IRADIMED CORP
Form 10-Q
August 08, 2018
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

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x QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Quarterly Period Ended June 30, 2018

OR

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

For the transition period from to

Commission File No.: 001-36534

IRADIMED CORPORATION

(Exact name of Registrant as specified in its charter)

Delaware	**73-1408526**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number
1025 Willa Springs Drive **Winter Springs, Florida**	**32708**
(Address of principal executive offices)	(Zip Code)

(407) 677-8022

(Registrant s telephone number, including area code)

N/A

(Former Name, former address and former fiscal year, if changed since last report)

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No o

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

Large accelerated filer o	Accelerated filer o
Non-accelerated filer o	Smaller reporting company x
	Emerging growth company x

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. Yes x No o

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

The registrant had 10,680,132 shares of common stock, par value $0.0001 per share, outstanding as of July 31, 2018.

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IRADIMED CORPORATION

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PART I. FINANCIAL INFORMATION

Item 1. Condensed Financial Statements

IRADIMED CORPORATION

CONDENSED BALANCE SHEETS

	June 30, 2018 (unaudited)	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 21,330,879	$ 18,205,976
Accounts receivable, net of allowance for doubtful accounts of $40,138 as of June 30, 2018 and $37,225 as of December 31, 2017	3,981,688	3,778,929
Investments	8,172,009	8,135,123
Inventory, net	4,433,934	4,210,846
Prepaid expenses and other current assets	746,153	648,881
Prepaid income taxes	110,927	127,855
Total current assets	38,775,590	35,107,610
Property and equipment, net	1,888,831	1,868,851
Intangible assets, net	847,696	885,502
Deferred income taxes, net	1,130,288	950,375
Other assets	189,040	200,196
Total assets	$ 42,831,445	$ 39,012,534
LIABILITIES AND STOCKHOLDERS EQUITY		
Current liabilities:		
Accounts payable	$ 735,314	$ 656,723
Accrued payroll and benefits	1,336,390	1,512,336
Other accrued taxes	62,692	109,502
Warranty reserve	60,276	60,538
Deferred revenue	1,902,727	1,617,571
Other current liability	108,571	108,571
Accrued income taxes	434,887	12,731
Total current liabilities	4,640,857	4,077,972
Deferred revenue	2,023,574	2,003,685
Total liabilities	6,664,431	6,081,657
Stockholders equity:		
Common stock; $0.0001 par value; 31,500,000 shares authorized; 10,665,918 shares issued and outstanding as of June 30, 2018 and 10,596,566 shares issued and outstanding as of December 31, 2017	1,067	1,060
Additional paid-in capital	13,701,066	12,623,181
Retained earnings	22,562,205	20,355,545
Accumulated other comprehensive loss	(97,324)	(48,909)
Total stockholders equity	36,167,014	32,930,877
Total liabilities and stockholders equity	$ 42,831,445	$ 39,012,534

See accompanying notes to unaudited condensed financial statements.

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IRADIMED CORPORATION

CONDENSED STATEMENTS OF OPERATIONS

(Unaudited)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2018	**2017**	**2018**	**2017**
Revenue	$ 7,376,785	$ 5,524,364	$ 14,484,936	$ 10,686,924
Cost of revenue	1,710,890	1,234,314	3,402,425	2,621,932
Gross profit	5,665,895	4,290,050	11,082,511	8,064,992
Operating expenses:				
General and administrative	2,078,356	2,189,925	4,381,888	4,297,182
Sales and marketing	1,516,044	1,323,539	3,161,980	2,688,315
Research and development	395,988	449,011	775,814	990,301
Total operating expenses	3,990,388	3,962,475	8,319,682	7,975,798
Income from operations	1,675,507	327,575	2,762,829	89,194
Other income, net	27,838	21,138	67,910	50,662
Income before provision for income taxes	1,703,345	348,713	2,830,739	139,856
Provision for income tax expense (benefit)	348,377	(8,360)	634,575	16,123
Net income	$ 1,354,968	$ 357,073	$ 2,196,164	$ 123,733
Net income per share:				
Basic	$ 0.13	$ 0.03	$ 0.21	$ 0.01
Diluted	$ 0.11	$ 0.03	$ 0.18	$ 0.01
Weighted average shares outstanding:				
Basic	10,651,619	10,687,746	10,630,123	10,714,215
Diluted	12,011,475	11,727,473	11,953,486	11,764,747

See accompanying notes to unaudited condensed financial statements.

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IRADIMED CORPORATION

CONDENSED STATEMENTS OF COMPREHENSIVE INCOME

(Unaudited)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2018	**2017**	**2018**	**2017**
Net income	$ 1,354,968	$ 357,073	$ 2,196,164	$ 123,733
Other comprehensive income (loss):				
Change in fair value of available-for-sale securities, net of tax expense (benefit) of $1,115 and $3,776 for the three months ended June 30, 2018 and 2017, respectively, and $(13,013) and $3,665 for the six months ended June 30, 2018 and 2017, respectively	3,905	3,923	(38,746)	6,047
Realized loss on available-for-sale securities reclassified to net income, net of tax benefit of $588 and $0 for the three months ended June 30, 2018 and 2017, respectively, and $502 and $2,043 for the six months ended June 30, 2018 and 2017, respectively	1,256	1,417	827	4,473
Other comprehensive income (loss)	5,161	5,340	(37,919)	10,520
Comprehensive income	$ 1,360,129	$ 362,413	$ 2,158,245	$ 134,253

See accompanying notes to unaudited condensed financial statements.

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IRADIMED CORPORATION

CONDENSED STATEMENTS OF CASH FLOWS

(Unaudited)

	Six Months Ended June 30,	
	2018	**2017**
Operating activities:		
Net income	$ 2,196,164	$ 123,733
Adjustments to reconcile net income to net cash provided by operating activities:		
Change in allowance for doubtful accounts	12,137	(6,611)
Change in provision for excess and obsolete inventory	73,581	23,659
Depreciation and amortization	830,163	632,813
Write-off of non-trade accounts receivable		205,444
Stock-based compensation	858,408	821,803
Deferred income taxes, net	(167,401)	(297,619)
Loss on maturities of investments	1,100	6,520
Changes in operating assets and liabilities:		
Accounts receivable	(214,896)	(210,662)
Inventory	(300,990)	(371,912)
Prepaid expenses and other current assets	(849,413)	(375,040)
Other assets	(20,316)	(1,928)
Accounts payable	(56,199)	(408,868)
Accrued payroll and benefits	(175,946)	66,803
Other accrued taxes	(46,810)	(31,529)
Warranty reserve	(262)	(1,012)
Deferred revenue	527,305	783,466
Accrued income taxes, net of prepaid income taxes	439,084	(852,171)
Net cash provided by operating activities	3,105,709	106,889
Investing activities:		
Purchases of investments	(918,417)	(1,321,257)
Proceeds from maturity of investments	830,000	2,270,004
Purchases of property and equipment	(105,328)	(411,200)
Capitalized intangible assets	(6,545)	(9,214)
Net cash (used in) provided by investing activities	(200,290)	528,333
Financing activities:		
Proceeds from stock option exercises	235,080	49,459
Taxes paid related to the net share settlement of equity awards	(15,596)	(44,742)
Purchases of treasury stock		(1,553,193)
Net cash provided by (used in) financing activities	219,484	(1,548,476)
Net increase (decrease) in cash and cash equivalents	3,124,903	(913,254)
Cash and cash equivalents, beginning of period	18,205,976	17,713,871
Cash and cash equivalents, end of period	$ 21,330,879	$ 16,800,617
Supplemental disclosure of cash flow information:		
Cash paid for income taxes	$ 363,050	$ 1,168,349

See accompanying notes to unaudited condensed financial statements.

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IRADIMED CORPORATION

Notes to Unaudited Condensed Financial Statements

1 Basis of Presentation

The accompanying interim condensed financial statements of IRADIMED CORPORATION (IRADIMED , the Company , we , our) have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (SEC). Certain information and footnote disclosures normally presented in annual financial statements prepared in accordance with U.S. generally accepted accounting principles have been condensed or omitted pursuant to such rules and regulations. The interim financial information is unaudited, but reflects all normal adjustments that are, in the opinion of management, necessary for the fair presentation of our financial position, results of operations and cash flows for the interim periods presented. Operating results for the three and six months ended June 30, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018.

These accompanying interim condensed financial statements should be read with the financial statements and related footnotes to financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2017. The accounting policies followed in the preparation of these interim condensed financial statements, except as described in Note 2, are consistent in all material respects with those described in Note 1 of our Form 10-K.

Certain prior year amounts have been reclassified to conform to current year presentation.

We operate in one reportable segment which is the development, manufacture and sale of MRI compatible medical devices, related accessories, disposables and services for use by hospitals and acute care facilities during MRI procedures.

FDA Warning Letter

The FDA conducted a routine inspection of our prior facility between April 7 and April 16, 2014. This was the first FDA inspection of our facility since the voluntary product recall in August 2012 of certain infusion sets and the voluntary recall in July 2013 of our DERS software. The FDA issued a Form 483 on April 16, 2014 that identified eight observations. Most of the observations related to procedural and documentation issues associated with the design, development, validation testing and documentation of software used in certain of our products. Other observations were related to the design validation of pump labeling, design analysis of tube stretching, procedures for post-market design review, and control and procedures related to handling certain reported complaints. We submitted responses to the Form 483 in May 2014 and June 2014 in which we described our proposed corrective and preventative actions to address each of the FDA s observations.

On September 2, 2014, we received a warning letter from the FDA relating to this inspection (the Warning Letter). The Warning Letter states that the FDA accepted as adequate several of our responses to Form 483 observations, identified two responses whose accuracy will be determined in the next scheduled inspection of our facility and identified issues for which our response was determined to be inadequate. The issues identified as inadequate concern our procedures for validating device design primarily related to software quality assurance.

Also, the Warning Letter raised a new issue. The Warning Letter states that modifications made to software on our previously cleared infusion pumps, the MRidium 3860 and MRidium 3850, were significant and required submission of new premarket notifications under Section 510(k) (a 510(k) submission) of the FDC Act. These modifications had been made over time. We believed they were insignificant and did not require premarket notification submissions. However, the FDA indicated that the modifications of the software for the MRidium 3860 and the software for the MRidium 3850 were significant modifications because they could significantly affect the safety or effectiveness of these devices. As a result, the Warning Letter states that the products being sold by us are adulterated and misbranded under the FDC Act. The Warning Letter also indicates that the MRidium 3860+ infusion pump requires separate FDA clearance from the MRidium 3860 and MRidium 3850.

The Warning Letter requested that we immediately cease activities that result in the misbranding or adulteration of the MRidium 3860 MRI infusion pump, MRidium 3850 MRI infusion pump, and the MRidium 3860+ MRI infusion pump, including the commercial distribution of the devices. We immediately complied with the Warning Letter and ceased sale and distribution of the identified products in the United States.

On September 4, 2014, we submitted to the FDA our initial response to the Warning Letter and on September 17, 2014 we sent an additional response that included supplemental information related to the Form 483 inspection observations for which the FDA considered our initial responses inadequate.

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On November 25, 2014, we announced that we filed the 510(k) submission related to our MRidium 3860+ MRI IV infusion pumps and on December 12, 2014 we were notified that our 510(k) submission had been formally accepted for review by the FDA. On December 22, 2014, under FDA enforcement discretion, we announced that we resumed domestic distribution of our MRI compatible MRidium 3860+ MRI IV infusion pump systems, without the DERS option. On January 28, 2015, under FDA enforcement discretion, we announced that we resumed domestic distribution of our DERS option. On December 9, 2015, we met with the FDA to review responses to the agency s additional information letter.

Between July 11 and July 18, 2016, the FDA conducted a routine inspection of our facility. This was the first FDA inspection of our facility since the receipt of the Warning Letter. During this inspection, the updated documents and actions implemented in response to the Warning Letter findings were reviewed, and the FDA determined that no further actions were necessary.

On December 15, 2016, we received FDA 510(k) clearance for our MRidium 3860+ MRI IV infusion pump system, including the DERS software feature. As of June 30, 2018, the Warning Letter remains open.

Certain Significant Risks and Uncertainties

We market our products to end users in the United States and to distributors internationally. Sales to end users in the United States are generally made on open credit terms. Management maintains an allowance for potential credit losses.

Recent Accounting Pronouncements

Accounting Pronouncements Implemented in 2018

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers (Topic 606). This update provides guidance on the recognition of revenue based upon the entity s contracts with customers to transfer goods or services at an amount that reflects the consideration the entity expects to receive in exchange for those goods or services. This update also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts. This update is effective for annual periods beginning after December 15, 2017, including interim periods within that reporting period. We adopted the new guidance effective January 1, 2018 using the modified retrospective method to contracts that were not completed as of January 1, 2018.

We have evaluated each of the five steps in the new revenue recognition model, which are: 1) Identify the contract with the customer; 2) Identify the performance obligations in the contract; 3) Determine the transaction price; 4) Allocate the transaction price to the performance obligations; and 5) Recognize revenue when (or as) performance obligations are satisfied. We have concluded that the adoption of this guidance did not require any adjustment to the opening balance of retained earnings and did not have a material impact to our financial statements. Additionally, our method and timing for recognizing revenue after the implementation of this guidance does not vary significantly from our revenue

recognition practices under the previous revenue recognition guidance.

Disclosure requirements under Topic 606 have been significantly expanded in comparison to the disclosure requirements under the previous guidance. See Note 2.

In February 2016, the FASB issued ASU 2018-02, Income Statement Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income. This update allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. We adopted the new guidance on January 1, 2018 and reclassified an immaterial amount from accumulated other comprehensive income to beginning retained earnings.

Recently Issued Accounting Pronouncements to be Implemented

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). This update requires lessees to recognize, on the balance sheet, assets and liabilities for the rights and obligations created by all leases not considered short-term leases. For short-term leases, lessees may elect an accounting policy by class of underlying assets under which right-of-use assets and lease liabilities are not recognized and lease payments are generally recognized as expense over the lease term on a straight-line basis. The accounting by lessors will remain largely unchanged from current U.S. GAAP. This update is effective for annual periods beginning after December 15, 2018, including interim periods within that reporting period, which will require us to adopt this update in the first quarter of 2019. Early adoption is permitted. We have only one material lease contract outstanding, for our sole facility. We are in the process of determining the method of adoption and assessing the impact of the update on our financial condition and results of operations.

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2 Revenue Recognition

On January 1, 2018, we adopted ASU 2014-09, Revenue from Contracts with Customers (Topic 606) using the modified retrospective method applied to contracts which were incomplete as of January 1, 2018. Results from reporting periods beginning after January 1, 2018 are presented under this new guidance, while prior period amounts are unadjusted and continue to be reported under previous revenue recognition guidance.

We generate revenue from the one-time sale of MRI compatible medical devices and accessories, extended warranty agreements and the sale of disposable products used with our devices. The principal customers for our MRI compatible products include hospitals and acute care facilities, both in the U.S. and internationally. In the U.S., we sell our products through our direct sales force and outside of the U.S. we sell our products through distributors who resell our products to end users.

For domestic sales, we enter into agreements with healthcare supply contracting companies, commonly referred to as Group Purchasing Organizations (GPOs), which enable us to sell and distribute our products to their member hospitals. Our agreements with GPOs typically include negotiated pricing for all group members established at time of GPO contract execution.

We do not sell to GPOs. Hospitals, group practices and other acute care facilities that are members of a GPO, purchase products directly from us under the terms of our GPO agreements.

We recognize revenue when all of the following criteria are met: we have a contract with a customer that creates enforceable rights and obligations; promised products or services are identified; the transaction price, or the amount we expect to receive, is determinable and we have transferred control of the promised products or services to the customer. We consider transfer of control evidenced upon the passage of title and risks and rewards of ownership to the customer. We allocate the transaction price using the relative standalone selling price method. Customer sale prices for our MRI compatible IV infusion pump systems and related disposables and services are contractually fixed over the GPO contract term. We recognize a receivable at the point in time we have an unconditional right to payment. Payment terms are typically within 45 days after transferring control to U.S. customers. Most international distributors are required to pay a portion of the transaction price in advance and the remaining amount within 30 days of receiving the related products. Accordingly, we have elected to use the practical expedient that allows us to ignore the possible existence of a significant financing component within the contract.

