenue is generated from the sale of our dyed polystyrene microspheres, along with sheath and drive fluid. Our larger commercial and development partners often purchase consumables in bulk orders to minimize the number of incoming qualification events and to allow for longer development and production runs. We believe growth in consumables sales revenue is an indicator of the use of our technology in both our customers’ current products and the development of new products in their pipelines.

- Royalty revenue. Royalty revenue is generated when a partner sells our proprietary microspheres to an end user; when a partner sells a kit incorporating our proprietary microspheres to an end user; or when a partner utilizes a kit to provide a testing result to an end user. We believe royalty revenue is a key indicator of the success of our partners' commercialization efforts.

- Assay revenue. Assay revenue is generated primarily from four sources: (i) sale of our branded kits, which are a combination of chemical and biological reagents and our proprietary xMAP bead technology used to perform diagnostic and research assays on samples, (ii) real-time PCR and multiplexed PCR assays using our proprietary MultiCode technology, (iii) ARIES® cassettes designed to run a fully automated, sample-to-answer molecular assay on the ARIES® System, and (iv) VERIGENE test cartridges. We believe assay revenue is a key indicator of our success in addressing current assay market needs in a manner that is cost competitive.

We believe that analyzing the revenue by source is a useful indicator of the trends affecting our different types of customers, the progression to more automated technologies, and the acceptance and success of our products in the market.

- Gross margin (gross profit as a percentage of total revenue) and how it is impacted by the mix of revenues. The concentration of sales in our higher margin items (royalties, consumables, and non-automated assays) drives fluctuation in our gross margin and related gross profit primarily as a result of variability in consumable and system purchases and seasonality effects inherent in our assay revenue. Our gross margins can also be impacted by the absorption of acquired businesses, the loss of high margin sales to major customers and the increase in sample-to-answer assay revenue, which historically carries a lower gross margin.

- Research and development expense and the volatility of expenses driven by the projects in our pipeline and the stage of each of these projects in their development. Large fluctuations in our research and development expense can occur due to volatility in the costs and expenses of direct materials used in development, outside services and the timing of clinical trials.

- The Company's ability to meet anticipated product development timelines and to deliver on our planned commercial product launches.

The Company's management uses these KPIs to evaluate its results of operations and the Company believes that these KPIs provide additional perspective and insight to investors when analyzing the operating performance of the Company from period to period and help identify trends in its historical operating results.

RESULTS OF OPERATIONS

THREE MONTHS ENDED SEPTEMBER 30, 2020 COMPARED TO THREE MONTHS ENDED SEPTEMBER 30, 2019

Selected consolidated financial data for the three months ended September 30, 2020 and 2019 is as follows:

	Three Months Ended September 30,			
	2020	2019	Variance	Variance (%)
	(dollars in thousands)			
Revenue	$ 106,060	$ 78,673	$ 27,387	35 %
Gross profit	$ 63,381	$ 41,840	$ 21,541	51 %
Gross margin percentage	60 %	53 %	7 %	N/A
Operating expenses	$ 51,855	$ 47,562	$ 4,293	9 %
Income (loss) from operations	$ 11,526	$ (5,722)	$ 17,248	301 %
Net income (loss)	$ 1,767	$ (5,250)	$ 7,017	134 %

Total revenue increased by 35% to $106.1 million for the three months ended September 30, 2020 from $78.7 million for the comparable period in 2019. The Company experienced increases primarily in assay and system sales, partially offset by decreases in royalty and consumables revenue compared to the prior year period. Total assay revenue increased 89% as compared to the same period in 2019 and such increase was mainly attributable to increased demand for respiratory and related products stemming from the COVID-19 pandemic, with increases in both our non-automated and automated assay revenue. Non-automated assay revenue grew 117% to $29.2 million for the three months ended September 30, 2020 from $13.4 million for the comparable period in 2019 and comprised 52% of total assay revenue for the three months ended September 30, 2020 compared to 46% of total assay revenue for the comparable period in 2019. Automated assay revenue, which consists of VERIGENE and ARIES® assays, grew 68% to $26.0 million for the three months ended September 30, 2020 from $15.5 million in the comparable period in 2019.

The following table presents our revenues disaggregated by revenue source for the three months ended September 30, 2020 and 2019 as follows:

	Three Months Ended September 30,			
	2020	2019	Variance	Variance (%)
	(dollars in thousands)			
System sales	$ 19,482	$ 15,239	$ 4,243	28 %
Consumable sales	11,812	13,359	(1,547)	(12)%
Royalty revenue	9,627	12,993	(3,366)	(26)%
Assay revenue	55,647	29,468	26,179	89 %
Service revenue	5,951	5,349	602	11 %
Other revenue	3,541	2,265	1,276	56 %
	$ 106,060	$ 78,673	$ 27,387	35 %

We continue to have revenue concentration in a limited number of customers. Five customers accounted for 23% of total revenue in the third quarter of 2020, down from 32% in the third quarter of 2019. In particular, our two largest customers by revenue accounted for 14% of revenue in the third quarter of 2020 (9% and 5%, respectively), a decrease from 20% of revenue from the third quarter of 2019 (13% and 7%, respectively). No other customer accounted for more than 5% and 6% of third quarter total revenue in 2020 or 2019, respectively.

Revenue from the sale of systems and peripheral components increased 28% to $19.5 million for the three months ended September 30, 2020, from $15.2 million for the three months ended September 30, 2019. This increase primarily resulted from higher system placements of sample-to-answer, flow cytometry and multiplexing systems in the current quarter as compared to the prior year quarter. Sample-to-answer sales continued to benefit in part from the increased demand resulting from the COVID-19 pandemic and flow cytometry instrument sales showed improvement in the current quarter, with increases of 13% compared to the third quarter 2020. However, we expect that full year flow cytometry revenue will be down compared to 2019. We sold 288 multiplexing analyzers in the three months ended September 30, 2020, as compared to 255 multiplexing analyzers sold in the comparable period in 2019, primarily as a result of increased demand from the COVID-19 pandemic. For the three months ended September 30, 2020, our five highest selling partners accounted for 229 systems, or 80%, of total multiplexing analyzers sold, whereas, our five highest selling partners in the comparable period in 2019 accounted for 222, or 87%, of total multiplexing analyzers sold.

Consumable sales, comprised of microspheres and sheath fluid, decreased 12% to $11.8 million in the three months ended September 30, 2020 from $13.4 million in the comparable period in 2019. During the third quarter of 2020, we had 18 bulk purchases of consumables totaling $8.4 million (71% of total consumable revenue), ranging from $0.1 million to $3.0 million, as compared with 19 bulk purchases totaling approximately $10.2 million (76% of total consumable revenue) in the comparable period in 2019. The decrease in revenue from bulk purchases in the third quarter of 2020 was the primary driver of the decrease in consumable revenue from the prior year quarter. We expect fluctuations in consumable sales on an ongoing basis. Partners who reported royalty-bearing sales accounted for $7.5 million, or 64%, of consumable sales for the three months ended September 30, 2020 compared to $7.8 million, or 58%, of the total consumable sales for the three months ended September 30, 2019.

Royalty revenue, which results from our partners selling products or testing services that incorporate our technology, decreased 26% to $9.6 million for the three months ended September 30, 2020, from $13.0 million for the three months ended September 30, 2019, primarily attributable to an expectation of lower aggregate royalties to be reported by our partners. Some of our partners' reports on end user sales have already indicated declines which were primarily the result of COVID-19. Additionally, we expect modest fluctuations in the royalties submitted quarter to quarter, absent COVID-19 related effects, based upon the varying contractual terms, differing reporting and payment requirements, the addition of new partners, and adjustments to previous accruals. Our partners' end user sales may reflect volatility from quarter to quarter and, therefore, that same volatility is reflected in our reported royalty revenues on a quarterly basis.