We have elected to account for shipping and handling charges billed to customers as revenue and shipping and handling related expenses as cost of revenue.

In certain U.S. states we are required to collect sales taxes from our customers. We have elected to exclude the amounts collected for these taxes from revenue and record them as a liability until remitted to the taxing authority.

Disaggregation of Revenue

We disaggregate revenue from contracts with customers by geographic region and revenue type as we believe it best depicts the nature, amount, timing and uncertainty of our revenue and cash flow.

Revenue information by geographic region is as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(unaudited)		(unaudited)	
United States	$ 5,732,044	$ 4,842,913	$ 11,709,151	$ 9,159,807
International	1,644,741	681,451	2,775,785	1,527,117
Total revenue	$ 7,376,785	$ 5,524,364	$ 14,484,936	$ 10,686,924

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Revenue information by type is as follows:

	Three Months Ended June 30, (unaudited)		Six Months Ended June 30, (unaudited)	
	2018	2017	2018	2017
Devices:				
MRI Compatible IV Infusion Pump Systems	$ 3,590,538	$ 3,279,228	$ 7,216,160	$ 6,281,839
MRI Compatible Patient Vital Signs Monitoring Systems	1,505,518	399,322	2,709,374	789,024
Total Devices Revenue	5,096,056	3,678,550	9,925,534	7,070,863
Disposables and Services	1,909,043	1,625,489	3,848,134	3,220,736
Amortization of extended warranty agreements	371,686	220,325	711,268	395,325
Total revenue	$ 7,376,785	$ 5,524,364	$ 14,484,936	$ 10,686,924

Contract Liabilities

We record contract liabilities, or deferred revenue, when we have an obligation to provide a product or service to the customer and payment is received in advance of our performance. When we sell a product or service with a future performance obligation, we defer revenue allocated to the unfulfilled performance obligation and recognize this revenue when (or as) the performance obligation is satisfied.

Our deferred revenue consists of advance payments received from customers prior to the transfer of products or services, shipments that are in-transit at the end of a period and sales of extended warranty agreements. Advanced payments received from customers and shipments in-transit are recognized in revenue at the time control of the related products has been transferred to the customer or services have been delivered. Amounts related to extended warranty agreements are deferred and recognized in revenue ratably over the agreement period, which is typically one to four years after control of the related products is transferred to the customer, as we believe this recognition pattern best depicts the transfer of services being provided.

Deferred revenue is classified as current or long-term deferred revenue in our Balance Sheets, depending on the expected timing of satisfying the related performance obligations. Our contract liabilities consist of:

	As of December 31,	
	June 30, 2018 (unaudited)	December 31, 2017
Advance payments from customers	$ 61,832	$ 251,087
Shipments in-transit	222,260	13,326
Extended warranty agreements	3,642,209	3,356,843
Total	$ 3,926,301	$ 3,621,256

Changes in the contract liabilities during the period are as follows:

		Deferred Revenue
Contract liabilities, December 31, 2017	$	3,621,256
Increases due to cash received from customers		1,314,024
Decreases due to recognition of revenue		(1,008,979)
Contract liabilities, June 30, 2018	$	3,926,301

Capitalized Contract Costs

We capitalize commissions paid to our sales managers related to contracts with customers when the associated revenue is expected to be earned over a period of time. Deferred commissions are primarily related to the sale of extended warranty agreements. Capitalized commissions are included in Prepaid Expenses and Other Current Assets in our Balance Sheets when the associated expense is expected to be recognized in one year or less, or Other Assets when the associated expense is expected to be recognized in greater than one year. The associated expense is included in Sales and Marketing expenses in our Statements of Operations.

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Our total capitalized contract costs as of June 30, 2018 and December 31, 2017 were $189,074 and $168,757, respectively. Expense for the three and six months ended June 30, 2018 and 2017 related to the amortization of capitalized contract costs were immaterial to our financial statements.

Variable Consideration

Most of our sales are subject to 30 to 60-day customer-specified acceptance provisions primarily for purposes of ensuring products were not damaged during the shipping process. Historically, we have experienced immaterial product returns and, when experienced, we typically exchange the affected products with new products. Accordingly, variable consideration from contracts with customers is immaterial to our financial statements.

3 Basic and Diluted Net Income per Share

Basic net income per share is based upon the weighted-average number of common shares outstanding during the period. Diluted net income per share reflects the potential dilution that could occur if securities or other contracts to issue common stock were exercised or converted into common stock. The underwriters warrants, stock options and restricted stock units granted by us represent the only dilutive effect reflected in diluted weighted-average shares outstanding.

The following table presents the computation of basic and diluted net income per share:

		Three Months Ended June 30,		Six Months Ended June 30,	
		2018	2017	2018	2017
		(unaudited)		(unaudited)	
Net income		$ 1,354,968	$ 357,073	$ 2,196,164	$ 123,733
Weighted-average shares outstanding	Basic	10,651,619	10,687,746	10,630,123	10,714,215
Effect of dilutive securities:					
Underwriters warrants		78,351	8,616	67,533	15,711
Stock Options		1,186,412	1,030,444	1,174,362	1,033,663
Restricted Stock Units		95,093	667	81,468	1,158
Weighted-average shares outstanding	Diluted	12,011,475	11,727,473	11,953,486	11,764,747
Basic net income per share		$ 0.13	$ 0.03	$ 0.21	$ 0.01
Diluted net income per share		$ 0.11	$ 0.03	$ 0.18	$ 0.01

Stock options and restricted stock units excluded from the calculation of diluted net income per share because the effect would have been anti-dilutive are as follows:

	Three Months Ended June 30,	Six Months Ended June 30,

	2018	2017	2018	2017
	(unaudited)		(unaudited)	
Anti-dilutive stock options and restricted stock units	44,123	394,432	46,039	355,514

4 Inventory

Inventory consists of:

	June 30, 2018 (unaudited)	December 31, 2017
Raw materials	$ 3,504,411	$ 3,593,136
Work in process	421,122	280,443
Finished goods	699,110	537,466
Inventory before allowance for excess and obsolete	4,624,643	4,411,045
Allowance for excess and obsolete	(190,709)	(200,199)
Total	$ 4,433,934	$ 4,210,846

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5 Property and Equipment

Property and equipment consist of:

	June 30, 2018 (unaudited)	December 31, 2017
Computer software and hardware	$ 523,334	$ 490,272
Furniture and fixtures	797,324	655,518
Leasehold improvements	202,026	191,139
Machinery and equipment	2,122,879	2,046,808
Tooling in-process	29,170	46,970
	3,674,733	3,430,707
Accumulated depreciation	(1,785,902)	(1,561,856)
Total	$ 1,888,831	$ 1,868,851

Depreciation expense of property and equipment was $115,088 and $94,354 for the three months ended June 30, 2018 and 2017, respectively, and $224,459 and $157,823 for the six months ended June 30, 2018 and 2017.

Property and equipment, net, information by geographic region is as follows:

	June 30, 2018 (unaudited)	December 31, 2017
United States	$ 1,411,724	$ 1,349,897
International	477,107	518,954
Total property and equipment, net	$ 1,888,831	$ 1,868,851

Long-lived assets held outside of the United States consist principally of tooling and machinery and equipment, which are components of property and equipment, net.

6 Intangible Assets

The following table summarizes the components of intangible asset balances:

	June 30, 2018 (unaudited)	December 31, 2017

Patents in use	$ 304,270	$ 168,383
Patents in process	57,082	116,260
Internally developed software	867,569	867,569
Trademarks	23,017	23,017
	1,251,938	1,175,229
Accumulated amortization	(404,242)	(289,727)
Total	$ 847,696	$ 885,502

Amortization expense of intangible assets was $22,491 and $20,600 for the three months ended June 30, 2018 and 2017, respectively, and $44,351 and $41,200 for the six months ended June 30, 2018 and 2017.

Expected annual amortization expense for the remaining portion of 2018 and the next five years related to intangible assets is as follows:

Six months ending December 31, 2018	$ 44,982
2019	89,963
2020	89,963
2021	89,963
2022	89,392
2023	88,740

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7 Stock-Based Compensation

Stock-based compensation was recognized as follows in the Condensed Statements of Operations:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(unaudited)		(unaudited)	
Cost of revenue	$ 69,239	$ 44,869	$ 137,498	$ 95,430
General and administrative	256,466	254,329	483,237	450,175
Sales and marketing	78,277	108,532	161,893	220,493
Research and development	38,099	37,649	75,780	55,705
Total	$ 442,081	$ 445,379	$ 858,408	$ 821,803

As of June 30, 2018, we had $254,384 of unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted-average period of 0.8 years. As of June 30, 2018, we had $2,560,338 of unrecognized compensation cost related to unvested restricted stock units, which is expected to be recognized over a weighted-average period of 2.5 years.

The following table presents a summary of our stock-based compensation activity for the six months ended June 30, 2018:

	Stock Options	Restricted Stock Units
Outstanding beginning of period	1,430,962	252,733
Awards granted		9,494
Awards exercised/vested	(46,701)	(23,582)
Awards canceled	(2,625)	(1,933)
Outstanding end of period	1,381,636	236,712

8 Investments

Our investments consist of corporate bonds that we have classified as available-for-sale and are summarized in the following tables:

	June 30, 2018			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate bonds:				
U.S. corporations	$ 6,413,671	$	$ 108,327	$ 6,305,344
International corporations	1,889,504	46	22,885	1,866,665
Total	$ 8,303,175	$ 46	$ 131,212	$ 8,172,009

	December 31, 2017			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate bonds:				
U.S. corporations	$ 7,244,771	$ 746	$ 63,575	$ 7,181,942
International corporations	971,087	707	18,613	953,181
Total	$ 8,215,858	$ 1,453	$ 82,188	$ 8,135,123

Unrealized losses from the above investments for all periods presented are attributable to changes in interest rates. We do not believe any of these unrealized losses represent other-than-temporary impairments based on our evaluation of available evidence as of June 30, 2018.

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9 Fair Value Measurements

The fair value of our assets and liabilities subject to recurring fair value measurements are as follows:

		Fair Value at June 30, 2018			
	Fair Value	Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
Corporate bonds:					
U.S. corporations	$ 6,305,344	$	$ 6,305,344	$	
International corporations	1,866,665		1,866,665		
Total	$ 8,172,009	$	$ 8,172,009	$	

		Fair Value at December 31, 2017			
	Fair Value	Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
Corporate bonds:					
U.S. corporations	$ 7,181,942	$	$ 7,181,942	$	
International corporations	953,181		953,181		
Total	$ 8,135,123	$	$ 8,135,123	$	

Our corporate bonds are valued by a third-party custodian at closing prices from secondary exchanges or pricing vendors on the valuation date.

There were no transfers into or out of any Levels during the six months ended June 30, 2018 or the year ended December 31, 2017.

10 Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss, net of tax, for the three months ended June 30, 2018 and 2017 are as follows:

	Unrealized (Losses) Gains on Available-For-Sale Securities
Balance at March 31, 2018	$ (102,485)
Gains, net	3,905
Reclassification realized in net earnings	1,256

Balance at June 30, 2018	$	(97,324)
Balance at March 31, 2017	$	(31,669)
Gains, net		3,923
Reclassification realized in net earnings		1,417
Balance at June 30, 2017	$	(26,329)

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The components of accumulated other comprehensive loss, net of tax, for the six months ended June 30, 2018 and 2017 are as follows:

		Unrealized (Losses) Gains on Available-For-Sale Securities
Balance at December 31, 2017	$	(48,909)
Losses, net		(38,746)
Reclassification realized in net earnings		827
Cumulative effect from adoption of accounting standard update		(10,496)
Balance at June 30, 2018	$	(97,324)
Balance at December 31, 2016	$	(36,849)
Gains, net		6,047
Reclassification realized in net earnings		4,473
Balance at June 30, 2017	$	(26,329)

11 Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act (2017 Act) was enacted. The 2017 Act includes a number of changes to U.S. tax laws that impact us, most notably a reduction of the U.S. corporate income tax from 34 percent to 21 percent effective January 1, 2018. The 2017 Act also provides for the acceleration of depreciation for certain assets placed into service after September 27, 2017 as well as prospective changes beginning in 2018, including repeal of the domestic production activities deduction, acceleration of tax revenue recognition, capitalization of research and development expenditures and additional limitations on executive compensation.

We recognized the income tax effects of the 2017 Act in our 2017 financial statements reported on Form 10-K in accordance with Staff Accounting Bulletin No. 118, which provides SEC staff guidance for the application of ASC Topic 740, *Income Taxes*, in the reporting period in which the 2017 Act was signed into law. As such, our 2017 financial results reported on Form 10-K reflected the income tax effects of the 2017 Act for which the accounting under ASC Topic 740 is complete and provisional amounts for those specific income tax effects of the 2017 Act for which the accounting under ASC Topic 740 is incomplete but a reasonable estimate could be determined. We did not identify items for which the income tax effects of the 2017 Act have not been completed and a reasonable estimate could not be determined as of December 31, 2017. No subsequent adjustments have been made to the amounts recorded as of December 31, 2017, which continue to represent a provisional estimate of the impact of the 2017 Act. The estimate of the impact of the 2017 Act is based on certain assumptions and our current interpretation, and may change, as we receive additional clarification and implementation guidance and as the interpretation of the 2017 Act evolves over time.

For the three and six months ended June 30, 2018, we recorded a provision for income tax expense of $348,377 and $634,575, respectively. Our effective tax rate was 20.5 percent and 22.4 percent and differed from the U.S. Federal statutory rate primarily due to the foreign derived intangible income deduction and research and development credits, partially offset by U.S. state tax expense.

For the three and six months ended June 30, 2017, we recorded a provision for income tax (benefit) expense of $(8,360) and $16,123. Our effective tax rate was (2.4) percent and 11.5 percent and differed from the U.S. Federal statutory rate primarily due to research and development tax credits, domestic activities production activities and discrete items associated with the adoption of Accounting Standard Update (ASU)

2016-09, Compensation Stock Compensation (Topic 718), which requires all excess tax benefits and tax deficiencies be recognized as income tax expense or benefit in the income statement.

As of June 30, 2018 and December 31, 2017, we have not identified or accrued for any uncertain tax positions. We are currently unaware of any uncertain tax positions that could result in significant payments, accruals or other material deviations in this estimate over the next 12 months. We believe that our tax positions comply in all material respects with applicable tax law. However, tax law is subject to interpretation, and interpretations by taxing authorities could be different from ours, which could result in the imposition of additional taxes and penalties.

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We file tax returns in the United States Federal jurisdiction and many state jurisdictions. The Company is subject to income tax examinations for our United States Federal and State income taxes for 2013 and subsequent years. The Internal Revenue Service is currently examining the 2016 tax year and the examination is expected to be finalized within 12 months. This examination is in the early stages and no adjustments have been proposed. However, the completion of this examination, or additional examinations, could result in an adjustment to our liability for income taxes, assessments of additional taxes and penalties. Any such adjustments could be material to our financial condition, results of operations and cash flow.

12 Commitments and Contingencies

Leases. In January 2014, we entered into a non-cancelable operating lease, commencing July 1, 2014, for a new manufacturing and headquarters facility in Winter Springs, Florida owned by Susi, LLC, an entity controlled by our President and CEO, Roger Susi. Pursuant to the terms of our lease for this property, the monthly base rent is $33,171, adjusted annually for changes in the consumer price index. Under the terms of the lease, we are responsible for property taxes, insurance and maintenance expenses. The term of the lease expires on May 31, 2019. Unless advance written notice of termination is timely provided, the lease will automatically renew for two successive terms of five years each beginning in 2019 and again in 2024, and thereafter, will be renewed for successive terms of one year each.

A summary of our non-cancelable operating lease commitments as of June 30, 2018 is as follows:

Six months ending December 31, 2018	$	199,025
2019		165,855
2020		
2021		
2022		
Total non-cancelable operating lease commitments	$	364,880

Rent expense under our operating leases was $103,943 and $101,520 for the three months ended June 30, 2018 and 2017, respectively, and $205,448 and $203,025 for the six months ended June 30, 2018 and 2017, respectively.