Assay revenue increased 89% to $55.6 million for the three months ended September 30, 2020, from $29.5 million in the comparable period in 2019, predominantly driven by increased demand for respiratory and related products stemming from the COVID-19 pandemic. Our non-automated testing assays increased by 117% to $29.2 million in the three months ended September 30, 2020, from $13.4 million in the three months ended September 30, 2019. Similarly, our sample-to-answer assay revenue, which consists of VERIGENE and ARIES® assay sales, grew 68% to $26.0 million for the three months ended September 30, 2020, from $15.5 million on September 30, 2019. No customer accounted for more than 9% of total assay revenue during the three months ended September 30, 2020 and 2019.

Service revenue, comprised of extended warranty contracts earned ratably over the term of a contract and time and materials for billable service work not under an extended warranty contract, increased 11% to $6.0 million during the three months ended September 30, 2020, from $5.3 million in the three months ended September 30, 2019. On September 30, 2020, we had approximately 3,500 Luminex systems covered under extended service agreements and $10.7 million in deferred revenue related to those contracts. On September 30, 2019, we had approximately 3,000 systems covered under extended service agreements and $9.0 million in deferred revenue related to those contracts.

Other revenue, which includes training revenue, shipping revenue, miscellaneous part sales, amortized license fees, software revenue, custom service agreements and revenue from agreements with U.S. government agencies, increased 56% to $3.5 million for the three months ended September 30, 2020 compared to $2.3 million for the three months ended September 30, 2019. This increase was primarily attributable to higher shipping and software revenue in the third quarter of 2020, as compared to the third quarter of 2019.

Gross Profit. Gross profit increased 51% to $63.4 million for the three months ended September 30, 2020, as compared to $41.8 million for the three months ended September 30, 2019. Gross margin (gross profit as a percentage of total revenue) was 60% for the three months ended September 30, 2020, as compared to 53% for the three months ended September 30, 2019. This increase in gross margin was primarily attributable to the economies of scale realized in manufacturing, in addition to a net favorable sales mix in the current quarter, primarily from higher sales of non-automated testing assays. We anticipate fluctuation in gross margin and related gross profit primarily as a result of variability in consumable and system purchases and seasonality effects inherent in our assay revenue.

Research and Development Expense. Research and development expenses increased to $14.1 million, or 13% of total revenue, for the three months ended September 30, 2020, from $13.3 million, or 17% of total revenue, in the comparable period in 2019. The increase in research and development expenses reflects higher outside service expenses related to COVID-19 assay development activities. Research and development expenses in the current quarter include expenses related to the development and testing of our VERIGENE SP SARS-CoV-2 and VERIGENE II RSP *Flex* + CoV assays. Research and development headcount as of September 30, 2020 was 217, as compared to 230 as of September 30, 2019. The focus of our research and development activities is on expanding the portfolio of COVID-19 solutions, in addition to our ongoing efforts around the development and commercialization of the VERIGENE II System, and associated assays; and the development of the xMAP INTELLIFLEX System.

Selling, General and Administrative Expense. Selling, general and administrative expenses, excluding the amortization of acquired intangible assets, increased to $34.9 million for the three months ended September 30, 2020, from $31.4 million for the comparable period in 2019. The increase over the prior year quarter was attributable to higher sales and marketing expenses, in particular, commission and personnel-related costs in the current quarter. Selling, general and administrative headcount at September 30, 2020 was 494, as compared to 486 on September 30, 2019. As a percentage of revenue, selling, general and administrative expenses, excluding the amortization of acquired intangible assets, was 33% for the three months ended September 30, 2020 and 40% for the comparable period in 2019.

Income taxes. Our effective tax rate for the three months ended September 30, 2020 was 73%, or $4.8 million, as compared to a benefit of 8%, or $0.5 million, for the three months ended September 30, 2019. Absent significant discrete items, we expect our consolidated full-year effective tax rate for 2020 to be between 35% to 45%, compared to 20% to 30% as estimated in the second quarter of 2020, as a result of a change in the forecast mix of earnings in the Company's U.S. and foreign jurisdictions and related tax effects pursuant to the provisions of the 2017 Tax Cuts and Jobs Act. See Note 13 - Income Taxes to our Condensed Consolidated Financial Statements for further information.

Interest and Other Expense, Net. Interest and other expense, net, consists primarily of interest expense and income. We earn interest income on our cash, cash equivalents and investments. Interest expense consists primarily of the interest from the amortization of debt discount, issuance costs, and coupon interest attributable to the Notes issued in May 2020. For the three months ended September 30, 2020, our interest expense was approximately $4.5 million.

NINE MONTHS ENDED SEPTEMBER 30, 2020 COMPARED TO NINE MONTHS ENDED SEPTEMBER 30, 2019

Selected consolidated financial data for the nine months ended September 30, 2020 and 2019 is as follows:

	Nine Months Ended September 30,			
	2020	2019	Variance	Variance (%)
	(dollars in thousands)			
Revenue	$ 306,003	$ 244,137	$ 61,866	25 %
Gross profit	$ 183,408	$ 132,874	$ 50,534	38 %
Gross margin percentage	60 %	54 %	6 %	N/A
Operating expenses	$ 151,465	$ 147,936	$ 3,529	2 %
Income (loss) from operations	$ 31,943	$ (15,062)	$ 47,005	312 %
Net income (loss)	$ 14,931	$ (7,221)	$ 22,152	307 %

Total revenue increased by 25% to $306.0 million for the nine months ended September 30, 2020 from $244.1 million for the comparable period in 2019. Revenue increases were primarily in assay sales, partially offset by decreases in systems, royalty and consumable revenue compared to the prior year period. Total assay revenue increased 68% as compared to the same period in 2019, and such increase was mainly attributable to increased demand for respiratory and related products stemming from the COVID-19 pandemic, with increases in both our non-automated and automated assay revenue. Non-automated assay revenue grew 89% to $83.9 million for the nine months ended September 30, 2020 from $44.4 million for the comparable period in 2019 and comprised 52% of total assay revenue for the nine months ended September 30, 2020 compared to 46% of total assay revenue for the comparable period in 2019. Automated assay revenue, which consists of VERIGENE and ARIES® assays, grew 53% to $75.2 million for the nine months ended September 30, 2020 from $49.1 million in the comparable period in 2019.

The following table presents our revenues disaggregated by revenue source for the nine months ended September 30, 2020 and 2019 as follows:

	Nine Months Ended September 30,			
	2020	2019	Variance	Variance (%)
	(dollars in thousands)			
System sales	$ 47,006	$ 49,503	$ (2,497)	(5)%
Consumable sales	35,951	36,819	(868)	(2)%
Royalty revenue	34,957	39,997	(5,040)	(13)%
Assay revenue	160,602	95,654	64,948	68 %
Service revenue	17,010	16,762	248	1 %
Other revenue	10,477	5,402	5,075	94 %
	$ 306,003	$ 244,137	$ 61,866	25 %

We continue to have revenue concentration in a limited number of customers. Five customers accounted for 23% of total revenue in the first nine months of 2020, down from 30% in the first nine months of 2019. In particular, our two largest customers by revenue accounted for 15% of revenue in the first nine months of 2020 (10% and 5%, respectively), a decrease from 18% of revenue from the first nine months of 2019 (12% and 6%, respectively). No other customer accounted for more than 5% of revenue in first nine months of 2020 or 2019.

Revenue from the sale of systems and peripheral components decreased 5% to $47.0 million for the nine months ended September 30, 2020, from $49.5 million for the nine months ended September 30, 2019. This decrease primarily resulted from a change in sales mix, with lower sales of flow cytometry instruments and higher sales of sample-to-answer instruments. While the sample-to-answer sales benefited in part from the increased demand resulting from the COVID-19 pandemic, flow cytometry instrument sales within the research market were adversely impacted by the global social distancing restrictions resulting from the COVID-19 pandemic. We sold 719 multiplexing analyzers in the nine months ended September 30, 2020, as compared to 684 multiplexing analyzers sold in the comparable period in 2019. For the nine months ended September 30, 2020, our five highest selling partners accounted for 541 systems, or 79%, of total multiplexing analyzers sold, whereas, our five highest selling partners in the comparable period in 2019 accounted for 572, or 84%, of total multiplexing analyzers sold.

Consumable sales, comprised of microspheres and sheath fluid, decreased 2% to $36.0 million in the nine months ended September 30, 2020 from $36.8 million in the comparable period in 2019. During the first nine months of 2020, we had 56 bulk purchases of consumables totaling $26.2 million (73% of total consumable revenue), ranging from $0.1 million to $3.9 million, as compared with 51 bulk purchases totaling approximately $27.3 million (74% of total consumable revenue) in the comparable period in 2019. The decrease in revenue from bulk purchases in the first nine months of 2020 was the primary driver of the increase in consumable revenue from the prior year period. We expect fluctuations in consumable sales on an ongoing basis. Partners who reported royalty-bearing sales accounted for $21.9 million, or 61%, of consumable sales for the nine months ended September 30, 2020 compared to $24.5 million, or 67%, of the total consumable sales for the nine months ended September 30, 2019.

Royalty revenue, which results from our partners selling products or testing services that incorporate our technology, decreased 13% to $35.0 million for the nine months ended September 30, 2020, from $40.0 million for the nine months ended September 30, 2019, primarily attributable to an expectation of lower aggregate royalties to be reported by our partners. Some of our partners' reports on end user sales have already indicated declines, which were primarily the result of COVID-19. Additionally, we expect modest fluctuations in the royalties submitted quarter to quarter based upon the varying contractual terms, differing reporting and payment requirements, the addition of new partners, and adjustments to previous accruals. Our partners' end user sales may reflect volatility from period to period and, therefore, that same volatility is reflected in our reported royalty revenues.

Assay revenue increased 68% to $160.6 million for the nine months ended September 30, 2020, from $95.7 million in the comparable period in 2019, predominantly driven by increased demand for respiratory and related products stemming from the COVID-19 pandemic. Our non-automated testing assays increased by 89% to $83.9 million in the nine months ended September 30, 2020, from $44.4 million in the nine months ended September 30, 2019. Similarly, our sample-to-answer assay revenue, which consists of VERIGENE and ARIES® assay sales, grew 53% to $75.2 million for the nine months ended September 30, 2020, from $49.1 million on September 30, 2019. The concentration of customers also declined as no customer accounted for more than 5% of total assay revenue during the nine months ended September 30, 2020, down from 10% during the comparable period in 2019.

Service revenue, comprised of extended warranty contracts earned ratably over the term of a contract and time and materials for billable service work not under an extended warranty contract, increased 1% to $17.0 million during the nine months ended September 30, 2020, from $16.8 million in the nine months ended September 30, 2019. On September 30, 2020, we had approximately 3,500 Luminex systems covered under extended service agreements and $10.7 million in deferred revenue related to those contracts. On September 30, 2019, we had approximately 3,000 Luminex systems covered under extended service agreements and $9.0 million in deferred revenue related to those contracts.

Other revenue, which includes training revenue, shipping revenue, miscellaneous part sales, amortized license fees, software revenue, custom service agreements and revenue from agreements with U.S. government agencies, increased 94% to $10.5 million for the nine months ended September 30, 2020 compared to $5.4 million for the nine months ended September 30, 2019. This increase was primarily the result of two BARDA awards totaling approximately $1.3 million received in March 2020 for the development, testing and submission of our NxTAG and ARIES® CoV assays, custom service revenue in the current year period, in addition to increases in shipping revenue in 2020, as compared to 2019.

Gross Profit. Gross profit increased 38% to $183.4 million for the nine months ended September 30, 2020, as compared to $132.9 million for the nine months ended September 30, 2019. Gross margin (gross profit as a percentage of total revenue) was 60% for the nine months ended September 30, 2020, as compared to 54% for the nine months ended September 30, 2019. This increase in gross margin was primarily attributable to the economies of scale realized in manufacturing, in addition to a favorable sales mix in the current year. The concentration of sales in our higher margin items (royalties, consumables, and non-automated assays), represented 51% of revenue for the nine months ended September 30, 2020 and 50% for the comparable period in 2019. We anticipate fluctuation in gross margin and related gross profit primarily as a result of variability in consumable and system purchases and seasonality effects inherent in our assay revenue.

Research and Development Expense. Research and development expenses decreased to $39.9 million, or 13% of total revenue, for the nine months ended September 30, 2020, from $43.3 million, or 18% of total revenue, in the comparable period in 2019. The decrease in research and development expenses was primarily attributable to lower direct material and outside service expenses, reflecting development activities which were lower or completed in 2019 for VERIGENE II assays, the xMAP INTELLIFLEX and Guava Next Gen systems. Research and development expenses in the current year include expenses related to the development and testing of our NxTAG CoV Extended Panel and the ARIES® SARS-CoV-2 Assay which were partially funded under the BARDA contracts awarded in March 2020 and our VERIGENE SP SARS-CoV-2 and VERIGENE II RSP *Flex* + CoV assays. Research and development headcount as of September 30, 2020 was 217, as compared to 230 as of September 30, 2019. The focus of our research and development activities is expanding the portfolio of COVID-19 solutions, in addition to our ongoing efforts around the development and commercialization of the VERIGENE II System, and associated assays, the development of the xMAP INTELLIFLEX System, and the development of the Guava Next Gen System.

Selling, General and Administrative Expense. Selling, general and administrative expenses, excluding the amortization of acquired intangible assets, increased to $103.0 million for the nine months ended September 30, 2020, from $96.1 million for the comparable period in 2019. The increase over the prior year period was primarily attributable to higher sales and marketing expenses, in particular, commission and personnel-related costs in the current year. Selling, general and administrative headcount at September 30, 2020 was 494, as compared to 486 on September 30, 2019. As a percentage of revenue, selling, general and administrative expenses, excluding the amortization of acquired intangible assets, was 34% for the nine months ended September 30, 2020 and 39% for the comparable period in 2019.

Income taxes. Our effective tax rate for the nine months ended September 30, 2020 was 37%, or $8.8 million, as compared to a benefit of 52%, or $7.9 million, for the nine months ended September 30, 2019. The 52% benefit included a $6.6 million discrete item from the first half of 2019, for a reduction in unrecognized tax benefits related to the U.S. transition tax as a result of an IRS ruling for certain aspects of the calculation of our Canadian subsidiary's earnings. Absent significant discrete items, we expect our consolidated full-year effective tax rate for 2020 to be between 35% to 45%, compared to 20% to 30% as estimated in the second quarter of 2020, as a result of a change in the forecast mix of earnings in the Company's U.S. and foreign jurisdictions and related tax effects pursuant to the provisions of the 2017 Tax Cuts and Jobs Act. See Note 13 - Income Taxes to our Condensed Consolidated Financial Statements for further information.