Leasehold improvements are amortized over the shorter of the initial lease term or the estimated useful life.

Purchase commitments. We had various purchase orders for goods or services totaling approximately $2,088,592 and $2,219,818 as of June 30, 2018 and December 31, 2017, respectively. No amounts related to these purchase orders have been recognized in our balance sheet.

Legal matters. We may from time to time become party to various legal proceedings or claims that arise in the ordinary course of business.

13 Common Stock

The table below summarizes our common stock activity (shares):

Balance, December 31, 2017	10,596,566
Option exercises	46,701
Vesting of restricted stock units, net of shares withheld for taxes	22,651
Balance, June 30, 2018	10,665,918

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

The following Management s Discussion and Analysis of Financial Condition (MD&A) supplements the MD&A in the Company s Annual Report filed on Form 10-K. The MD&A should be read in conjunction with the Risk Factors section of this Quarterly Report, our condensed financial statements and accompanying footnotes, the discussion of certain risks and uncertainties contained in Part II, Item 1A of this Quarterly Report, the Form 10-K and the cautionary information regarding forward-looking statements at the end of this section.

Some of the statements contained in this MD&A and elsewhere in this Quarterly Report are forward-looking statements that involve substantial risks and uncertainties. All statements other than historical facts contained in this report, including statements regarding our future financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as believes, expects, anticipates, intends, estimates, may, will, continue, should, plan, predict, potential and other similar expressions. We have based these forward-looking statements 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. Our actual results could differ materially from those anticipated in these forward-looking statements, which are subject to a number of risks, uncertainties and assumptions including, but not limited to the risks discussed in the Risk Factor section of this Quarterly Report.

Our Business

We develop, manufacture, market and distribute Magnetic Resonance Imaging (MRI) compatible medical devices and accessories, disposables and services relating to them.

We are a leader in the development of innovative magnetic resonance imaging (MRI) compatible medical devices. We are the only known provider of a non-magnetic intravenous (IV) infusion pump system that is specifically designed to be safe for use during MRI procedures. We were the first to develop an infusion delivery system that largely eliminates many of the dangers and problems present during MRI procedures. Standard infusion pumps contain magnetic and electronic components which can create radio frequency interference and are dangerous to operate in the presence of the powerful magnet that drives an MRI system. Our patented MRidium® MRI compatible IV infusion pump system has been designed with a non-magnetic ultrasonic motor, uniquely-designed non-ferrous parts and other special features to safely and predictably deliver anesthesia and other IV fluids during various MRI procedures. Our pump solution provides a seamless approach that enables accurate, safe and dependable fluid delivery before, during and after an MRI scan, which is important to critically-ill patients who cannot be removed from their vital medications, and children and infants who must generally be sedated to remain immobile during an MRI scan.

Each IV infusion pump system consists of an MRidium® MRI compatible IV infusion pump, non-magnetic mobile stand, proprietary disposable IV tubing sets and many of these systems include additional optional upgrade accessories.

Our 3880 MRI compatible patient vital signs monitoring system has been designed with non-magnetic components and other special features to safely and accurately monitor a patient s vital signs during various MRI procedures. The IRADIMED 3880 system operates dependably in magnetic fields up to 30,000 gauss, which means it can operate virtually anywhere in the MRI scanner room. The IRADIMED 3880 has a compact, lightweight design allowing it to travel with the patient from their critical care unit, to the MRI and back, resulting in increased patient safety through uninterrupted vital signs monitoring and decreasing the amount of time critically ill patients are away from critical care units. The features of the IRADIMED 3880 include: wireless ECG with dynamic gradient filtering; wireless SpO2 using Masimo® algorithms; non-magnetic respiratory CO2; non-invasive blood pressure; patient temperature, and; optional advanced multi-gas anesthetic agent unit featuring continuous Minimum Alveolar Concentration measurements. The IRADIMED 3880 MRI compatible patient vital signs monitoring system has an easy-to-use design and allows for the effective communication of patient vital signs information to clinicians.

We generate revenue from the one-time sale of MRI compatible medical devices and accessories, ongoing service contracts and the sale of disposable products used with our devices. The principal customers for our MRI compatible products include hospitals and acute care facilities, both in the United States and internationally.

We sell our MRI compatible products through our direct sales force in the U.S. and independent distributors internationally. We also enter into agreements with healthcare supply contracting companies in the U.S., which enable us to sell and distribute our MRidium MRI compatible IV infusion pump systems to their member hospitals. Under these agreements, we are required to pay these group purchasing organizations (GPOs) a fee of three percent of the sales of our products to their member hospitals. Our current GPO contracts effectively give us the ability to sell to more than approximately 95 percent of all U.S. hospitals and acute care facilities. Historical selling cycles for our devices vary and are typically three to six months in duration.

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FDA Warning Letter

The FDA conducted a routine inspection of our prior facility between April 7 and April 16, 2014. This was the first FDA inspection of our facility since the voluntary product recall in August 2012 of certain infusion sets and the voluntary recall in July 2013 of our DERS software. The FDA issued a Form 483 on April 16, 2014 that identified eight observations. Most of the observations related to procedural and documentation issues associated with the design, development, validation testing and documentation of software used in certain of our products. Other observations were related to the design validation of pump labeling, design analysis of tube stretching, procedures for post-market design review, and control and procedures related to handling certain reported complaints. We submitted responses to the Form 483 in May 2014 and June 2014 in which we described our proposed corrective and preventative actions to address each of the FDA s observations.

On September 2, 2014, we received a warning letter from the FDA relating to this inspection (the Warning Letter). The Warning Letter states that the FDA accepted as adequate several of our responses to Form 483 observations, identified two responses whose accuracy will be determined in the next scheduled inspection of our facility and identified issues for which our response was determined to be inadequate. The issues identified as inadequate concern our procedures for validating device design primarily related to software quality assurance.

Also, the Warning Letter raised a new issue. The Warning Letter states that modifications made to software on our previously cleared infusion pumps, the MRidium 3860 and MRidium 3850, were significant and required submission of new premarket notifications under Section 510(k) (a 510(k) submission) of the FDC Act. These modifications had been made over time. We believed they were insignificant and did not require premarket notification submissions. However, the FDA indicated that the modifications of the software for the MRidium 3860 and the software for the MRidium 3850 were significant modifications because they could significantly affect the safety or effectiveness of these devices. As a result, the Warning Letter states that the products being sold by us are adulterated and misbranded under the FDC Act. The Warning Letter also indicates that the MRidium 3860+ infusion pump requires separate FDA clearance from the MRidium 3860 and MRidium 3850.

The Warning Letter requested that we immediately cease activities that result in the misbranding or adulteration of the MRidium 3860 MRI infusion pump, MRidium 3850 MRI infusion pump, and the MRidium 3860+ MRI infusion pump, including the commercial distribution of the devices. We immediately complied with the Warning Letter and ceased sale and distribution of the identified products in the United States.

On September 4, 2014, we submitted to the FDA our initial response to the Warning Letter and on September 17, 2014 we sent an additional response that included supplemental information related to the Form 483 inspection observations for which the FDA considered our initial responses inadequate.

On November 25, 2014, we announced that we filed the 510(k) submission related to our MRidium 3860+ MRI IV infusion pumps and on December 12, 2014 we were notified that our 510(k) submission had been formally accepted for review by the FDA. On December 22, 2014, under FDA enforcement discretion, we announced that we resumed domestic distribution of our MRI compatible MRidium 3860+ MRI IV infusion pump systems, without the DERS option. On January 28, 2015, under FDA enforcement discretion, we announced that we resumed domestic distribution of our DERS option. On December 9, 2015, we met with the FDA to review responses to the agency s additional information letter.

Between July 11 and July 18, 2016, the FDA conducted a routine inspection of our facility. This was the first FDA inspection of our facility since the receipt of the Warning Letter. During this inspection, the updated documents and actions implemented in response to the Warning Letter findings were reviewed, and the FDA determined that no further actions were necessary.

On December 15, 2016, we received FDA 510(k) clearance for our MRidium 3860+ MRI IV infusion pump system, including the DERS software feature. As of June 30, 2018, the Warning Letter remains open.

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Financial Highlights and Outlook

Our revenue increased $1.9 million, or 33.5 percent, to $7.4 million for the second quarter ended June 30, 2018, compared to $5.5 million for the second quarter last year. Net income was $1.4 million, or $0.11 per diluted share in the second quarter ended June 30, 2018, compared to net income of $0.4 million, or $0.03 per diluted share in the second quarter last year.

For the remainder of 2018, we expect our revenues to increase when compared to same period in 2017 as we continue to focus on penetrating the MRI compatible IV pump market of first-time adopters more deeply and expanding global sales of our new MRI compatible patient vital signs monitor. We intend to continue targeting hospitals and acute care facilities that have yet to adopt our technology and penetrating the Intensive Care Unit, Emergency Room and other critical care locations within hospitals where there is a high probability that interventional radiology procedures will need to be performed on patients.

We expect higher full year 2018 operating expenses compared to 2017 due primarily to higher sales and marketing expenses.

Application of Critical Accounting Policies

We prepare our financial statements in conformity with U.S. generally accepted accounting principles. The preparation of these financial statements requires us to make estimates and use assumptions that affect the reported amounts of assets, liabilities and related disclosures at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

We believe that the following critical accounting policies require the use of significant estimates, assumptions, and judgments.

- Revenue recognition
- Accounts receivable and allowance for doubtful accounts
- Inventory carried at the lower of cost or net realizable value

- Stock-based compensation

- Income taxes

These critical accounting policies are described in more detail in our Annual Report filed on Form 10-K, under *Management s Discussion and Analysis and Results of Operations.* Except as disclosed in Note 1 to the unaudited condensed financial statements contained herein related to the adoption of recent accounting pronouncements, there have been no changes to these policies during the three and six months ended June 30, 2018.

The use of different estimates, assumptions, and judgments could have a material effect on the reported amounts of assets, liabilities and related disclosures as of the date of the financial statements and revenue and expenses during the reporting period.

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Results of Operations

The following table sets forth selected statements of operations data as a percentage of total revenue for the periods indicated. Our historical operating results are not necessarily indicative of the results for any future period.

	Percent of Revenue Three Months Ended June 30,		Percent of Revenue Six Months Ended June 30,	
	2018	2017	2018	2017
Revenue	100.0%	100.0%	100.0%	100.0%
Cost of revenue	23.2	22.3	23.5	24.5
Gross profit	76.8	77.7	76.5	75.5
Operating expenses:				
General and administrative	28.2	39.6	30.3	40.2
Sales and marketing	20.6	24.0	21.8	25.2
Research and development	5.4	8.1	5.4	9.3
Total operating expenses	54.1	71.7	57.4	74.6
Income from operations	22.7	5.9	19.1	0.8
Other income, net	0.4	0.4	0.5	0.5
Income before provision for income taxes	23.1	6.3	19.5	1.3
Provision for income tax (benefit) expense	4.7	(0.2)	4.4	0.2
Net income	18.4%	6.5%	15.2%	1.2%

Three and Six Months Ended June 30, 2018 and 2017

Revenue by Geographic Region

	Three Months Ended June 30,			Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
United States	$ 5,732,044	$ 4,842,913	18.4%	$ 11,709,151	$ 9,159,807	27.8%
International	1,644,741	681,451	141.4%	2,775,785	1,527,117	81.8%
Total Revenue	$ 7,376,785	$ 5,524,364	33.5%	$ 14,484,936	$ 10,686,924	35.5%

Revenue by Type

	Three Months Ended June 30,			Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Devices:						
MRI Compatible IV Infusion Pump Systems	$ 3,590,538	$ 3,279,228	9.5%	$ 7,216,160	$ 6,281,839	14.9%
MRI Compatible Patient Vital Signs Monitoring Systems	1,505,518	399,322	277.0%	2,709,374	789,024	243.4%

Total Devices Revenue	5,096,056	3,678,550	38.5%	9,925,534	7,070,863	40.4%
Disposables and Services	1,909,043	1,625,489	17.4%	3,848,134	3,220,736	19.5%
Amortization of extended warranty agreements	371,686	220,325	68.7%	711,268	395,325	79.9%
Total revenue	$ 7,376,785	$ 5,524,364	33.5%	$ 14,484,936	$ 10,686,924	35.5%

For the three months ended June 30, 2018, revenue increased $1.9 million, or 33.5 percent, to $7.4 million from $5.5 million for the same period in 2017. This increase is due to higher sales of our MRI compatible devices, disposables and services and amortization of extended maintenance contracts.

The average selling price of our MRI compatible IV infusion pump system during the three months ended June 30, 2018 was approximately $29,400, compared to $35,600 for the same period in 2017. The decrease in ASP relates to higher international sales as a percent of revenue during the second quarter of 2018.

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The average selling price of our MRI compatible patient vital signs monitoring system during the three months ended June 30, 2018 was approximately $34,100, compared to $20,600 for the same period in 2017. The increase in ASP primarily relates to sales of this device in the U.S. during the second quarter 2018. During the second quarter 2017, this device was only available internationally. These average selling prices reflect introductory promotions and are lower than what we expect in the future.

Revenue from sales in the U.S. increased $0.9 million, or 18.4 percent, to $5.7 million from $4.8 million for the same period in 2017. Revenue from sales internationally increased $0.9 million, or 141.4 percent, to $1.6 million for the three months ended June 30, 2018, from $0.7 million for the same period in 2017. Domestic sales accounted for 77.7 percent of revenue in the second quarter 2018, compared to 87.7 percent in the second quarter 2017.

Revenue from sales of devices increased $1.4 million, or 38.5 percent, to $5.1 million from $3.7 million for the same period in 2017. Revenue from sales of our disposables and services increased $0.3 million, or 17.4 percent, to $1.9 million from $1.6 million for the same period in 2017. Revenue from the amortization of extended maintenance contracts increased $0.2 million, or 68.7%, to $0.4 million from $0.2 million for the same period in 2017.

For the six months ended June 30, 2018, revenue increased $3.8 million, or 35.5 percent, to $14.5 million from $10.7 million for the same period in 2017. This increase is due to higher sales of our MRI compatible devices, disposables and services and amortization of extended maintenance contracts.

The average selling price of our MRI compatible IV infusion pump system during the six months ended June 30, 2018 was approximately $31,100, compared to $35,100 for the same period in 2017. The decrease in ASP relates to higher international sales as a percent of revenue during the six months ended June 30, 2018.

The average selling price of our MRI compatible patient vital signs monitoring system during the six months ended June 30, 2018 was approximately $35,000, compared to $20,900 for the same period in 2017. The increase in ASP primarily relates to sales of this device in the U.S. during the 2018 period. During the 2017 period, this device was only available internationally. These average selling prices reflect introductory promotions and are lower than what we expect in the future.

Revenue from sales in the U.S. increased $2.5 million, or 27.8 percent, to $11.7 million from $9.2 million for the same period in 2017. Revenue from sales internationally increased $1.3 million, or 81.8 percent, to $2.8 million for the six months ended June 30, 2018, from $1.5 million for the same period in 2017. Domestic sales accounted for 80.8 percent of revenue in the six months ended June 30, 2018, compared to 85.7 percent for the same period in 2017.

Revenue from sales of devices increased $2.8 million, or 40.4 percent, to $9.9 million from $7.1 million for the same period in 2017. Revenue from sales of our disposables and services increased $0.6 million, or 19.5 percent, to $3.8 million from $3.2 million for the same period in 2017. Revenue from the amortization of extended maintenance contracts increased $0.3 million, or 79.9%, to $0.7 million from $0.4 million for the same period in 2017.

Cost of Revenue and Gross Profit

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	**2017**	**2018**	**2017**
Revenue	$ 7,376,785	$ 5,524,364	$ 14,484,936	$ 10,686,924
Cost of revenue	1,710,890	1,234,314	3,402,425	2,621,932
Gross profit	$ 5,665,895	$ 4,290,050	$ 11,082,511	$ 8,064,992
Gross profit percentage	76.8%	77.7%	76.5%	75.5%

For the three months ended June 30, 2018, cost of revenue increased $0.5 million, or 38.6 percent, to $1.7 million from $1.2 million for the same period in 2017. Gross profit increased $1.4 million, or 32.1 percent, to $5.7 million for the second quarter 2018 from $4.3 million for the same period in 2017. The increase in cost of revenue and gross profit is primarily attributable to higher sales.