Interest and Other Expense, Net. Interest and other expense, net, consists primarily of interest expense and income. We earn interest income on our cash, cash equivalents and investments. Interest expense consists primarily of the interest from the amortization of debt discount, issuance costs, and coupon interest attributable to the Notes recently issued in May 2020. For the nine months ended September 30, 2020, our interest expense was approximately $6.9 million.

LIQUIDITY AND CAPITAL RESOURCES

	September 30, 2020	December 31, 2019
	(in thousands)	
Cash and cash equivalents	$ 308,454	$ 59,173

In May 2020, we issued $260 million principal amount of Notes, generating net proceeds of $217.6 million to supplement our overall liquidity position. We expect to use the net proceeds to pursue strategic acquisitions of, or investments in, companies, technologies, products or assets that complement our current business.

On September 30, 2020, we held cash and cash equivalents of $308.5 million and had working capital of $415.2 million. On December 31, 2019, we held cash and cash equivalents of $59.2 million and had working capital of $144.4 million. Cash and cash equivalents increased by $249.3 million during the three months ended September 30, 2020. The increase in cash and cash equivalents from December 31, 2019 is primarily attributable to the issuance of Notes, net cash provided by operating activities of $39.0 million and proceeds from the issuance of common stock of $19.4 million partially offset by purchases of property, plant and equipment of $11.6 million and dividends of $12.3 million.

We have historically funded our operations primarily through cash generated from operations and the issuance of equity securities (in conjunction with an initial public offering in 2000, subsequent option exercises, our follow-on public offering in 2008) and debt securities (in conjunction with the Notes offering). Our cash reserves are held directly or indirectly in a variety of short-term, interest-bearing instruments, including non-government sponsored debt securities. We do not have any investments in asset-backed commercial paper, auction rate securities, or mortgage-backed or sub-prime style investments.

In the first nine months of 2020, cash provided by operations was $39.0 million and cash provided by financing activities was $222.3 million. Cash used in investing activities was $11.6 million for the nine months ended September 30, 2020. In the first nine months of 2019, cash provided by operating activities was $8.2 million, cash used in financing activities was $7.7 million and cash used in investing activities was $11.2 million. As a result, at September 30, 2020, the Company had significant capital to support operations and investments.

Our future capital requirements will depend on a number of factors, including our success in developing and expanding markets for our products, payments under possible future strategic arrangements, continued progress of our research and development of potential products, the timing and outcome of regulatory approvals, the need to acquire licenses to new technologies, costs associated with strategic acquisitions including acquisition and integration costs and assumed liabilities, the status of competitive products and potential costs associated with both protecting and defending our intellectual property. Additionally, actions taken as a result of the ongoing internal evaluation of our business could result in expenditures not currently contemplated in our estimates for 2020.

Our short-term projects that are expected to require significant capital to complete include (i) our current in-process research and development of the next generation VERIGENE System, VERIGENE II, on which we began clinical trials in May 2018 and (ii) the next generation xMAP System, xMAP INTELLIFLEX. The Company is currently targeting the commercial launch of the VERIGENE II System in 2020 and believes the xMAP INTELLIFLEX will launch commercially in 2021. The estimated aggregate cost to complete these projects, including completion of development of the systems, cartridge, software and the initial assays, validation, verification, clinical trials and regulatory submission, is approximately $0.1 million and is included in our research and development budget for 2020. We believe that our existing cash and cash equivalents are sufficient to fund our operating expenses, capital equipment requirements and other expected liquidity requirements for the coming twelve months. Factors that could affect our capital requirements, in addition to those listed above, include, without limitation: (i) continued collections of accounts receivable consistent with our historical experience; (ii) our ability to manage our inventory levels consistent with past practices; (iii) volatility in our key partners' consumable purchasing patterns; (iv) execution of partnership agreements that include significant up-front license fees; (v) execution of our stock repurchase and dividend programs from time to time and (vi) executing strategic investment or acquisition agreements requiring significant cash consideration. See also the "Safe Harbor Cautionary Statement" included in this Part I, Item 2 of this Quarterly Report on Form 10-Q and the risk factors included in Part I, Item 1A of our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2020, the quarter ended June 30, 2020, and this Quarterly Report on Form 10-Q.

In February 2017, the Company's Board of Directors initiated a cash dividend program to pay a regular quarterly cash dividend. The timing and amount of future dividends and stock repurchases will vary based on a number of factors, including future capital requirements for strategic transactions, the availability of financing on acceptable terms, debt service requirements, changes to applicable tax laws and corporate laws, changes to our business model and periodic determination by our Board of Directors that cash dividends are in the best interests of stockholders and are in compliance with applicable laws and agreements of the Company. On September 10, 2020, we announced that our Board of Directors declared a quarterly cash dividend of $0.09 per share of common stock which was paid on October 15, 2020 to shareholders of record as of the close of business on September 24, 2020.

We hold cash and cash equivalents at various foreign subsidiaries. As a result of reductions to the U.S. taxation of dividends from foreign subsidiaries under the Tax Cuts and Jobs Act of 2017 and continued profitability of our Canadian subsidiary, in the near-term and future years we may repatriate earnings of our Canadian subsidiary. The cash and cash equivalents held by this subsidiary may be more readily available to meet domestic cash requirements in the next year, but will continue to be subject to foreign withholding tax that would be incurred upon repatriation. We anticipate that cash and cash equivalents held by all other foreign subsidiaries will continue to be permanently reinvested and may not be readily available to meet domestic cash requirements.

To the extent our capital resources become insufficient to meet future capital requirements, we will have to raise additional funds to continue the development and deployment of our technologies, or to supplement our position through strategic acquisitions. There can be no assurance that debt or equity funds will be available on favorable terms, if at all. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of those securities could result in dilution to our stockholders. Moreover, incurring debt financing could result in a substantial portion of our operating cash flow being dedicated to the payment of principal and interest on such indebtedness, could render us more vulnerable to competitive pressures and economic downturns and could impose restrictions on our operations. If adequate funds are not available, we may be required to curtail operations significantly or to obtain funds through entering into agreements on unattractive terms. However, given our most recent capital markets event, the completion of the offering of the $260 million Notes due in May 2025, the Company believes it has adequate capital resources for its current anticipated needs.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk. Our interest income is sensitive to changes in the general level of domestic interest rates. A 50 basis point fluctuation from average investment returns at September 30, 2020 would yield a less than 0.5% variance in overall investment return, which would not have a material adverse effect on our financial condition.

Foreign Currency Risk. Our international business is subject to risks, including, but not limited to: foreign exchange rate volatility, differing tax structures, unique economic conditions, other regulations and restrictions and changes in political climate. Accordingly, our future results could be materially and adversely impacted by changes in these and other factors.

As of September 30, 2020, as a result of our foreign operations, we have costs, assets and liabilities that are denominated in foreign currencies, primarily Canadian dollars and to a lesser extent the Euro, Renminbi and Yen. For example, some fixed asset purchases and certain expenses are denominated in Canadian dollars while sales of products are primarily denominated in U.S. dollars. All transactions in our Netherlands and Japanese subsidiaries are denominated in Euros and Yen, respectively. All transactions, with the exception of our initial capital investment, in our Chinese subsidiary are denominated in Renminbi. As a consequence, movements in exchange rates could cause our foreign currency denominated expenses to fluctuate as a percentage of net revenue, affecting our profitability and cash flows. A significant majority of our revenues are denominated in U.S. dollars. The impact of foreign exchange on foreign denominated balances will vary in relation to changes between the U.S. dollar, Canadian dollar, Euro, Yen and Renminbi exchange rates. A 10% change in all of these exchange rates in relation to the U.S. dollar would result in a statement of comprehensive income impact of approximately $1.6 million on foreign currency denominated asset and liability balances as of September 30, 2020. As a result of our efforts to expand globally, in the future we will be exposed to additional foreign currency risk in multiple currencies; however, at this time, our exposure to foreign currency fluctuations is not material. We regularly assess the market to determine if additional strategies are appropriate to mitigate future risks.

In addition, the indirect effect of fluctuations in interest rates and foreign currency exchange rates could have a material adverse effect on our business financial condition and results of operations. For example, currency exchange rate fluctuations could affect international demand for our products. In addition, interest rate fluctuations could affect our customers' buying patterns. Furthermore, interest rate and currency exchange rate fluctuations may broadly influence the U.S. and foreign economies resulting in a material adverse effect on our business, financial condition and results of operations. As a result, we cannot give any assurance as to the effect that future changes in foreign currency rates will have on our consolidated financial position, results of operations or cash flows. Our aggregate foreign currency transaction gain was approximately $447,000 for the quarter ended September 30, 2020.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures, as defined in Rule 13a-15(e) promulgated under the Securities Exchange Act of 1934, as amended (Exchange Act), which are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure. We carried out an evaluation, under the supervision and with the participation of the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company's disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on the evaluation and criteria of these disclosure controls and procedures, the Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective at a reasonable assurance level and designed to ensure that material information relating to the Company and its subsidiaries would be made known to such officers on a timely basis.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting identified in connection with the evaluation required by Exchange Act Rule 13a-15(d) during the quarter ended September 30, 2020 that have materially affected or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

When and if it appears probable in management's judgment, and based upon consultation with outside counsel, that we will incur monetary damages or other costs in connection with any claims or proceedings, and such costs can be reasonably estimated, we record the estimated liability in the financial statements. If only a range of estimated losses can be estimated, we record an amount within the range that, in management's judgment, reflects the most likely outcome; if none of the estimates within that range is a better estimate than any other amount, we record the liability at the low end of the range of estimates. Any such accrual would be charged to expense in the appropriate period. We disclose significant contingencies when the loss is not probable and/or the amount of the loss is not estimable, when we believe there is at least a reasonable possibility that a loss has been incurred. We recognize costs associated with legal proceedings in the period in which the services were provided. No material legal proceedings are known to be pending as of September 30, 2020.

ITEM 1A. RISK FACTORS

The risk factors described in Part I, Item 1A. "Risk Factors" in our 2019 10-K and in our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2020 and for the quarter ended June 30, 2020, as revised below, should be carefully considered, together with the other information contained or incorporated by reference in this Quarterly Report on Form 10-Q and in our other filings with the SEC, in connection with evaluating the Company, our business, and the forward-looking statements contained in this Quarterly Report on Form 10-Q. Other risks that we do not presently know about or that we presently believe are not material could also adversely affect us. The risk factors described below update the risk factors disclosed in Part I, Item 1A. in our 2019 10-K and in our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2020 and June 30, 2020, to include additional information, and should be read in conjunction with the risk factors in our 2019 10-K and our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2020 and June 30, 2020.

Marketing of our COVID-19 tests under EUAs from FDA is subject to certain limitations and we are required to maintain compliance with the terms of the EUA, among other things, and the continuance of our EUAs is subject to government discretion.

On February 4, 2020, the HHS Secretary Alex Azar issued a declaration that the threat to public health posed by COVID-19 justifies the emergency use of unapproved in vitro diagnostics for the detection or diagnosis of the novel coronavirus (SARS-CoV-2). Under Section 564 of the Food, Drug, and Cosmetic Act (FDCA), because HHS has issued this declaration, the FDA Commissioner is authorized to issue EUAs to permit certain developers of SARS-CoV-2 diagnostics to begin offering the tests for detection and diagnosis of COVID-19 without having completed the normally applicable FDA review and clearance or approval process for marketing authorization (with the related standards that would apply to demonstrate safety and effectiveness). The issuance of an EUA at this time reflects an FDA conclusion that, based on the totality of scientific evidence available to the FDA, it is reasonable to believe that the product may be effective in diagnosing COVID-19, and that the known potential benefits of the product outweigh the known and potential risks, and there is no adequate, approved, and available alternative to the emergency use of the product.

On March 27, 2020 we received an EUA for our NxTAG CoV Extended Panel Assay for the qualitative detection of nucleic acid from the SARS-CoV-2 virus in nasopharyngeal swab specimens from individuals suspected of having COVID-19. We received an EUA on April 3, 2020 for our ARIES® SARS-CoV-2 Assay for the same indication, but in this case, tests are permitted to be conducted by CLIA laboratories certified to perform moderate complexity tests, as well as those certified for high complexity tests. We also received an EUA on July 16, 2020 for our xMAP® SARS-CoV-2 Multi-Antigen IgG Assay, a serology assay to identify the presence of antibodies in people who have been infected with the virus that causes COVID-19. Although there are certain regulatory requirements that the FDA has waived for the duration of the EUA, we remain subject to specific conditions of the authorization, including ensuring appropriate labeling as approved by the FDA specifically for purposes of the EUA, maintaining records of distribution to authorized laboratories, collecting data on occurrences of any false positives or false negatives, and tracking any adverse events.

As with other FDA-regulated products, issues could emerge during the course of the marketing and use of our products under an EUA that could impact our ability to continue the sale and distribution of these products (e.g., compliance or product performance issues).

Our EUAs remain effective only until the HHS declaration is terminated or revoked, and the FDA may also revoke an EUA if it determines the criteria for issuance are no longer met or other circumstances make such revocation appropriate to protect public health or safety.

If this were to occur, then in order to market our diagnostic products for the purpose of detecting COVID-19, we would be required to obtain the necessary regulatory clearances or approvals and be subject to the full and usual regulatory obligations for device manufacturers, including the FDA's quality system regulations (QSR) under 21 CFR Part 820.

Epidemic diseases could negatively affect various aspects of our business, make it more difficult to meet our obligations to our customers, and could result in reduced demand from our customers. These could have a material adverse effect on our business, financial condition, results of operations, or cash flows.

Parts of our business have been adversely affected by the effects of the COVID-19 pandemic. In an effort to halt the outbreak of COVID-19, many countries have placed significant restrictions on travel and congregation, including "shelter-in-place" or similar orders, leading to extended business closures. Individuals who contract the virus may be unavailable to work, and in certain jurisdictions, individuals exposed to the virus, as well as their families and co-workers, may be placed in mandatory quarantines. The spread of the virus, as well as restrictions and business closures implemented in an effort to minimize its spread, can adversely impact our operations, including delaying or suspending our ability to sell or distribute our products, causing temporary closures of our offices and manufacturing operations, or those of our suppliers, customers, distributors and other business partners. Any disruption of our suppliers, customers or distributors could adversely impact our global sales and operating results and harm our reputation. Likewise, we may be subject to public and private litigation based upon, arising out of or related to COVID-19 and our actions and responses thereto, including any determinations that we may make to continue to operate or to re-open our facilities where permitted by local law. We cannot at this time accurately predict what effects these conditions will have on our operations longer-term due to uncertainties relating to the ultimate geographic spread of the virus, the severity of the disease, the duration of the outbreak, the extent and effectiveness of responsive actions by authorities of impacted countries and the impact of these and other factors on our employees, customers and suppliers. In addition, a significant outbreak of a contagious disease in the human population could result in a widespread health crisis that could adversely affect the economies and financial markets of many countries for an extended period of time, resulting in economic uncertainty and volatility that could affect demand for our products, and likely adversely impact our business, operations, financial conditions and results of operations.