Gross profit margin was 76.8 percent for second quarter 2018, compared to 77.7 percent for the second quarter 2017. This is primarily due to a lower average selling price for our MRI compatible IV pump system resulting from higher international sales as a percent of revenue and unfavorable overhead and service related costs, partially offset by a higher average selling price for our MRI compatible patient vital signs monitoring system when compared to the same period last year.

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For the six months ended June 30, 2018, cost of revenue increased $0.8 million, or 29.8 percent, to $3.4 million from $2.6 million for the same period in 2017. Gross profit increased $3.0 million, or 37.4 percent, to $11.1 million for the six months ended June 30, 2018 from $8.1 million for the same period in 2017. The increase in cost of revenue and gross profit is primarily attributable to higher sales.

Gross profit margin was 76.5 percent for the six months ended June 30, 2018, compared to 75.5 percent for the same period in 2017. This is primarily the result of a higher average selling price for our MRI compatible patient vital signs monitoring system, partially offset by unfavorable overhead expenses.

Operating Expenses

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	**2017**	**2018**	**2017**
General and administrative	$ 2,078,356	$ 2,189,925	$ 4,381,888	$ 4,297,182
Percentage of revenue	28.2%	39.6%	30.3%	40.2%
Sales and marketing	$ 1,516,044	$ 1,323,539	$ 3,161,980	$ 2,688,315
Percentage of revenue	20.6%	24.0%	21.8%	25.2%
Research and development	$ 395,988	$ 449,011	$ 775,814	$ 990,301
Percentage of revenue	5.4%	8.1%	5.4%	9.3%

General and Administrative

For the three months ended June 30, 2018, general and administrative expense decreased $(0.1) million, or 5.1 percent, to $2.1 million from $2.2 million for the same period last year. This decrease is primarily due to the write-off of non-trade accounts receivable during the 2017 period and lower legal and professional expenses during the 2018 period, partially offset by higher expenses for employee payroll and benefits during the 2018 period.

For the six months ended June 30, 2018, general and administrative expense increased $0.1 million, or 2.0 percent, to $4.4 million from $4.3 million for the same period last year. This increase is primarily due to higher expenses for employee payroll and benefits, regulatory filing fees and computer software expenses, partially offset by lower expenses due to the write-off of non-trade accounts receivable during the 2017 period and lower consulting services expenses during the 2018 period.

Sales and Marketing

For the three months ended June 30, 2018, sales and marketing expense increased $0.2 million, or 14.5 percent, to $1.5 million from $1.3 million for the same period last year. This is primarily the result of higher sales activities expenses and payroll due to higher headcount and higher sales commissions due to higher sales, partially offset by lower stock compensation expense.

For the six months ended June 30, 2018, sales and marketing expense increased $0.5 million, or 17.6 percent, to $3.2 million from $2.7 million for the same period last year. This is primarily the result of higher sales activities and payroll due to higher headcount and higher sales commissions due to higher sales, partially offset by lower stock compensation expense.

Research and Development

For the three months ended June 30, 2018, research and development expense decreased $(0.1) million, or 11.8 percent, to $0.4 million from $0.5 million for the same period last year. This is primarily the result of lower expenses for project development supplies.

For the six months ended June 30, 2018, research and development expense decreased $(0.2) million, or 21.7 percent, to $0.8 million from $1.0 million for the same period last year. This is primarily the result of lower expenses for consulting and outside engineering services and project development supplies.

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Other Income, Net

Other income, net consists of interest income, foreign currency gains and losses, and other miscellaneous income. For the three months ended June 30, 2018 and 2017, we reported other income of approximately $28,000 and $21,000, respectively. This increase is primarily due to higher interest income from our investment portfolio.

For the six months ended June 30, 2018 and 2017, we reported other income of approximately $68,000 and $51,000, respectively. This increase is primarily due to higher interest income from our investment portfolio.

Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act (2017 Act) was enacted. The 2017 Act includes a number of changes to U.S. tax laws that impact us, most notably a reduction of the U.S. corporate income tax from 34 percent to 21 percent effective January 1, 2018. The 2017 Act also provides for the acceleration of depreciation for certain assets placed into service after September 27, 2017 as well as prospective changes beginning in 2018, including repeal of the domestic production activities deduction, acceleration of tax revenue recognition, capitalization of research and development expenditures and additional limitations on executive compensation.

We recognized the income tax effects of the 2017 Act in our 2017 financial statements reported on Form 10-K in accordance with Staff Accounting Bulletin No. 118, which provides SEC staff guidance for the application of ASC Topic 740, *Income Taxes*, in the reporting period in which the 2017 Act was signed into law. As such, our 2017 financial results reported on Form 10-K reflected the income tax effects of the 2017 Act for which the accounting under ASC Topic 740 is complete and provisional amounts for those specific income tax effects of the 2017 Act for which the accounting under ASC Topic 740 is incomplete but a reasonable estimate could be determined. We did not identify items for which the income tax effects of the 2017 Act have not been completed and a reasonable estimate could not be determined as of December 31, 2017. No subsequent adjustments have been made to the amounts recorded as of December 31, 2017, which continue to represent a provisional estimate of the impact of the 2017 Act. The estimate of the impact of the 2017 Act is based on certain assumptions and our current interpretation, and may change, as we receive additional clarification and implementation guidance and as the interpretation of the 2017 Act evolves over time.

For the three and six months ended June 30, 2018, we recorded a provision for income tax expense of $348,377 and $634,575, respectively. Our effective tax rate was 20.5 percent and 22.4 percent and differed from the U.S. Federal statutory rate primarily due to the foreign derived intangible income deduction and research and development credits, partially offset by U.S. state tax expense.

For the three and six months ended June 30, 2017, we recorded a provision for income tax (benefit) expense of $(8,360) and $16,123. Our effective tax rate was (2.4) percent and 11.5 percent and differed from the U.S. Federal statutory rate primarily due to research and development tax credits, domestic activities production activities and discrete items associated with the adoption of Accounting Standard Update (ASU) 2016-09, Compensation Stock Compensation (Topic 718), which requires all excess tax benefits and tax deficiencies be recognized as income tax expense or benefit in the income statement.

As of June 30, 2018 and December 31, 2017, we have not identified or accrued for any uncertain tax positions. We are currently unaware of any uncertain tax positions that could result in significant payments, accruals or other material deviations in this estimate over the next 12 months. We believe that our tax positions comply in all material respects with applicable tax law. However, tax law is subject to interpretation, and interpretations by taxing authorities could be different from ours, which could result in the imposition of additional taxes and penalties.

We file tax returns in the United States Federal jurisdiction and many state jurisdictions. The Company is subject to income tax examinations for our United States Federal and State income taxes for 2013 and subsequent years. The Internal Revenue Service is currently examining the 2016 tax year. This examination is in the early stages and no estimate of potential adjustments can be made at this time. However, the completion of this examination, or additional examinations, could result in an adjustment to our liability for income taxes, assessments of additional taxes and penalties. Any such adjustments could be material to our financial condition, results of operations and cash flow.

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Liquidity and Capital Resources

Our principal sources of liquidity have historically been our cash and cash equivalents balances, our investments, cash flow from operations and access to the financial markets. Our principal uses of cash are operating expenses, working capital requirements, capital expenditures and share repurchases.

As of June 30, 2018, we had cash and cash equivalents and investments of $29.5 million, stockholders equity of $36.2 million, and working capital of $34.1 million. As of December 31, 2017, we had cash and cash equivalents and investments of $26.3 million, stockholders equity of $32.9 million, and working capital of $31.0 million.

We believe that our current cash and cash equivalents and any cash generated from operations will be sufficient to meet our ongoing operating requirements for at least the next 12 months. We do not anticipate requiring additional capital; however, if required or desirable, we may seek to obtain a credit facility, raise debt or issue additional equity in the private or public markets.

	Six Months Ended June 30,	
	2018	2017
Net cash provided by operating activities	$ 3,105,709	$ 106,889
Net cash (used in) provided by investing activities	(200,290)	528,333
Net cash provided by (used in) financing activities	219,484	(1,548,476)

For the six months ended June 30, 2018, cash provided by operating activities increased $3.0 million to $3.1 million, compared to $0.1 million for the same period in 2017. This increase was primarily the result of higher net income and lower cash outflows related to income taxes and accounts payable, partially offset by higher net cash outflows related to prepaid expenses and other current assets and accrued payroll and benefits, and lower net cash inflows related to deferred revenue.

Cash used in investing activities was $(0.2) million for the six months ended June 30, 2018, compared to cash provided by investing activities of $0.5 million for the same period in 2017. This decrease primarily relates to lower maturities of investments, net of purchases, partially offset by lower cash outflows related to capital expenditures.

Cash provided by financing activities was $0.2 million for the six months ended June 30, 2018, compared to cash used in financing activities of $(1.5) million for the same period in 2017. This increase primarily relates to purchases of treasury stock during the 2017 period and higher cash inflows related to exercises of stock options during the 2018 period.

We market our products to end users in the United States and to distributors internationally. Sales to end users in the United States are generally made on open credit terms. Management maintains an allowance for potential credit losses.

Our manufacturing and headquarters facility has been leased from Susi, LLC, an entity controlled by our President and CEO, Roger Susi. Pursuant to the terms of our lease, the monthly base rent is $33,171, adjusted annually for changes in the consumer price index.

Off-Balance Sheet Arrangements

Under our amended and restated bylaws, we have agreed to indemnify our officers and directors for certain events or occurrences arising as a result of the officer or director serving in such capacity. We have a director and officer liability insurance policy that limits our exposure under these indemnifications and enables us to recover a portion of any future loss arising out of them. In addition, in the normal course of business, we enter into contracts that contain indemnification clauses whereby the Company indemnifies our customers against damages associated with product failures. We have obtained liability insurance providing coverage that limits our exposure for these indemnified matters. Based on our historical experience and the estimated probability of future loss, we have determined that the estimated fair value of these indemnities is not material to our financial position or results of operations and have not recorded a liability for these agreements as of June 30, 2018. We had no other off-balance sheet arrangements during the six months ended June 30, 2018 or for the year ended December 31, 2017 that had, or are reasonably likely to have, a material effect on our financial condition, results of operations, or liquidity.

Contractual Obligations

There have been no material changes outside the ordinary course of business to our contractual obligations and commercial commitments since December 31, 2017.

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Recent Accounting Pronouncements

See Note 1 to the unaudited condensed financial statements contained herein for a full description of recent accounting pronouncements including the respective expected dates of adoption and status of evaluation of expected effects on results of our operations and financial condition.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Foreign Currency Exchange Risk

We have foreign currency risks related to our revenue and operating expenses denominated in currencies other than the U.S. Dollar, principally the Japanese yen (Yen). The volatility of the Yen depends on many factors that we cannot forecast with reliable accuracy. We have experienced and will continue to experience fluctuations in our net income because of transaction gains (losses) related to revaluing Yen denominated accounts payable balances. In the event our Yen denominated accounts payable or expenses increase, our operating results may be affected by fluctuations in the Yen exchange rate. If the U.S. Dollar uniformly increased or decreased in strength by 10% relative to the Yen, our net income would have correspondingly increased or decreased by an immaterial amount for the three and six months ended June 30, 2018 and 2017.

Interest Rate Risk

When able, we invest excess cash in bank money-market funds, corporate debt securities or discrete short-term investments. The fair value of our cash equivalents and short-term investments is sensitive to changes in the general level of interest rates in the U.S., and the fair value of these investments will decline if market interest rates increase. As of June 30, 2018, we had $8.2 million in corporate bonds, with $2.9 million that matures in less than 1 year, $4.0 million that matures between 1 and 3 years and $1.3 million that matures between 3 and 5 years. These corporate bonds have fixed interest rates and semi-annual interest payment dates. If market interest rates were to change by 100 basis points from levels at June 30, 2018, we expect the corresponding change in fair value of our investments would be approximately $120,000. This is based on sensitivity analyses performed on our financial position as of June 30, 2018. Actual results may differ as our analysis of the effects of changes in interest rates does not account for, among other things, sales of securities prior to maturity and repurchase of replacement securities, the change in mix or quality of the investments in the portfolio, and changes in the relationship between short-term and long-term interest rates.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q. The term disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act), means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company s management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the period covered by this Quarterly Report on Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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PART II. OTHER INFORMATION

Item 1. Legal Proceedings

We may from time to time become party to various legal proceedings or claims that arise in the ordinary course of business. Our management reviews these matters if and when they arise and believes that the resolution of any such matters currently known will not have a material effect on our results of operations or financial position.

Item 1A. Risk Factors

Risks Relating to Our Business and Financial Condition

Our financial performance is significantly dependent on a single product, and disruptions in our ability to sell this product may have a material adverse effect on our business.

Our current revenue and profitability is significantly dependent on the sale of the MRidium 3860+ MRI compatible IV infusion pump system (a Class II medical device) and the ongoing sale of disposable tubing sets and related services. Sales of the MRidium 3860+ MRI compatible IV infusion pump system have historically comprised a substantial majority of our net revenue. Although we have recently launched our marketing efforts for our new 3880 MRI compatible patient vital signs monitor in the U.S., our near-term revenue and profitability will be dependent upon our ability to successfully market and sell the MRidium 3860+ MRI compatible IV infusion pump system.

In the past, the FDA has issued us a Warning Letter that impacted our ability to commercially distribute our MRidium 3860+ MRI compatible IV infusion pump system. Although we have resumed commercial distribution of the MRidium 3860+ MRI compatible IV infusion pump system, the Warning Letter remains open and there can be no guarantee that the FDA will not take similar action in the future. The FDA could require us to cease shipment of our products, notify health professionals and others that the devices present unreasonable risk or substantial harm to public health, order a recall, repair, replacement, or refund of the devices, detain or seize adulterated or misbranded medical devices, or ban the medical devices. The FDA may also issue further warning letters or untitled letters, refuse future requests for 510(k) submission or premarket approval, revoke existing 510(k) clearances or premarket approvals previously granted, impose operating restrictions, enjoin and restrain certain violations of applicable law pertaining to medical devices and assess civil or criminal penalties against our officers, employees, or us.

Our products could be rendered obsolete or economically impractical by numerous factors, many of which are beyond our control, including but not limited to:

- entrance of new competitors into our markets;

- technological advancements of MRI scanners;

- technological developments such as new imaging modalities which render MRI procedures obsolete or reduce the instances where MRI imaging is utilized;

- loss of key relationships with suppliers, group purchasing organizations, or end-user customers;

- manufacturing or supply interruptions;

- product liability claims;

- our reputation and product market acceptance; and

- product recalls or safety alerts.

Any major factor adversely affecting the sale of our MRidium 3860+ MRI compatible IV infusion pump would cause our revenues to decline and have a material adverse impact on our business, financial condition and our common stock.

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We have been subject to securities class action litigation and derivative litigation and we may be subject to similar or other litigation in the future.

In the past, following adverse action by the FDA or volatility in our stock price, securities class action litigation has been brought against us. There can be no assurance that we will not face other securities litigation in the future. With respect to any litigation, our insurance may not reimburse us or may not be sufficient to reimburse us for the expenses or losses we may suffer in contesting and concluding such lawsuits. A decision adverse to our interests on these actions or resulting from these matters could result in the payment of substantial damages and could have a material adverse effect on our business, financial condition and our common stock. Regardless of the outcome, these claims may result in injury to our reputation, significant costs, diversion of management s attention and resources, and loss of revenue.

There is no assurance that our internal and external sources of liquidity will at all times be sufficient for our cash requirements.