Adjustments of previously recognized royalty revenue from LTG partners could impact our results of operations and result in our restating financial results for certain fiscal periods.

The Company through its LTG enters into contractual arrangements with customers and other third parties, a component of which are royalty arrangements. Such royalty obligations are typically self-reported, paid in the regular course of business and recorded by the Company accordingly. These royalty arrangements may be subject to inspection (either directly by the Company or by a third-party) to seek to assure that the counterparty has made sufficient payment to the Company. Generally, if the Company has inspection rights, the Company may exercise these rights every three years.

With respect to royalty reporting, the Company significantly relies upon the accuracy and completeness of the information it receives from its counterparties to determine the appropriate financial reporting. The Company is regularly involved in negotiations, disputes and other discussions regarding these arrangements and the calculation of any royalties. Should differences between submitted royalties and due royalties be claimed or identified, the Company makes a determination as to the proper way to account for such claim or difference. Any claims or differences with respect to previously recognized royalty revenue could result in the Company recording reserves, making a current period adjustment or correcting or potentially restating the Company's prior financial statements and its related Exchange Act reports during the relevant historical periods (or in prospective periods during which claims are made). The cost and distraction of any such claim, any necessary adjustments or restatement of amounts previously reported and/or any prospective changes to royalty calculations could harm our operating results and adversely impact our business and stock price.

Our products are subject to extensive regulation by the FDA, including the requirement to obtain premarket approval and the requirement to report adverse events and violations of the FDC Act that could present significant risk of injury to patients. We will continue to be subject to extensive FDA regulatory oversight.

Our products are subject to rigorous regulation by the FDA and numerous other federal, state and foreign governmental authorities. The process of obtaining regulatory clearances to market a medical device can be costly and time consuming, and we may not be able to obtain these clearances or approvals on a timely basis, if at all. In general, the FDA permits commercial distribution of a new medical device only after the device has received clearance under Section 510(k) of the FDC Act, or is the subject of an approved premarket approval application (PMA), unless the device is specifically exempt from those requirements. The FDA will clear marketing of a lower risk medical device through the 510(k) process if the manufacturer demonstrates that the new product is substantially equivalent to other pre-amendment, 510(k)-exempt, 510(k) cleared products, or PMA-approved products that have subsequently been down-classified. If the FDA determines that the device is not "substantially equivalent" to a predicate device, or if the device is automatically classified into Class III, the device sponsor must then fulfill the much more rigorous premarketing requirements of the PMA approval process, or seek reclassification of the device through the de novo process. Pursuant to amendments to the statute in 2012, a manufacturer can also submit a petition for a direct de novo review if the manufacturer is unable to identify an appropriate predicate device and the new device or new use of the device presents a moderate or low risk.

High risk devices deemed to pose the greatest risk, such as life-sustaining, life-supporting, or implantable devices, or devices not deemed substantially equivalent to a previously cleared device, require the approval of a PMA. The PMA process is more costly, lengthy and uncertain than the 510(k) clearance process. A PMA application must be supported by extensive data, including, but not limited to, technical, preclinical, clinical trial, manufacturing and labeling data, to demonstrate to the FDA's satisfaction the safety and efficacy of the device for its intended use. Currently, all of our products requiring FDA clearance or approvals are Class II and have been cleared through the 510(k) process.

Our failure to comply with U.S. federal, state and foreign governmental regulations could lead to the issuance of warning letters or untitled letters, the imposition of injunctions, suspensions or loss of regulatory clearance or approvals, product recalls, termination of distribution, product seizures or civil penalties. In the most extreme cases, criminal sanctions or closure of our manufacturing facilities are possible.

On June 26, 2020, we received a Warning Letter from the FDA relating to the operations of our Austin, Texas and Northbrook, Illinois facilities and our VERIGENE Processor SP System. The Warning Letter resulted from inspections held at the Facilities from February 10, 2020 to February 14, 2020. The Warning Letter primarily relates to the Company's VERIGENE SP instrument and its hybridization heater. We timely submitted a response to the FDA regarding the issues raised in the Warning Letter and are working diligently and expeditiously to resolve the issues raised by the FDA. The Warning Letter does not restrict the manufacture, production or shipment of any of the Company's products, nor require the withdrawal of any product from the marketplace. The Company believes it is taking appropriate measures to address the items identified by the FDA with respect to the VERIGENE SP instrument and its hybridization heater, and the Company included communication of these measures in its response to the Warning Letter. In addition, the Company continues to evaluate what further corrective or preventive action may be required.

The Company has responded to the FDA's concerns raised in the Warning Letter, but cannot give assurances that the FDA will be satisfied with its response to the Warning Letter or that such response will resolve the issues identified in the Warning Letter. Failure to promptly and fully address the issues raised in the Warning Letter to the FDA's satisfaction or to comply with U.S. medical device regulatory requirements in general could result in further regulatory and enforcement actions being initiated by the FDA. These actions could result in, among other things, product recalls, product seizures, injunctions, civil monetary penalties, delays in obtaining marketing authorization for products, an impact on federal contracts, limitations on our ability to export products, and criminal enforcement action. Any such actions could disrupt our ongoing business and operations and potentially have a material adverse effect on our business, financial condition and results of operations.

The recent COVID-19 pandemic has introduced additional strain on the FDA. We are unable to fully understand the impact this may cause on regulations or the related timeframes pertaining to communication with the FDA.

Our products are also subject to approval and regulation by foreign regulatory and safety agencies. For example, the EU has adopted the In Vitro Diagnostic Regulation (the EU IVDR), which imposes stricter requirements for the marketing and sale of medical devices, including in the area of clinical evaluation requirements, quality systems and post-market surveillance. Manufacturers of currently approved medical devices will have until May 2022 to meet the EU IVDR. Complying with the requirements of these regulations may require us to incur significant expenditures. Failure to meet these requirements could adversely impact our business in the EU and other regions that tie their product registrations to the EU requirements.

Foreign governmental authorities that regulate the manufacture and sale of medical devices have become increasingly stringent and, to the extent we market and sell our products internationally, we may be subject to rigorous international regulation in the future. In these circumstances, we would rely significantly on our foreign independent distributors to comply with the varying regulations, and any failures on their part could result in restrictions on the sale of our products in foreign countries.

If we or our suppliers fail to comply with ongoing FDA or foreign regulatory authority requirements, or if we experience unanticipated problems with our products, these products could be subject to restrictions or withdrawal from the market.

Any product for which we obtain clearance, and the manufacturing processes, reporting requirements, post-market clinical data and promotional activities for such product, is subject to continued regulatory review, oversight and periodic inspections by the FDA and other domestic and foreign regulatory bodies. In particular, we and our strategic partners who manufacture medical devices are required to comply with the QSR. The QSR covers the methods and documentation of the design, testing, production, control, quality assurance, labeling, packaging, sterilization, storage and shipping of our products. Compliance with applicable regulatory requirements is subject to continual review and is monitored rigorously through periodic inspections by the FDA. If we, or our strategic partners, fail to adhere to QSR requirements in the U.S. or experience delays in obtaining necessary regulatory approvals or clearances, this could delay production of our products and lead to fines, difficulties in obtaining regulatory approvals or clearances, recalls, enforcement actions, including injunctive relief or consent decrees, or other consequences, such as the Warning Letter, which could, in turn, have a material adverse effect on our financial condition and results of operations.

In addition, the FDA audits compliance with the QSR through periodic announced and unannounced inspections of manufacturing and other facilities. Any failure to comply with applicable statutes and regulations administered by the FDA, or the failure to timely and adequately respond to any adverse inspection observations or product safety issues, could result in any of the following enforcement actions:

- untitled letters, warning letters, such as the Warning Letter, fines, injunctions, consent decrees and civil penalties;
- unanticipated expenditures to address or defend such actions;
- customer notifications or repair, replacement, refunds, recall, detention or seizure of our products;
- operating restrictions, partial suspension or total shutdown of production;
- refusing or delaying our requests for regulatory approvals or clearances of new products or modified products;
- refusal to grant export approval for our products; or
- criminal prosecution.

Any of these sanctions could have a material adverse effect on our reputation, business, results of operations and financial condition. Furthermore, our key component suppliers may not currently be or may not continue to be in compliance with all applicable regulatory requirements, which could result in a failure to produce our products on a timely basis and in the required quantities, if at all.

Our products and operations are required to comply with standards set by foreign regulatory bodies, and those standards, types of evaluation and scope of review differ among foreign regulatory bodies. If we fail to comply with any of these standards adequately or if changes to our manufacturing or supply practices require additional regulatory approval, a foreign regulatory body may take adverse actions or cause delays within their jurisdiction similar to those within the power of the FDA. Any such action or circumstance may harm our reputation and business, and could have an adverse effect on our business, results of operations and financial condition.

Risks Related to the Notes

We incurred indebtedness by issuing Notes and servicing this debt may require a significant amount of cash, and we may not have sufficient cash flow from our business to pay our indebtedness.

On May 13, 2020, the Company issued $260.0 million aggregate principal amount of 3.0% Notes due 2025. Holders of the Notes will have the right to require us to repurchase their Notes upon the occurrence of a fundamental change at a purchase price equal to 100% of the principal amount of the Notes to be purchased, plus accrued and unpaid interest, if any. In addition, the indenture for the Notes provides that we are required to repay amounts due under the indenture in the event that there is an event of default for the Notes that results in the principal, premium, if any, and interest, if any, becoming due prior to maturity date for the Notes.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our indebtedness, including the Notes, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional debt financing or equity capital on terms that may be onerous or highly dilutive. Our ability to refinance any future indebtedness will depend on the capital markets and our financial condition at such time.

We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations. In addition, any of our future debt agreements may contain restrictive covenants that may prohibit us from adopting any of these alternatives. Our failure to comply with these covenants could result in an event of default which, if not cured or waived, could result in the acceleration of our debt.

We may still incur substantially more debt or take other actions which would intensify the risks discussed in these risk factors.

We and our subsidiaries may incur substantial additional debt in the future, some of which may be secured debt. We will not be restricted under the terms of the indenture governing the Notes from incurring additional debt, securing future debt, paying dividends, repurchasing our stock, recapitalizing any future debt or taking a number of other actions that are not limited by the terms of the indenture governing the Notes that could have the effect of diminishing our ability to make payments on the Notes when due.

We may not have the ability to raise the funds necessary for cash or combination settlement upon conversion of the Notes or to repurchase the Notes for cash upon a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion of the Notes or to repurchase the Notes.

Holders of the Notes will have the right to require us to repurchase all or a portion of their notes upon the occurrence of a fundamental change at a fundamental change repurchase price equal to 100% of the principal amount of the Notes to be repurchased, *plus* accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date. In addition, upon conversion of the Notes, unless we elect to deliver solely shares of our common stock to settle such conversion (other than paying cash in lieu of delivering any fractional share), we will be required to make cash payments in respect of the Notes being converted. However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Notes surrendered therefor or Notes being converted. In addition, our ability to repurchase the Notes or to pay cash upon conversions of the Notes may be limited by law, by regulatory authority or by agreements governing our future indebtedness. Our failure to repurchase Notes at a time when the repurchase is required by the indenture governing the Notes or to pay any cash payable on future conversions of the Notes as required by such indenture would constitute a default under such indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing our future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Notes or make cash payments upon conversions thereof.

The conditional conversion feature of the Notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the Notes is triggered, holders of Notes will be entitled to convert the Notes at any time during specified periods at their option. If one or more holders elect to convert their Notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders do not elect to convert their Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

The accounting method for convertible debt securities that may be settled in cash, such as the Notes, could have a material effect on our reported financial results.

Under ASC 470-20, Debt with Conversion and Other Options (ASC 470-20), an entity must separately account for the liability and equity components of the Notes that may be settled entirely or partially in cash upon conversion in a manner that reflects the issuer's economic interest cost. The effect of ASC 470-20 on the accounting for the Notes is that the equity component is required to be included in the additional paid-in capital section of stockholders' equity on our consolidated balance sheet at the issuance date, and the value of the equity component is treated as debt discount for purposes of accounting for the debt component of the Notes. As a result, we are required to record a greater amount of non-cash interest expense in current periods presented as a result of the amortization of the discounted carrying value of the Notes to their face amount over the respective terms of the Notes. We report lower net income in our financial results because ASC 470-20 requires interest to include both the current period's amortization of the debt discount and the instrument's coupon interest rate, which could adversely affect our future financial results, the trading price of our common stock or the Trading Price of the Notes. In addition, under certain circumstances, convertible debt instruments (such as the Notes) that may be settled entirely or partly in cash are currently accounted for utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of the Notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the Notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued.

In August 2020, the FASB issued guidance that changes the accounting for the convertible debt instruments described above. Under the new guidance, an entity will no longer be required to separately account for the liability and equity components of convertible debt instruments. This is expected to reduce non-cash interest expense, thereby increasing net income after adoption of the new guidance. Additionally, the treasury stock method for calculating earnings per share will no longer be allowed for convertible debt instruments whose principal amount may be settled using shares. Rather, the if-converted method will be required. Application of the "if-converted" method may reduce our reported diluted earnings per share. The guidance is effective for interim and annual periods beginning after December 15, 2021. Early adoption is permitted, but no earlier than January 1, 2021. We are currently evaluating the impact of this new guidance and determining if we should early adopt this guidance effective January 1, 2021.

The Convertible Note Hedge and Warrant Transactions may affect the value of the Notes and our common stock.

In connection with the pricing of the Notes, we entered into Convertible Note Hedge Transactions with the option counterparties. We also entered into Warrant Transactions with the option counterparties pursuant to which we will sell Warrants for the purchase of our common stock. The Convertible Note Hedge Transactions are expected generally to reduce the potential equity dilution to our common stock upon any conversion of the Notes and/or offset any potential cash payments we are required to make in excess of the principal amount of converted Notes, as the case may be. However, the Warrant Transactions could separately have a dilutive effect on our common stock to the extent that the market price per share of our common stock exceeds the strike price of the Warrants unless, subject to the terms of the Warrant Transactions, we elect to cash settle instead of net share settle the Warrants.