We must have sufficient sources of liquidity to fund our working capital requirements, our capital improvement plans, and execute on our strategic initiatives. Our decline in operating results during 2017 limited our generation of capital resources and that situation could return if we are unable to continue to increase revenues or adjust our costs appropriately. Further, our 3880 Monitor launch is demanding increased working capital before any long-term return is realized from increased revenue. Our ability to achieve our business and cash flow plans is based on a number of assumptions which involve significant judgments and estimates of future performance, borrowing capacity and credit availability, which cannot at all times be assured. Accordingly, there is no assurance that cash flows from operations and other internal and external sources of liquidity will at all times be sufficient for our cash requirements. If necessary, we may need to consider actions and steps to improve our cash position and mitigate any potential liquidity shortfall, such as modifying our business plan, pursuing additional financing to the extent available, reducing capital expenditures, pursuing and evaluating other alternatives and opportunities to obtain additional sources of liquidity and other potential actions to reduce costs. There can be no assurance that any of these actions would be successful, sufficient or available on favorable terms. Any inability to generate or obtain sufficient levels of liquidity to meet our cash requirements at the level and times needed could have a material adverse impact on our business and financial position.

Our continued success depends on the integrity of our supply chain, including multiple single-source suppliers, the disruption of which could negatively impact our business.

Many of the component parts of our products are obtained through supply agreements with third parties. Some of these parts require our partners to engage in complex manufacturing processes and involve long lead times or delivery periods. Considering our dependence on third-party suppliers, several of which are single-source suppliers, we are subject to inherent uncertainties and risks related to their ability to produce or deliver parts on a timely basis, to comply with product safety and other regulatory requirements and to provide quality parts to us at a reasonable price.

For example, we are dependent upon a single vendor for the ultrasonic motor at the core of our MRidium MRI compatible IV infusion pump. If this vendor fails to meet our volume requirements, which we anticipate will increase over time, or if the vendor becomes unable or unwilling to continue supplying motors to us, this would impact our ability to supply our pumps to customers until a replacement source is secured. Our executed agreement with this vendor provides that the price at which we purchase products from the vendor is determined by agreement from time to time or should material costs change. Although we have had a long history of stable pricing with this supplier, this provision may make it difficult for us to continue to receive motors from this vendor on favorable terms or at all if we do not agree on pricing in the future. In such event, it could materially and adversely affect our commercial activities, operating results and financial condition.

In the near term, we do not anticipate finding alternative sources for our primary suppliers, including single source suppliers. Therefore, if our primary suppliers become unable or unwilling to manufacture or deliver materials, or manufacture or deliver such materials later than anticipated, we could experience protracted delays or interruptions in the supply of materials which would ultimately delay our manufacture of products for commercial sale, which could materially and adversely affect our development programs, commercial activities, operating results and financial condition.

Additionally, any failure by us to forecast demand for, or to maintain an adequate supply of raw materials, parts, or finished products, could result in an interruption in the supply of certain products and a decline in our sales.

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We rely on third-party suppliers for certain of our raw materials and components.

We rely on unaffiliated third-party suppliers for certain raw materials and components necessary for the manufacturing and operation of our products. Certain of those raw materials and components are proprietary products of those unaffiliated third-party suppliers and are specifically cited in our applications with regulatory agencies so that they must be obtained from that specific sole source or sources and could not be obtained from another supplier unless and until an appropriate application amendment is approved by the regulatory agency. For example, the non-magnetic ultrasonic motor which drives our MRI compatible IV infusion pump is sole-sourced from a major multinational Japanese manufacturing company.

Among the reasons we may be unable to obtain these raw materials and components include:

- a supplier s inability or unwillingness to continue supplying raw materials and/or components;
- regulatory requirements or action by regulatory agencies or others, including changes in international trade treaties and/or tariffs;
- adverse financial or other strategic developments at or affecting the supplier, including bankruptcy;
- unexpected demand for or shortage of raw materials or components;
- failure to comply with quality standards which results in quality and product failures, product contamination and/or recall;
- discovery of previously unknown or undetected imperfections in raw materials or components;
- labor disputes or shortages, including from the effects of health emergencies and natural disasters; and
- political instability and actual or anticipated military or political conflicts.

These events could negatively impact our ability to satisfy demand for our products, which could have a material adverse effect on our product use and sales and our business and results of operations. We may experience these or other shortages in the future resulting in delayed shipments, supply constraints, contract disputes and/or stock-outs of our products.

The manufacture of our products requires strict adherence to regulatory requirements governing medical devices and if we or our suppliers encounter problems our business could suffer.

The manufacture of our products must comply with strict regulatory requirements governing Class II medical devices in the U.S. and other regulatory requirements in foreign locations. Problems may arise during manufacturing, quality control, storage or distribution of our products for a variety of reasons, including equipment malfunction, failure to follow specific protocols and procedures, manufacturing quality concerns, or problems with raw materials, electromechanical, software and other components, supplier issues, and natural disasters. If problems arise during production of our pump, the affected products may have to be discarded. Manufacturing problems or delays could also lead to increased costs, lost sales, damage to customer relations, failure to supply penalties, time and expense spent investigating the cause and, depending on the cause, similar losses with respect to other batches of products. If problems are not discovered before the product is released to the market, voluntary recalls, corrective actions or product liability related costs may also be incurred. Should we encounter difficulties in the manufacture of our products or be subject to a product recall, our business could suffer materially.

Our markets are very competitive and we sell certain of our products in a mature market.

The market for our 3880 MRI compatible patient vital signs monitoring system is well-developed and sales growth for our monitor in the U.S. could be slow. Our vital signs monitoring system could face difficult competition, including competitors offering lower prices, which could have an adverse effect on our revenue and margins. Our competitors may have certain advantages, which include the ability to devote greater resources to the development, promotion, and sale of their products. Consequently, we may need to increase our efforts, and related expenses for research and development, marketing, and selling to maintain or improve our position. We may not realize the per unit revenue we have planned for and expect. Continued sales to our existing customers is expected to be significant to our revenue in the future, and if our existing customers do not continue to purchase from us, our revenue may decline.

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We manufacture and store our products at a single facility in Florida.

We manufacture and store our products at a single facility in Winter Springs, Florida. If by reason of fire, hurricane or other natural disaster, or for any other reason, the facility is destroyed or seriously damaged or our access to it is limited, our ability to provide products to our customers would be seriously interrupted or impaired and our operating results and financial condition would be materially and negatively affected.

Our inability to collect on our accounts receivables held by significant customers may have an adverse effect on our business operations and financial condition.

We market our products to end users in the United States and to distributors internationally. Sales to end users in the United States are generally made on open credit terms. Management maintains an allowance for potential credit losses. From time to time, we have had accounts receivables from one or two customers that accounted for 10 percent or more of our gross accounts receivable. As a result, we may be exposed to a certain level of concentration of credit risk. If a major customer experiences financial difficulties, the effect on us could be material and have an adverse effect on our business, financial condition and results of operations.

If we fail to maintain relationships with Group Purchasing Organizations, sales of our products could decline.

Our ability to sell our products to U.S. hospitals, acute care facilities and outpatient imaging centers depends in part on our relationships with Group Purchasing Organizations (GPOs). Many existing and potential customers for our products are members of GPOs. GPOs negotiate pricing arrangements and contracts, which are sometimes exclusive, with medical supply manufacturers and distributors, and these negotiated prices are made available to a GPO s affiliated hospitals and other members. We pay the GPOs an administrative fee in the form of a percentage of the volume of products sold to their affiliated hospitals and other members. If we are not an approved provider selected by a GPO, affiliated hospitals and other members may be less likely to purchase our products. Should a GPO negotiate a sole source or bundling contract covering a future or current competitor s products, we may be precluded from making sales of our competing products to members of that GPO for the duration of the contractual arrangement. For example, even if we have an existing contract with a GPO for sales of our MRidium 3860+ MRI compatible IV infusion pump, we may encounter difficulties in selling, or be unable to sell, our 3880 MRI compatible patient vital signs monitoring system to that GPO s affiliated hospitals and other members, which may result in a longer sales cycle or an inability. Our failure to renew contracts with GPOs may cause us to lose market share and could have a material adverse effect on our sales, financial condition and results of operations. In the future, if another competitive supplier emerges, and we fail to keep our relationships and develop new relationships with GPOs, our competitive position would likely suffer.

Cost-containment efforts of our customers and purchasing groups could adversely affect our sales and profitability.

Our MRI compatible IV infusion pumps are considered capital equipment by many potential customers, and hence changes in the budgets of healthcare organizations and the timing of spending under these budgets and conflicting spending priorities can have a significant effect on the demand for our products and related services. Any decrease in expenditures by these healthcare facilities could decrease demand for our products and related services and reduce our revenue. Additionally, changes to reimbursement policies by third-party payors could also decrease demand for our products and related services and reduce our revenue.

Any failure in our efforts to educate clinicians, anesthesiologists, radiologists, and hospital administrators regarding the advantages of our products could significantly limit our product sales.

Our future success will require us to educate a sufficient number of clinicians, anesthesiologists, radiologists, hospital administrators and other purchasing decision-makers about our products and the costs and benefits of our products. If we fail to demonstrate the safety, reliability and economic benefits of our products to hospitals and acute medical facilities, our products may not be adopted and our expected and actual sales would suffer.

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The lengthy sales cycle for medical devices could delay our sales.

The decision-making process of customers is often complex and time-consuming. Based on our experience, we believe the period between initial discussions concerning the MRidium 3860+ MRI compatible IV infusion pump and a purchase of a unit is typically three to six months and expect the same for our 3880 MRI compatible patient vital signs monitor. Sales cycles can also be delayed because of capital budgeting procedures. Moreover, even if one or two units are sold to a hospital, we believe that it will take additional time and experience with our products before other medical professionals routinely use them for other procedures and in other departments of the hospital. Such time would delay potential sales of additional units and disposable products or additional optional accessories to that medical facility or hospital. These delays could have an adverse effect on our business, financial condition and results of operations.

Because we rely on distributors to sell our products outside of the U.S., our revenues could decline if our existing distributors do not continue to purchase products from us or if our relationship with any of these distributors is terminated.

We rely on distributors for all our sales outside the U.S. and hence do not have direct control over foreign sales activities. These distributors also assist us with regulatory approvals and the education of physicians and government agencies. Our revenues outside the U.S. have historically represented approximately one-tenth to one-third of our net revenues. If our existing international distributors fail to sell our products or sell at lower levels than we anticipate, we could experience a decline in revenues or fail to meet our forecasts. We cannot be certain that we will be able to attract new international distributors nor retain existing ones that market our products effectively or provide timely and cost-effective customer support and service. None of our existing distributors are obligated to continue selling our products.

If we do not successfully develop and commercialize enhanced products or new products that remain competitive, we could lose revenue opportunities and customers, and our ability to achieve growth would be impaired.

The medical device industry is characterized by rapid product development and technological advances, which places our products at risk of obsolescence. Our long-term success depends upon the development and successful commercialization of new products, new or improved technologies and additional applications for MRI compatible infusion, therapeutic, diagnostic and safety products and services. The research and development process is time-consuming and costly and may not result in products or applications that we can successfully commercialize. If we do not successfully adapt our technology, products and applications, we could lose revenue opportunities and customers. In addition, we may not be able to improve our products or develop new products or technologies quickly enough to maintain a competitive position in our markets and continue to grow our business.

We are highly dependent on our founder, CEO, President, Chairman and controlling shareholder, Roger Susi.

We believe that Mr. Susi will play a significant role in our continued success and in the development of new products. Our current and future operations could be adversely impacted if we were to lose his services. Accordingly, our success will be dependent on appropriately managing the risks related to executing a succession plan for Mr. Susi on a timely basis.

If we fail to attract and retain the talent required for our business, our business could be materially harmed.

Competition for highly skilled personnel is often intense in the medical device industry, and more specifically in the MRI compatible medical device industry. If our current employees with experience in the MRI compatible device industry leave our company, we may have difficulty finding replacements with an equivalent amount of experience and skill, which could harm our operations. Our future success will also depend in part on our ability to identify, hire and retain additional personnel, including skilled engineers to develop new products, and executives to oversee our marketing, sales, customer support and production staff. We may not be successful in attracting, integrating or retaining qualified personnel to meet our current growth plans or future needs. Our productivity may be adversely affected if we do not integrate and train our new employees quickly and effectively.

We may also have difficulty finding and retaining qualified Board members. Any failure to do so could be perceived negatively and could adversely affect our business.

Also, to the extent we hire personnel from competitors, we may be subject to allegations that we have improperly solicited, or that they have divulged proprietary or other confidential information, or that their former employers own their inventions or work product.

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We may be unable to scale our operations successfully.

We are working to expand our size and scale via more penetration of existing markets and the launch of new complementary products. This growth, if it occurs as planned, will place significant demands on our management and manufacturing capacity, as well as our financial, administrative and other resources. We cannot guarantee that any of the personnel, systems, procedures and controls we put in place will be adequate to support the manufacture and distribution of our products. Our operating results will depend substantially on the ability of our officers and key employees to manage changing business conditions and to implement and improve our financial and administrative systems and manage other resources. If we are unable to respond to and manage changing business conditions, or the scale of our products, services and operations, then the quality of our services, our ability to retain key personnel and our business could be harmed.

We engage in related party transactions, which result in a conflict of interest involving our management.

We have engaged in the past, and continue to engage, in related party transactions, particularly between our company and Roger Susi and his affiliates. The only significant ongoing related party transaction is the lease agreement between our company and Susi, LLC, an affiliate of Roger Susi, with respect to our sole production and headquarters facility in Winter Springs, Florida. Related party transactions present difficult conflicts of interest, could result in disadvantages to our company and may impair investor confidence, which could materially and adversely affect us. Related party transactions could also cause us to become materially dependent on related parties in the ongoing conduct of our business, and related parties may be motivated by personal interests to pursue courses of action that are not necessarily in the best interests of our company and our stockholders.

Any acquisitions of technologies, products and businesses, may be difficult to integrate, could adversely affect our relationships with key customers, and/or could result in significant charges to earnings.

We plan to periodically review potential acquisitions of technologies, products and businesses that are complementary to our products and that could accelerate our growth. However, our company has never completed an acquisition and there can be no assurance that we will be successful in finding any acquisitions in the future. The process of identifying, executing and realizing attractive returns on acquisitions involves a high degree of uncertainty. Acquisitions typically entail many risks and could result in difficulties in integrating operations, personnel, technologies and products. If we are not able to successfully integrate our acquisitions, we may not obtain the advantages and synergies that the acquisitions were intended to create, which may have a material adverse effect on our business, results of operations, financial condition and cash flows, our ability to develop and introduce new products and the market price of our stock.

The environment in which we operate makes it increasingly difficult to accurately forecast our business performance.

Significant changes and volatility in most aspects of the current business environment, including financial markets, consumer behavior, speed of technological, regulatory and competitive changes, make it increasingly difficult for us to predict our revenues and earnings into the future. Our quarterly sales and profits depend substantially on the volume and timing of orders fulfilled during the quarter, and such orders are difficult to forecast. Product demand is dependent upon the capital spending budgets of our customers and prospects as well as government funding policies, and matters of public policy as well as product and economic cycles that can affect the spending decisions of these entities. As a result, any revenue, earnings or financial guidance or outlook which we have given or might give may turn out to be inaccurate. Though we will

endeavor to give reasonable estimates of future revenues, earnings and financial information at the time we give such guidance, based on then-current conditions, there is a significant risk that such guidance or outlook will turn out to be incorrect. Historically, companies that have overstated their operating guidance have suffered significant declines in their stock price when such results are announced to the public.

There are inherent uncertainties involved in estimates, judgments and assumptions used in the preparation of financial statements in accordance with United States GAAP. Furthermore, portions of GAAP require the use of fair value models which are variable in application and methodology from appraiser to appraiser. Any changes in estimates, judgments and assumptions used could have a material adverse effect on our business, financial position and operating results.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Such assumptions and estimates include those related to revenue recognition, accruals for product returns, valuation of inventory, impairment of intangibles and long-lived assets, accounting for income taxes and stock-based compensation and allowances for uncertainties. These factors are also influenced by regular changes to GAAP, some of which are material to most companies, such as recent changes to revenue recognition. These changes introduce risk to our financial report processes due to implementation and internal control implications.

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We base the aforementioned estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, as discussed in greater detail in the section titled Management s Discussion and Analysis of Financial Condition and Results of Operations. Our actual operating results may differ and fall below our assumptions and the financial forecasts of securities analysts and investors, resulting in a significant decline in our stock price.

Our adoption and implementation of the new revenue accounting standard on January 1, 2018 included management s judgments and assumptions based on our interpretation of the new standard. The new revenue standard is principle based and interpretation of those principles may vary from company to company based on their unique circumstances. If our initial judgments and assumptions require change or if actual circumstances differ from our assumptions, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

Changes in effective tax rates or adverse outcomes resulting from examination of our income or other tax returns could adversely affect our results.

On December 22, 2017, President Trump signed into law new legislation that significantly revised the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law, including potential U.S. state and foreign tax jurisdiction responses, is uncertain and our business and financial condition could be adversely affected.

In addition, we are subject to the continuous examination of our income tax returns by the Internal Revenue Service, or IRS, and other tax authorities. It is possible that tax authorities may disagree with certain positions we have taken, and any adverse outcome of such a review or audit could have a negative effect on our financial position and operating results. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes, but the determination of our provision for income taxes and other tax liabilities requires significant judgment by management, and there are transactions where the ultimate tax determination is uncertain. Although we believe that our estimates are reasonable, the ultimate tax outcome may differ from the amounts recorded in our financial statements and may materially affect our financial results in the period or periods for which such determination is made. There can be no assurance that the outcomes from continuous examinations will not have an adverse effect on our business, financial condition, and results of operations.

We are subject to various privacy and consumer protection laws.

Our privacy policy is posted on our website, and any failure by us or our vendor or other business partners to comply with it or with federal, state or international privacy, data protection or security laws or regulations could result in regulatory or litigation-related actions against us, legal liability, fines, damages and other costs. Substantial expenses and operational changes may be required in connection with maintaining compliance with such laws, and in particular certain emerging privacy laws are still subject to a high degree of uncertainty as to their interpretation and application. For example, in May 2018, the General Data Protection Regulation (the GDPR) began to fully apply to the processing of personal information collected from individuals located in the European Union. The GDPR has created new compliance

obligations and has significantly increased fines for noncompliance. Although we take steps to protect the security of our customers personal information, we may be required to expend significant resources to comply with data breach requirements if third parties improperly obtain and use the personal information of our customers or we otherwise experience a data loss with respect to customers personal information. A breach of our network security and systems could have negative consequences for our business and future prospects, including possible fines, penalties and damages, reduced customer demand for our products, and harm to our reputation and brand.

Risks Related to Our Industry

We are subject to substantial government regulation that is subject to change and could force us to make modifications to how we develop, manufacture, market and price our products.

The medical device industry is regulated extensively by governmental authorities, principally the FDA in the U.S. and corresponding state and foreign regulatory agencies. The majority of our manufacturing processes are required to comply with quality systems regulations, including current good manufacturing practice requirements that cover the methods and documentation of the design, testing, production, control, quality assurance, labeling, packaging and shipping of our products. Failure to comply with applicable medical device regulatory requirements could result in, among other things, warning letters, fines, injunctions, civil penalties, repairs, replacements, refunds, recalls or seizures of products, total or partial suspensions of production, refusal of the FDA or other regulatory agencies to grant pre-market clearances or approvals for our products, withdrawals or suspensions of future or current clearances or approvals and criminal prosecution.

In addition, our products are subject to pre-clearance requirements by the FDA and similar international agencies that govern a wide variety of product activities from design and development to labeling, manufacturing, promotion, sales and distribution. Compliance with these regulations may be time consuming, burdensome and expensive for us. The failure to obtain, or the loss or suspension of any such pre-approval, would negatively affect our ability to sell our products, and harm our anticipated revenues.

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Foreign governmental authorities that regulate the manufacture and sale of medical devices have become increasingly stringent and, to the extent we sell our products in foreign countries, we may be subject to rigorous regulation in the future. Regulatory changes could result in restrictions on our ability to carry on or expand our operations, higher than anticipated costs or lower than anticipated revenue.

If we fail to obtain, or experience significant delays in obtaining, FDA clearances or other necessary approvals to commercially distribute new products, our ability to maintain profitability or grow will suffer.

Our current products are Class II medical devices and hence require regulatory pre-market approval by the FDA and other federal and state authorities prior to their sale in the U.S. Similar approvals are required by foreign governmental authorities for sale of our products outside of the U.S. We are responsible for obtaining the applicable regulatory approval for the commercial distribution of our products. As part of our strategy, we plan to seek approvals for new MRI compatible products. The process of obtaining approvals, particularly from the FDA, is costly and time consuming, and there can be no assurance that we will obtain the required approvals on a timely basis, or at all. Failure to receive approvals for new products will hurt our ability to grow.

We are subject to risks associated with doing business outside of the U.S.

Sales to customers outside of the U.S. have historically comprised of approximately one-tenth to one-third of our net revenues and we expect that non-U.S. sales will contribute to future growth. A majority of our international sales originate from Europe and Japan, and we also make sales in Canada, Hong Kong, Australia, Mexico and certain parts of the Middle East. The risks associated with operations outside the U.S. include:

- foreign regulatory and governmental requirements that could change and restrict our ability to manufacture and sell our products;

- possible failure to comply with anti-bribery laws such as the U.S. Foreign Corrupt Practices Act and similar anti-bribery laws in other jurisdictions;

- foreign currency fluctuations that can impact our financial statements when foreign denominations are translated into U.S. dollars;

- different local product preferences and product requirements, which might increase with increasing nationalism;

- trade protection and restriction measures under international trade treaties and via tariffs, and import or export licensing requirements;

- difficulty in establishing, staffing and managing non-U.S. operations;

- failure to maintain relationships with distributors, especially those who have assisted with foreign regulatory or government clearances;

- changes in labor, environmental, health and safety laws;

- potentially negative consequences from changes in or interpretations of tax laws, including U.S. state and foreign tax jurisdiction responses to recent changes in U.S. federal tax laws;

- political instability and actual or anticipated military or political conflicts;

- economic instability, inflation, deflation, recession or interest rate fluctuations;

- uncertainties regarding judicial systems and procedures; and

- minimal or diminished protection of intellectual property.

These risks, individually or in the aggregate, could have an adverse effect on our results of operations and financial condition.

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We may incur product liability losses, or become subject to other lawsuits related to our products, business, and insurance coverage could be inadequate or unavailable to cover these losses.

Our business is subject to potential product liability risks that are inherent in the design, development, manufacture and marketing of our medical devices and consumable products. We carry third party product liability insurance coverage to protect against such risks, but there can be no assurance that our policy is adequate. In the ordinary course of business, we may become the subject of product liability claims and lawsuits alleging that our products have resulted or could result in an unsafe condition or injury to patients. Any product liability claim brought against us, with or without merit, could be costly to defend and could result in settlement payments and adjustments not covered by or in excess of our product liability insurance. We currently have third-party product liability insurance with maximum coverage of $5,000,000; however, such coverage requires a substantial deductible that we must pay before becoming eligible to receive any insurance proceeds. The deductible amount is currently equal to $25,000 per occurrence and $125,000 in the aggregate. We will have to pay for defending product liability or other claims that are not covered by our insurance. These payments could have a material adverse effect on our profitability and financial condition. Product liability claims and lawsuits, safety alerts, recalls or corrective actions, regardless of their ultimate outcome, could have a material adverse effect on our business, financial condition, reputation and on our ability to attract and retain customers. In addition, we may not be able to obtain insurance in the future on terms acceptable to us or at all.

Defects or failures associated with our products and/or our quality control systems could lead to the filing of adverse event reports, recalls or safety alerts and negative publicity and could subject us to regulatory actions.

Safety problems associated with our products could lead to a product recall or the issuance of a safety alert relating to such products and result in significant costs and negative publicity. An adverse event involving one of our products could require us to file an adverse event report with the FDA. Such disclosure could result in reduced market acceptance and demand for all our products, and could harm our reputation and our ability to market our products in the future. In some circumstances, adverse events arising from or associated with the design, manufacture or marketing of our products could result in the suspension or delay of regulatory reviews of our applications for new product approvals or clearances.

We may also voluntarily undertake a recall of our products or temporarily shut down production lines based on internal safety, quality monitoring and testing data. For example, in August 2012, we initiated a voluntary recall of a particular lot of MRidium Series 1000 MR Infusion Sets, Type 1058 MR IV, an extension set used with our MRidium MRI compatible IV infusion pumps, due to an out-of-specification dimension of one section of the IV set. We retrieved and destroyed all unused infusion sets subject to the recall. In July 2013, the FDA notified us that it had concluded its audit and confirmed that the recall was considered terminated. In July 2013, we issued a voluntary recall of our MRI compatible IV infusion pump systems equipped with MRidium 1145 DERS Drug Library due to their potential risk in providing an incorrect recommended value for the infusion rate during the pump s initial infusion setup. We updated the software in all product subject to the recall. In July 2015, the FDA notified us that it had concluded its audit and confirmed that the recall was terminated. To avoid future product recalls we have made and continue to invest in our quality systems, processes and procedures. We will continue to make improvements to our products and systems to further reduce issues related to patient safety.

However, there can be no assurance our efforts or systems will be sufficient. Future quality concerns, whether real or perceived, could adversely affect our operating results.

Our products or product types, or MR imaging could be subject to negative publicity, which could have a material adverse effect on our financial position and results of operations and could cause the market value of our common stock to decline.

The market s perception of our products could be harmed if any of our products or similar products offered by others in our industry become the subject of negative publicity due to a product safety issue, withdrawal, recall, or are proven or are claimed to be harmful to patients. The FDA Warning Letter may harm the market perception of our company and products. The harm to market perception may have a material adverse effect on our business, financial position and results of operations and could cause the market value of our common stock to decline.

Our products are designed for use around MRI scanners. MRI has been an important imaging diagnostic for some time now, however should MRI technology change materially or decline in usage due to new technologies or concerns about costs or efficacy of MR imaging, our products would suffer as MRI usage and installations declined. Such a matter may also have a material adverse effect on our business, financial position and results of operations and could cause the market value of our common stock to decline.

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Recent U.S. healthcare policy changes, including the Affordable Care Act and PPACA, may have a material adverse effect on our financial condition and results of operations.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act (collectively, the PPACA), enacted in 2010, implemented changes that are expected to significantly impact the medical device industry. Beginning on January 1, 2013, the Affordable Care Act imposed a 2.3 percent excise tax on sales of products defined as medical devices by the regulations of the FDA. We believe that all our medical products are medical devices within the meaning of the FDA regulations. On December 18, 2015, under the Consolidated Appropriations Act of 2015, the medical device excise tax was suspended for two years beginning on January 1, 2016. New legislation passed in January 2018 further suspended the medical device excise tax through December 31, 2019. While this tax was suspended by legislation for 2018 and 2019, its return beginning on January 1, 2020 and potential increases from the 2.3 percent level in future years would negatively impact our operating results. We cannot currently foresee that the suspension will be reinstated.

Other significant measures contained in the PPACA include research on the comparative clinical effectiveness of different technologies and procedures, initiatives to revise Medicare payment methodologies, such as bundling of payments across the continuum of care by providers and physicians, and initiatives to promote quality indicators in payment methodologies. The PPACA also includes significant new fraud and abuse measures, including required disclosures of financial payments to and arrangements with physician customers, lower thresholds for violations and increasing potential penalties for such violations. In addition, the PPACA established an Independent Payment Advisory Board (IPAB), to reduce the per capita rate of growth in Medicare spending. The IPAB has broad discretion to propose policies to reduce health care expenditures, which may have a negative impact on payment rates for services, including treatments and procedures which incorporate use of our products. The IPAB proposals may impact payments for treatments and procedures that use our technology beginning in 2016 and for hospital services beginning in 2020, and may indirectly reduce demand for our products.

In addition, it is possible that changes in administration policy, including the potential repeal of all or parts of the PPACA, resulting from recent U.S. presidential actions and congressional legislative efforts could result in additional proposals and continued developments with respect to healthcare reform. We cannot predict the ultimate content, timing or effect of any healthcare reform legislation or the impact of potential legislation on us.

We are subject to healthcare fraud and abuse regulations that could result in significant liability, require us to change our business practices and restrict our operations in the future.

We and our customers are subject to various U.S. federal, state and local laws targeting fraud and abuse in the healthcare industry, including anti-kickback and false claims laws. Violations of these laws are punishable by criminal or civil sanctions, including substantial fines, imprisonment and exclusion from participation in healthcare programs such as Medicare and Medicaid, and Veterans Administration health programs and health programs outside the U.S. These laws and regulations are broad in scope and are subject to evolving interpretations, which could require us to alter one or more of our sales or marketing practices. In addition, violations of these laws, or allegations of such violations, could disrupt our business and result in a material adverse effect on our sales, profitability and financial condition. Furthermore, since many of our customers rely on reimbursement from Medicare, Medicaid and other governmental programs to cover a substantial portion of their expenditures, if we or our customers are excluded from such programs as a result of a violation of these laws, it could have an adverse effect on our results of operations and financial condition. We have developed and implemented business practices and processes to train our personnel to perform their duties in compliance with healthcare fraud and abuse laws and conduct informal oversight to detect and prevent these types of fraud and abuse. However, we lack formal written policies and procedures at this time. If we are unable to formally document and implement the controls and procedures required in a timely manner or we are otherwise found to be in violation of such laws, we might suffer adverse

regulatory consequences or face criminal sanctions, which could harm our operations, financial reporting or financial results.

We could be adversely affected by violations of the U.S. Foreign Corrupt Practices Act and similar worldwide anti-bribery laws.

The U.S. Foreign Corrupt Practices Act and similar worldwide anti-bribery laws generally prohibit companies and their intermediaries from making improper payments to non-U.S. officials for the purpose of obtaining or retaining business. We intend to adopt policies for compliance with these anti-bribery laws, which often carry substantial penalties.

We cannot assure you that our internal control policies and procedures always will protect us from reckless or other inappropriate acts committed by our affiliates, employees or agents. Violations of these laws, or allegations of such violations, could have a material adverse effect on our business, financial position and results of operations and could cause the market value of our common stock to decline.

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We and our suppliers and customers are required to obtain regulatory approvals to comply with regulations applicable to medical devices and infusion pumps, and these approvals could result in delays or increased costs in developing new products.

In December 2014, the FDA issued guidance entitled Infusion Pumps Total Product Life Cycle. This guidance established substantial additional pre-market requirements for new and modified infusion pumps. Through this guidance, the FDA indicated more data demonstrating product safety will be required for future 510(k) submissions for infusion pumps, including the potential for more clinical and human factors data. The process for obtaining regulatory approvals to market infusion pumps and related accessories hayle:normal;text-transform:none;font-variant: normal;">

2,747

1,743

4,042

Purchasing obligations

15,858

15,858

—

—

—

Research related obligations

6,532

4,921

1,611

—

—

Minimum royalty obligation (1)

500

100

200

200

$100/year

Total (2)

$

99,105

$

23,199

$

11,749

$

10,492

$

53,665

(1)

Under the 1997 Amended License Agreement, we are obligated to pay Princeton minimum royalties of $100,000 per year until the agreement is no longer in effect. The agreement has no scheduled expiration date.

(2) See Note 16 to the Consolidated Financial Statements for discussion of obligations upon termination of employment of executive officers as a result of a change in our control.

Off-Balance Sheet Arrangements

As of December 31, 2018, we had no off-balance sheet arrangements in the nature of guarantee contracts, retained or contingent interests in assets transferred to unconsolidated entities (or similar arrangements serving as credit, liquidity or market risk support to unconsolidated entities for any such assets), or obligations (including contingent obligations) arising out of variable interests in unconsolidated entities providing financing, liquidity, market risk or credit risk support to us, or that engage in leasing, hedging or research and development services with us.

Recently Issued Accounting Pronouncements

Recently issued accounting pronouncements are addressed in Note 2 in the Notes to Consolidated Financial Statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We do not utilize financial instruments for trading purposes and hold no derivative financial instruments, other financial instruments or derivative commodity instruments that could expose us to significant market risk other than our investments disclosed in “Fair Value Measurements” in Note 5 to the Consolidated Financial Statements included herein. We generally invest in investment grade financial instruments to reduce our exposure related to investments. Our primary market risk exposure with regard to such financial instruments is to changes in interest rates, which would impact interest income earned on investments. However, based upon the conservative nature of our investment portfolio and current experience, we do not believe a decrease in investment yields would have a material negative effect on our interest income.