In connection with establishing their initial hedges of the convertible note hedge and Warrant Transactions, the option counterparties or their respective affiliates expect to purchase shares of our common stock and/or enter into various derivative transactions with respect to our common stock concurrently with or shortly after the pricing of the Notes. These activities could increase (or reduce the size of any decrease in) the market price of our common stock or the Notes at that time.

In addition, the option counterparties and/or their respective affiliates may modify their hedge positions by entering into or unwinding various derivatives with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions following the pricing of the Notes and prior to the maturity of the Notes (and are likely to do so following any conversion of the Notes or during any observation period related to a conversion of notes). These activities could also cause a decrease, or avoid an increase, in the market price of our common stock or the Notes, which could affect the note holder's ability to convert the Notes and, to the extent the activity occurs following conversion or during any observation period related to a conversion of Notes, it could affect the amount and value of the consideration that a note holder will receive upon conversion of such Notes.

In addition, if any such convertible note hedge and Warrant Transaction fails to become effective, the option counterparty thereto or its respective affiliate may unwind its hedge positions with respect to our common stock, which could adversely affect the value of our common stock and the value of the Notes.

The potential effect, if any, of these transactions and activities on the market price of our common stock or the Notes will depend in part on market conditions and cannot be ascertained at this time. Any of these activities could adversely affect the value of our common stock or the value of the Notes (and as a result, the value of the consideration, the amount of cash and/or the number of shares of common stock, if any, that a note holder would receive upon the conversion of any Notes) and, under certain circumstances, their ability to convert their Notes.

The Convertible Note Hedge Transactions and the Warrant Transactions are separate transactions (in each case that we entered into with the option counterparties), are not part of the terms of the Notes and will not change the holders' rights under the Notes. A holder of the Notes will not have any rights with respect to the Convertible Note Hedge Transactions or the Warrant Transactions.

We do not make any representation or prediction as to the direction or magnitude of any potential effect that the transactions described above may have on the price of the Notes or our common stock. In addition, we do not make any representation that the option counterparties will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

***We are subject to counterparty risk with respect to the C**onvertible Note Hedge Transactions.*

The option counterparties are financial institutions, and we will be subject to the risk that any or all of them might default under the Convertible Note Hedge Transactions. Our exposure to the credit risk of the option counterparties will not be secured by any collateral. Past global economic conditions from time to time have resulted in the actual or perceived failure or financial difficulties of many financial institutions, including the bankruptcy filing by Lehman Brothers Holdings Inc. and its various affiliates. If an option counterparty becomes subject to insolvency proceedings, we will become an unsecured creditor in those proceedings with a claim equal to our exposure at that time under the Convertible Note Hedge Transactions with such option counterparty. Our exposure will depend on many factors but, generally, an increase in our exposure will be correlated to an increase in the market price and in the volatility of our common stock. In addition, upon a default by an option counterparty, we may suffer adverse tax consequences and more dilution than we currently anticipate with respect to our common stock. We can provide no assurance as to the financial stability or viability of the option counterparties.

To the extent we choose to deliver shares upon conversion of the Notes, the ownership interests of existing stockholders will be diluted and our stock price may be adversely impacted.

Upon conversion of the Notes, we will pay or deliver, as the case may be, cash, shares of our common stock or a combination of cash and shares of our common stock, at our election. To the extent we choose to deliver shares upon conversion of some or all of the Notes, this will result in a dilution to the ownership interests of existing stockholders and may depress our stock price.

Certain provisions in the indentures governing the Notes may delay or prevent an otherwise beneficial takeover attempt of us.

Certain provisions in the indentures governing the Notes may make it more difficult or expensive for a third party to acquire us. For example, the indentures governing the Notes will require us to repurchase the Notes for cash upon the occurrence of a fundamental change (as defined in the relevant indenture governing the Notes) of us and, in certain circumstances, to increase the conversion rate for a holder that converts the Notes in connection with a make-whole fundamental change. A takeover of us may trigger the requirement that we repurchase the Notes, and/or increase the conversion rate, which could make it more costly for a potential acquirer to engage in such takeover. Such additional costs may have the effect of delaying or preventing a takeover of us that would otherwise be beneficial to investors.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

The stock repurchase activity for the third quarter of 2020 was as follows:

ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares Purchased[1]	Average Price Paid per Share ($)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
7/1/2020 - 7/31/2020	524	$ 34.11	—	$ —
8/1/2020 - 8/31/2020	300	36.40	—	—
9/1/2020 - 9/30/2020	413	26.21	—	—
Total Third Quarter	1,237	$ 32.03	—	$ —

[1] Total shares purchased includes shares attributable to the withholding of shares by Luminex to satisfy the payment of tax obligations related to the vesting of restricted shares.

ITEM 6. EXHIBITS

The following exhibits are filed herewith:

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
31.1	Certification by CEO pursuant to Securities and Exchange Act Rules 13a-14(a) and 15d - 14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification by CFO pursuant to Securities and Exchange Act Rules 13a-14(a) and 15d - 14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification by CEO pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification by CFO pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following materials from Luminex Corporation's Quarterly Report on Form 10-Q for the three and nine months ended September 30, 2020, formatted in Inline XBRL: (i) Condensed Consolidated Balance Sheets; (ii) Condensed Consolidated Statements of Comprehensive Income; (iii) Condensed Consolidated Statement of Cash Flows; (iv) Condensed Consolidated Statements of Changes in Stockholders' Equity; and (v) Notes to Condensed Consolidated Financial Statements.
104	The cover page from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, formatted in Inline XBRL (included in Exhibit 101).

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: November 6, 2020

LUMINEX CORPORATION
By: /s/ Harriss T. Currie
Harriss T. Currie
Chief Financial Officer, Senior Vice President of Finance
(Principal Financial Officer)

Exhibit 31.1

CERTIFICATION

I, Nachum Shamir, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Luminex Corporation;

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: November 6, 2020

By: /s/ Nachum Shamir
Nachum Shamir
Chairman, President and CEO

Exhibit 31.2

CERTIFICATION

I, Harriss T. Currie, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Luminex Corporation;

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: November 6, 2020

By: /s/ Harriss T. Currie
Harriss T. Currie
Chief Financial Officer, Senior Vice President of Finance

Exhibit 32.1

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

In connection with the Quarterly Report of Luminex Corporation (the "Company") on Form 10-Q for the period ended September 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Nachum Shamir, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated.

/s/ Nachum Shamir
Nachum Shamir
Chairman, President and CEO
November 6, 2020

A SIGNED ORIGINAL OF THIS WRITTEN STATEMENT REQUIRED BY SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002 HAS BEEN PROVIDED TO LUMINEX CORPORATION AND WILL BE RETAINED BY LUMINEX CORPORATION AND FURNISHED TO THE SECURITIES AND EXCHANGE COMMISSION OR ITS STAFF UPON REQUEST.

Exhibit 32.2

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

In connection with the Quarterly Report of Luminex Corporation (the "Company") on Form 10-Q for the period ended September 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Harriss T. Currie, Chief Financial Officer, Senior Vice President of Finance of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated.

/s/ Harriss T. Currie
Harriss T. Currie
Chief Financial Officer, Senior Vice President of Finance
November 6, 2020

A SIGNED ORIGINAL OF THIS WRITTEN STATEMENT REQUIRED BY SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002 HAS BEEN PROVIDED TO LUMINEX CORPORATION AND WILL BE RETAINED BY LUMINEX CORPORATION AND FURNISHED TO THE SECURITIES AND EXCHANGE COMMISSION OR ITS STAFF UPON REQUEST.