Substantially all our revenue is derived from outside of North America. All revenue is primarily denominated in U.S. dollars and therefore we bear no significant foreign exchange risk.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our Consolidated Financial Statements and the related notes to those statements are attached to this report beginning on page F-1.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2018. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures, as of the end of the period covered by this report, are effective to provide reasonable assurance that the information required to be disclosed by us in reports filed or submitted under the Securities Exchange Act of 1934, as amended, is (i) recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and (ii) accumulated and communicated to our management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding disclosure. However, a controls system, no matter how well designed and operated, cannot provide absolute assurance that the objectives of the controls system are met, and no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within a company have been detected.

Management's Report on Internal Control over Financial Reporting and Report of Independent Registered Public Accounting Firm on Internal Control over Financial Reporting

The report of management on our internal control over financial reporting and the associated attestation report of our independent registered public accounting firm are set forth in Item 8 of this report.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION
None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information with respect to this item is set forth in our definitive Proxy Statement for the 2019 Annual Meeting of Shareholders, which is to be filed with the Securities and Exchange Commission no later than April 30, 2019 (our "Proxy Statement"), and which is incorporated herein by reference. Information regarding our executive officers is included at the end of Part I of this report.

ITEM 11. EXECUTIVE COMPENSATION

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

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

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

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

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information with respect to this item will be set forth in our Proxy Statement, and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

(1) Financial Statements:

(2) Financial Statement Schedules:

None.

(3) Exhibits:

The following is a list of the exhibits filed as part of this report. Where so indicated by footnote, exhibits that were previously filed are incorporated by reference. For exhibits incorporated by reference, the location of the exhibit in the previous filing is indicated parenthetically, together with a reference to the filing indicated by footnote.

Exhibit Number	Description
3.1	Amended and Restated Articles of Incorporation of the registrant (1)
3.2	Amended and Restated Bylaws of the registrant (2)
10.1#	Amended and Restated Change in Control Agreement between the registrant and Sherwin I. Seligsohn, dated as of November 4, 2008 (3)
10.2#	Amended and Restated Change in Control Agreement between the registrant and Steven V. Abramson, dated as of November 4, 2008 (3)
10.3#	Amended and Restated Change in Control Agreement between the registrant and Sidney D. Rosenblatt, dated as of November 4, 2008 (3)
10.4#	Amended and Restated Change in Control Agreement between the registrant and Julia J. Brown, dated as of November 4, 2008 (3)
10.5#	Amended and Restated Change in Control Agreement between the registrant and Janice M. DuFour, dated as of November 4, 2008 (3)
10.6#	Non-Competition and Non-Solicitation Agreement between the registrant and Sherwin I. Seligsohn, dated as of February 23, 2007 (4)
10.7#	Non-Competition and Non-Solicitation Agreement between the registrant and Steven V. Abramson, dated as of January 26, 2007 (4)
10.8#	Non-Competition and Non-Solicitation Agreement between the registrant and Sidney D. Rosenblatt, dated as of February 7, 2007 (4)

10.9#	Non-Competition and Non-Solicitation Agreement between the registrant and Julia J. Brown, dated as of February 5, 2007 (4)
10.10#	Non-Competition and Non-Solicitation Agreement between the registrant and Janice M. DuFour, dated as of February 23, 2007 (3)
10.11#	Equity Retention Agreement between the registrant and Steven V. Abramson, dated as of March 18, 2010 (5)
10.12#	Equity Retention Agreement between the registrant and Sidney D. Rosenblatt, dated as of March 18, 2010 (5)
10.13#	Equity Retention Agreement between the registrant and Julia J. Brown, dated as of January 6, 2011 (6)
10.14#	Equity Retention Agreement between the registrant and Janice M. DuFour, dated as of January 6, 2011 (6)

Exhibit Number	Description
10.15#	Equity Retention Agreement between the registrant and Julia J. Brown, dated as of March 8, 2012 (7)
10.16#	Equity Retention Agreement between the registrant and Janice M. DuFour, dated as of March 8, 2012 (7)
10.17#	Amended and Restated Change in Control Agreement between the Registrant and Mauro Premutico, dated April 16, 2012 (8)
10.18#	Equity Retention Agreement between the Registrant and Mauro Premutico, dated April 16, 2012 (8)
10.19#	Supplemental Executive Retirement Plan, dated as of April 1, 2010 (5)
10.20#	Amended and Restated Equity Compensation Plan, effective as of March 7, 2013 (9)
10.21	Sponsored Research Agreement between the registrant and the University of Southern California, dated as of May 1, 2006 (10)
10.22	Amendment No. 1 to the Sponsored Research Agreement between the registrant and the University of Southern California, dated as of May 1, 2006 (3)
10.23	Amendment No. 2 to the Sponsored Research Agreement between the registrant and the University of Southern California, dated as of May 7, 2009 (11)
10.24	1997 Amended License Agreement among the registrant, The Trustees of Princeton University and the University of Southern California, dated as of October 9, 1997 (12)
10.25	Amendment #1 to the Amended License Agreement among the registrant, the Trustees of Princeton University and the University of Southern California, dated as of August 7, 2003 (13)
10.26	Amendment #2 to the Amended License Agreement among the registrant, the Trustees of Princeton University, the University of Southern California and the Regents of the University of Michigan, dated as of January 1, 2006 (10)
10.27	Termination, Amendment and License Agreement by and among the registrant, PD-LD, Inc., Dr. Vladimir S. Ban, and The Trustees of Princeton University, dated as of July 19, 2000 (14)
10.28	Letter of Clarification of UDC/GPEC Research and License Arrangements between the registrant and Global Photonic Energy Corporation, dated as of June 4, 2004 (4)
10.29+	Amended and Restated OLED Materials Supply and Service Agreement between the registrant and PPG Industries, Inc., dated as of October 1, 2011 (15)
10.30+	OLED Patent License Agreement between the registrant and Samsung Display Co., Ltd., dated as of February 13, 2018 (16)
10.31+	Supplemental OLED Material Purchase Agreement between the registrant and Samsung Display Co., Ltd., dated as of February 13, 2018 (16)
10.32+	Settlement and License Agreement between the registrant and Seiko Epson Corporation, dated as of July 31, 2006 (17)
10.33+	Amendment No. 1 to the Settlement and License Agreement between the registrant and Seiko Epson Corporation, dated as of March 30, 2009 (18)
10.33+	OLED Technology License Agreement between the registrant and Konica Minolta Holdings, Inc., dated as of August 11, 2008 (19)
10.34+	Limited-Term OLED Technology License Agreement between the registrant and Panasonic Idemitsu OLED Lighting Co., Ltd., dated as of August 1, 2011 (15)
10.35+	OLED Technology License Agreement between the registrant and Pioneer Corporation, dated as of May 1, 2011 (20)
10.36+	Patent Sale Agreement, dated as of July 23, 2012 by and between FUJIFILM Corporation and the Company (21)
10.37	Amendment No. 3 to the Sponsored Research Agreement between the registrant and the University of Southern California, dated as of June 1, 2013 (22)
10.38#	Universal Display Corporation Annual Incentive Plan (23)
10.39#	Form Agreement - Restricted Stock Unit Grant Letter (24)
10.40#	Form Agreement - Performance Unit Grant Letter (24)
10.41#	Universal Display Corporation Equity Compensation Plan (25)
10.42#	

	Amendment 2015-1, dated March 3, 2015, to Universal Display Corporation Supplemental Executive Retirement Plan (26)
10.43#	Equity Retention Agreement between the Registrant and Steven V. Abramson, dated April 7, 2015 (27)

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Exhibit Number	Description
10.44#	Equity Retention Agreement between the Registrant and Sidney D. Rosenblatt, dated April 7, 2015 (27)
10.45#	Equity Retention Agreement between the Registrant and Julia J. Brown, dated September 10, 2015 (28)
10.46#	Equity Retention Agreement between the Registrant and Mauro Premutico, dated September 10, 2015 (28)
10.47+	IP Transfer Agreement, dated June 28, 2016 by and between UDC Ireland Limited and BASF SE (29)
21*	Subsidiaries of the registrant
23.1*	Consent of KPMG LLP
31.1*	Certifications of Steven V. Abramson, Chief Executive Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)
31.2*	Certifications of Sidney D. Rosenblatt, Chief Financial Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)
32.1**	Certifications of Steven V. Abramson, Chief Executive Officer, as required by Rule 13a-14(b) or Rule 15d-14(b), and by 18 U.S.C. Section 1350. (This exhibit shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section. Further, this exhibit shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.)
32.2**	Certifications of Sidney D. Rosenblatt, Chief Financial Officer, as required by Rule 13a-14(b) or Rule 15d-14(b), and by 18 U.S.C. Section 1350. (This exhibit shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section. Further, this exhibit shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.)
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document

Explanation of footnotes to listing of exhibits:

*Filed herewith.

**Furnished herewith.

#Management contract or compensatory plan or arrangement.

+Confidential treatment has been accorded to certain portions of this exhibit pursuant to Rule 406 under the Securities Act of 1933, as amended, or Rule 24b-2 under the Securities Exchange Act of 1934, as amended.

(1) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, filed with the SEC on August 9, 2018.

(2) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2003, filed with the SEC on March 1, 2004.

(3) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2008, filed with the SEC on March 12, 2009.

(4) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2006, filed with the SEC on March 15, 2007.

(5) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, filed with the SEC on May 10, 2010.

(6) Filed as an Exhibit to a Current Report on Form 8-K, filed with the SEC on March 21, 2011.

(7)

Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, filed with the SEC on May 9, 2012.

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(8) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed with the SEC on August 8, 2012.
(9) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, filed with the SEC on May 9, 2013.
(10) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, filed with the SEC on August 9, 2006.
(11) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, filed with the SEC on August 10, 2009.
(12) Filed as an Exhibit to the Annual Report on Form 10K-SB for the year ended December 31, 1997, filed with the SEC on March 31, 1998.
(13) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2003, filed with the SEC on November 10, 2003.
(14) Filed as an Exhibit to the amended Quarterly Report on Form 10-Q for the quarter ended September 30, 2000, filed with the SEC on November 20, 2001.
(15) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed with the SEC on November 8, 2011.
(16) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, filed with the SEC on May 3, 2018.
(17) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2006, filed with the SEC on November 6, 2006.
(18) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2009, filed with the SEC on May 7, 2009.
(19) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, filed with the SEC on November 6, 2008.
(20) Filed as an Exhibit to Amendment No. 1 to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed with the SEC on January 27, 2012.
(21) Filed as an Exhibit to a Current Report on Form 8-K, filed with the SEC on July 27, 2012.
(22) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2013, filed with the SEC on November 7, 2013.
(23) Filed as an Exhibit to a Current Report on Form 8-K, filed with the SEC on June 24, 2013.
(24) Filed as an Exhibit to the Annual Report on Form 10-K for the year ended December 31, 2013, filed with the SEC on February 28, 2014.
(25) Filed as Exhibit A to the Company's Definitive Proxy Statement for the 2014 Annual Meeting filed with the SEC on April 25, 2014.
(26) Filed as an exhibit to the Current Report on Form 8-K filed with the SEC on March 9, 2015.
(27) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2015, filed with the SEC on August 6, 2015.
(28) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2015, filed with the SEC on November 5, 2015.
(29) Filed as an Exhibit to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, filed with the SEC on August 4, 2016.

Note: Any of the exhibits listed in the foregoing index not included with this report may be obtained, without charge, by writing to Mr. Sidney D. Rosenblatt, Corporate Secretary, Universal Display Corporation, 375 Phillips Boulevard, Ewing, New Jersey 08618.

(b) The exhibits required to be filed by us with this report are listed above.

(c) The consolidated financial statement schedules required to be filed by us with this report are listed above.

ITEM 16. FORM 10-K SUMMARY

None.

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SIGNATURES

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

UNIVERSAL DISPLAY CORPORATION

By: /s/ Sidney D. Rosenblatt
Sidney D. Rosenblatt
Executive Vice President, Chief Financial Officer,
Treasurer and Secretary

Date: February 21, 2019

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

Name	Title	Date
/s/ Sherwin I. Seligsohn Sherwin I. Seligsohn	Founder and Chairman of the Board of Directors	February 21, 2019
/s/ Steven V. Abramson Steven V. Abramson	President, Chief Executive Officer and Director (principal executive officer)	February 21, 2019
/s/ Sidney D. Rosenblatt Sidney D. Rosenblatt	Executive Vice President, Chief Financial Officer, Treasurer, Secretary and Director (principal financial and accounting officer)	February 21, 2019
/s/ Richard C. Elias Richard C. Elias	Director	February 21, 2019
/s/ Elizabeth H. Gemmill C. Elizabeth H. Gemmill	Director	February 21, 2019
/s/ Rosemarie B. Greco Rosemarie B. Greco	Director	February 21, 2019
/s/ C. Keith Hartley C. Keith Hartley	Director	February 21, 2019

/s/ Lawrence Lacerte Lawrence Lacerte	Director	February 21, 2019

UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with generally accepted accounting principles. Our system of internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management performed an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2018 based upon criteria in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, management determined that the Company's internal control over financial reporting was effective as of December 31, 2018, based on the criteria in Internal Control-Integrated Framework (2013) issued by COSO.

The effectiveness of our internal control over financial reporting as of December 31, 2018, has been attested to by KPMG LLP, an independent registered public accounting firm, as stated in its report which appears on the following page.

Steven V. Abramson	Sidney D. Rosenblatt
President and Chief Executive Officer	Executive Vice President and Chief Financial Officer

February 21, 2019

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders

Universal Display Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Universal Display Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements), and our report dated February 21, 2019 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Philadelphia, Pennsylvania

February 21, 2019

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders

Universal Display Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Universal Display Corporation and subsidiaries (the Company) as of December 31, 2018 and 2017, and the related consolidated statements of income, comprehensive income, shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 21, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Changes in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed its method for accounting for revenue from contracts with customers due to the adoption of Accounting Standards Codification (ASC) Topic 606, Revenue from Contracts with Customers. The Company adopted the standard effective January 1, 2018 using the modified retrospective adoption method.

Also, the Company elected to change its method of accounting for share-based payment transactions in 2017 due to the adoption of amendments to the FASB ASC resulting from Accounting Standards Update No. 2016-09, Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting, effective January 1, 2017.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2002.

Philadelphia, Pennsylvania

February 21, 2019

UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(in thousands, except share and per share data)

	December 31, 2018	December 31, 2017
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 211,022	$ 132,840
Short-term investments	304,323	287,446
Accounts receivable	43,129	52,355
Inventory	70,000	36,265
Other current assets	6,366	10,276
Total current assets	634,840	519,182
PROPERTY AND EQUIPMENT, net of accumulated depreciation of $44,943 and $36,368	69,739	56,450
ACQUIRED TECHNOLOGY, net of accumulated amortization of $111,890 and $91,312	110,951	131,529
OTHER INTANGIBLE ASSETS, net of accumulated amortization of $3,384 and $2,000	13,456	14,840
GOODWILL	15,535	15,535
INVESTMENTS	—	14,794
DEFERRED INCOME TAXES	24,377	27,022
OTHER ASSETS	64,526	604
TOTAL ASSETS	$ 933,424	$ 779,956
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Accounts payable	$ 10,532	$ 13,774
Accrued expenses	36,057	35,019
Deferred revenue	80,782	14,981
Other current liabilities	5,811	50
Total current liabilities	133,182	63,824
DEFERRED REVENUE	41,785	23,902
RETIREMENT PLAN BENEFIT LIABILITY	44,055	33,176
OTHER LIABILITIES	23,896	—
Total liabilities	242,918	120,902
COMMITMENTS AND CONTINGENCIES (Note 16)		
SHAREHOLDERS' EQUITY:		
Preferred Stock, par value $0.01 per share, 5,000,000 shares authorized, 200,000 shares of Series A Nonconvertible Preferred Stock issued and outstanding (liquidation value of $7.50 per share or $1,500)	2	2
Common Stock, par value $0.01 per share, 200,000,000 shares authorized, 48,681,524 and 48,476,034 shares issued, and 47,319,887 and 47,118,171 shares outstanding at	487	485

December 31, 2018 and December 31, 2017, respectively		
Additional paid-in capital	617,334	611,063
Retained earnings	129,552	99,126
Accumulated other comprehensive loss	(16,234)	(11,464)
Treasury stock, at cost (1,361,637 and 1,357,863 shares at December 31, 2018 and December 31, 2017)	(40,635)	(40,158)
Total shareholders' equity	690,506	659,054
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 933,424	$ 779,956

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

UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF INCOME

(in thousands, except share and per share data)

	Year Ended December 31,		
	2018	2017	2016
REVENUE	$247,414	$335,629	$198,886
COST OF SALES	53,541	54,698	26,288
Gross margin	193,873	280,931	172,598
OPERATING EXPENSES:			
Research and development	53,717	49,144	42,744
Selling, general and administrative	46,999	46,808	32,876
Amortization of acquired technology and other intangible assets	21,962	21,983	16,493
Patent costs	7,464	7,010	6,249
Royalty and license expense	6,996	9,739	5,823
Total operating expenses	137,138	134,684	104,185
OPERATING INCOME	56,735	146,247	68,413
Interest income, net	7,659	3,294	2,113
Other expense, net	(83)	(4)	(1,928)
Interest and other expense, net	7,576	3,290	185
INCOME BEFORE INCOME TAXES	64,311	149,537	68,598
INCOME TAX EXPENSE	(5,471)	(45,652)	(20,528)
NET INCOME	$58,840	$103,885	$48,070
NET INCOME PER COMMON SHARE:			
BASIC	$1.24	$2.19	$1.02
DILUTED	$1.24	$2.18	$1.02
WEIGHTED AVERAGE SHARES USED IN COMPUTING NET INCOME PER COMMON SHARE:			
BASIC	46,849,588	46,725,289	46,408,460
DILUTED	46,896,766	46,805,194	46,535,980
CASH DIVIDEND DECLARED PER COMMON SHARE	$0.24	$0.12	$—

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

UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in thousands)

	Year Ended December 31,		
	2018	2017	2016
NET INCOME	$58,840	$103,885	$48,070
OTHER COMPREHENSIVE INCOME (LOSS), NET OF TAX:			
Unrealized gain (loss) on available-for-sale securities, net of tax of $74, $7 and $72, respectively	268	(12)	(135)
Employee benefit plan:			
Actuarial loss on retirement plan, net of tax of $1,841, $1,047 and $945, respectively	(6,690)	(1,904)	(1,731)
Plan amendment cost, net of tax of none, $154 and none, respectively	—	(280)	—
Amortization of plan amendment cost, prior service cost and actuarial loss for retirement plan included in net periodic pension costs, net of tax of $457, $754 and $591, respectively	1,661	1,370	1,084
Net change for employee benefit plan	(5,029)	(814)	(647)
Change in cumulative foreign currency translation adjustment	(9)	28	(65)
TOTAL OTHER COMPREHENSIVE LOSS	(4,770)	(798)	(847)
COMPREHENSIVE INCOME	$54,070	$103,087	$47,223

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

UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

(in thousands, except for share data)

	Series A Nonconvertible Preferred Stock		Common Stock		Additional Paid-in	Retained	Accumulated Other Comprehensive	Treasury Stock		Total Shareholders'
	Shares	Amount	Shares	Amount	Capital	Earnings	Loss	Shares	Amount	Equity
BALANCE, JANUARY 1, 2016	200,000	$2	48,132,223	$482	$589,885	$(73,627)	$(9,819)	1,357,863	$(40,158)	466,765
Net income	—	—	—	—	—	48,070	—	—	—	48,070
Other comprehensive loss	—	—	—	—	—	—	(847)	—	—	(847)
Exercise of common stock options	—	—	12,750	—	185	—	—	—	—	185
Issuance of common stock to employees	—	—	165,826	2	12,354	—	—	—	—	12,356
Shares withheld for employee taxes	—	—	(92,241)	(1)	(4,870)	—	—	—	—	(4,871)
Excess tax benefits from share-based payment arrangements	—	—	—	—	4,232	—	—	—	—	4,232
Issuance of common stock to Board of Directors and Scientific Advisory Board	—	—	43,046	—	2,012	—	—	—	—	2,012
Issuance of common stock to employees under an ESPP	—	—	9,386	—	566	—	—	—	—	566
BALANCE, DECEMBER 31, 2016	200,000	2	48,270,990	483	604,364	(25,557)	(10,666)	1,357,863	(40,158)	528,468

Cumulative effect of recording excess tax benefits from share-based payment arrangements	—	—	—	—	—	26,450	—	—	—	26,450
Net income	—	—	—	—	—	103,885	—	—	—	103,885
Other comprehensive loss	—	—	—	—	—	—	(798)	—	—	(798)
Cash dividend	—	—	—	—	—	(5,652)	—	—	—	(5,652)
Exercise of common stock options	—	—	2,250	—	38	—	—	—	—	38
Issuance of common stock to employees	—	—	265,233	3	12,239	—	—	—	—	12,242
Shares withheld for employee taxes	—	—	(109,483)	(1)	(9,431)	—	—	—	—	(9,432)
Issuance of common stock to Board of Directors and Scientific Advisory Board	—	—	37,314	—	2,909	—	—	—	—	2,909
Issuance of common stock to employees under an ESPP	—	—	9,730	—	944	—	—	—	—	944
BALANCE, DECEMBER 31, 2017	200,000	2	48,476,034	485	611,063	99,126	(11,464)	1,357,863	(40,158)	659,054
ASC Topic 606 Adoption	—	—	—	—	—	(17,100)	—	—	—	(17,100)
ADJUSTED BALANCE, JANUARY 1, 2018	200,000	2	48,476,034	485	611,063	82,026	(11,464)	1,357,863	(40,158)	641,954
Net income	—	—	—	—	—	58,840	—	—	—	58,840
Other comprehensive income	—	—	—	—	—	—	(4,770)	—	—	(4,770)
Cash dividend	—	—	—	—	—	(11,314)	—	—	—	(11,314)
Issuance of common stock to	—	—	271,068	3	12,136	—	—	—	—	12,139

employees										
Shares withheld for employee taxes	—	—	(108,113)	(1)	(11,619)	—	—	—	—	(11,620)
Common shares repurchased	—	—	—	—	—	—	—	3,774	(477)	(477)
Issuance of common stock to Board of Directors and Scientific Advisory Board	—	—	32,232	—	4,664	—	—	—	—	4,664
Issuance of common stock to employees under an ESPP	—	—	10,303	—	1,090	—	—	—	—	1,090
BALANCE, DECEMBER 31, 2018	200,000	$2	48,681,524	$487	$617,334	$129,552	$(16,234)	1,361,637	$(40,635)	$690,506

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

UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year Ended December 31,		
	2018	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net income	$58,840	$103,885	$48,070
Adjustments to reconcile net income to net cash provided by operating activities:			
Amortization of deferred revenue and recognition of unbilled receivables	(68,905)	(11,122)	(7,406)
Depreciation	8,612	4,919	4,270
Amortization of intangibles	21,962	21,983	16,492
Inventory write-down	3,630	—	—
Amortization of premium and discount on investments, net	(6,131)	(2,871)	(1,830)
Stock-based compensation to employees	12,432	12,284	11,374
Stock-based compensation to Board of Directors and Scientific Advisory Board	4,364	2,609	1,715
Change in earnout liability recorded for Adesis acquisition	—	519	—
Deferred income tax (benefit) expense	(12,814)	24,396	3,094
Excess tax benefits from share-based payment arrangements	—	—	(4,232)
Retirement plan benefit expense	4,466	4,351	3,965
Decrease (increase) in assets:			
Accounts receivable	9,226	(27,361)	1,205
Inventory	(37,365)	(18,951)	(4,460)
Other current assets	4,860	(3,884)	(3,870)
Deferred income taxes	20,682	—	—
Other assets	(63,922)	(297)	(133)
Increase (decrease) in liabilities:			
Accounts payable and accrued expenses	1,563	16,420	4,362
Other current liabilities	5,761	(1,917)	4,362
Deferred revenue	130,639	8,402	3,360
Other liabilities	23,896	—	—
Net cash provided by operating activities	121,796	133,365	80,338
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchases of property and equipment	(25,391)	(29,803)	(7,300)
Purchase of intangibles	—	—	(95,989)
Purchase of business, net of cash acquired	—	—	(33,380)
Purchases of investments	(628,789)	(594,283)	(450,277)
Proceeds from sale of investments	633,179	498,508	548,474
Net cash used in investing activities	(21,001)	(125,578)	(38,472)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from issuance of common stock	798	734	439
Repurchase of common stock	(477)	—	—
Proceeds from the exercise of common stock options	—	38	185
Payment of withholding taxes related to stock-based compensation to employees	(11,620)	(9,432)	(4,870)
Excess tax benefits from share-based payment arrangements	—	—	4,232
Cash dividends paid	(11,314)	(5,652)	—
Net cash used in financing activities	(22,613)	(14,312)	(14)

INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	78,182	(6,525)	41,852
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	132,840	139,365	97,513
CASH AND CASH EQUIVALENTS, END OF YEAR	$211,022	$132,840	$139,365
The following non-cash activities occurred:			
Unrealized gain (loss) on available-for-sale securities	$342	$(19)	$(207)
Common stock issued to Board of Directors and Scientific Advisory Board that was earned and accrued for in a previous period	300	300	300
Common stock issued to employees that was earned and accrued for in a previous period	—	174	1,105
Net change in accounts payable and accrued expenses related to purchases of property and equipment	3,490	4,363	(103)
Earnout liability recorded for Adesis acquisition	—	—	1,670
Excess tax benefits accrued for in other current liabilities	—	—	(4,232)
Cash paid for income tax	17,771	23,248	12,870

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

UNIVERSAL DISPLAY CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. BUSINESS:

Universal Display Corporation (the Company) is a leader in the research, development and commercialization of organic light emitting diode (OLED) technologies and materials for use in display and solid-state lighting applications. OLEDs are thin, lightweight and power-efficient solid-state devices that emit light that can be manufactured on both flexible and rigid substrates, making them highly suitable for use in full-color displays and as lighting products. OLED displays are capturing a growing share of the display market. The Company believes this is because OLEDs offer potential advantages over competing display technologies with respect to power efficiency, contrast ratio, viewing angle, video response time, form factor and manufacturing cost. The Company also believes that OLED lighting products have the potential to replace many existing light sources in the future because of their high power efficiency, excellent color rendering index, low operating temperature and novel form factor. The Company's technology leadership and intellectual property position should enable it to share in the revenues from OLED displays and lighting products as they enter mainstream consumer and other markets.

The Company's primary business strategy is to (1) further develop and license its proprietary OLED technologies to manufacturers of products for display applications, such as mobile phones, televisions, tablets, wearables, portable media devices, notebook computers, personal computers, and automotive interiors, and specialty and general lighting products; and (2) develop new OLED materials and sell existing and any new materials to those product manufacturers. The Company has established a significant portfolio of proprietary OLED technologies and materials, primarily through internal research and development efforts and acquisitions of patents and patent applications, as well as maintaining its relationships with world-class partners such as Princeton University (Princeton), the University of Southern California (USC), the University of Michigan (Michigan) and PPG Industries, Inc. (PPG). The Company currently owns, exclusively licenses or has the sole right to sublicense more than 5,000 patents issued and pending worldwide.

The Company sells its proprietary OLED materials to customers for evaluation and use in commercial OLED products. The Company also enters into agreements with manufacturers of OLED display and lighting products under which it grants them licenses to practice under its patents and to use the Company's proprietary know-how. At the same time, the Company works with these and other companies who are evaluating the Company's OLED technologies and materials for possible use in commercial OLED display and lighting products.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

Principles of Consolidation

The consolidated financial statements include the accounts of Universal Display Corporation and its wholly owned subsidiaries, UDC, Inc., UDC Ireland Limited, Universal Display Corporation Hong Kong, Limited, Universal Display Corporation Korea, Y.H., Universal Display Corporation Japan GK, Universal Display Corporation China, Ltd. and Adesis, Inc. (Adesis). All intercompany transactions and accounts have been eliminated.

Business Combinations

Accounting for acquisitions requires the Company to recognize separately from goodwill the assets acquired and the liabilities assumed at the acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred over the net of the acquisition date fair values of the assets acquired and the liabilities assumed. While the Company uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date as well as contingent consideration, where applicable, the estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which is when all information necessary is obtained not to exceed one year, adjustments may be recorded to the assets acquired and

liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the consolidated statements of income.

Management’s Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. The estimates made are principally in the areas of revenue recognition including estimates of material unit sales and royalties, the useful life of acquired intangibles, the use and recoverability of inventories, intangibles and income taxes including realization of deferred tax assets, stock-based compensation and retirement benefit plan liabilities. Actual results could differ from those estimates.

Cash and Cash Equivalents

The Company considers all highly liquid debt instruments purchased with an original maturity of three months or less to be cash equivalents. The Company classifies its remaining investments as available-for-sale. These securities are carried at fair market value, with unrealized gains and losses reported in shareholders' equity. Gains or losses on securities sold are based on the specific identification method.

Trade Accounts Receivable

Trade accounts receivable are stated at the amount the Company expects to collect and do not bear interest. The Company considers the following factors when determining the collectability of specific customer accounts: customer credit-worthiness, past transaction history with the customer, current economic industry trends, and changes in customer payment terms. The Company's accounts receivable balance is a result of chemical sales, royalties and license fees. These receivables have historically been paid timely. Due to the nature of the accounts receivable balance, the Company believes there is no significant risk of collection. If the financial condition of the Company's customers were to deteriorate, adversely affecting their ability to make payments, allowances for doubtful accounts would be required. The allowance for doubtful accounts was $77,000, none and $100,000 at December 31, 2018, 2017 and 2016, respectively.

Inventories

Inventories consist of raw materials, work-in-process and finished goods, including inventory consigned to customers, and are stated at the lower of cost, determined on a first-in, first-out basis, or net realizable value. Inventory valuation and firm committed purchase order assessments are performed on a quarterly basis and those items that are identified to be obsolete or in excess of forecasted usage are written down to their estimated realizable value. Estimates of realizable value are based upon management's analyses and assumptions, including, but not limited to, forecasted sales levels by product, expected product lifecycle, product development plans and future demand requirements. A 12-month rolling forecast based on factors, including, but not limited to, production cycles, anticipated product orders, marketing forecasts, backlog, and shipment activities is used in the inventory analysis. If market conditions are less favorable than forecasts or actual demand from customers is lower than estimates, additional inventory write-downs may be required. If demand is higher than expected, inventories that had previously been written down may be sold.

Property and Equipment

Property and equipment are stated at cost and depreciated on a straight-line basis over the estimated useful life of thirty years for building, fifteen years for building improvements, and three to seven years for office and lab equipment and furniture and fixtures. Repair and maintenance costs are charged to expense as incurred. Additions and betterments are capitalized.

Major renewals and improvements are capitalized and minor replacements, maintenance, and repairs are charged to current operations as incurred. Upon retirement or disposal of assets, the cost and related accumulated depreciation are removed from the consolidated balance sheet and any gain or loss is reflected in other operating expenses.

Certain costs of computer software obtained for internal use are capitalized and amortized on a straight-line basis over three years. Costs for maintenance and training, as well as the cost of software that does not add functionality to an existing system, are expensed as incurred.

Impairment of Long-Lived Assets

Company management continually evaluates whether events or changes in circumstances might indicate that the remaining estimated useful life of long-lived assets may warrant revision, or that the remaining balance may not be

recoverable. When factors indicate that long-lived assets should be evaluated for possible impairment, the Company uses an estimate of the related undiscounted cash flows in measuring whether the long-lived asset should be written down to fair value. Measurement of the amount of impairment would be based on generally accepted valuation methodologies, as deemed appropriate. As of December 31, 2018, Company management believed that no revision to the remaining useful lives or write-down of the Company's long-lived assets was required, and similarly, no such revisions were required for the years ended December 31, 2017 or 2016.

Goodwill and Purchased Intangible Assets

Goodwill is tested for impairment in the fourth fiscal quarter and, when specific circumstances dictate, between annual tests. Company management first assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether a quantitative goodwill impairment test is necessary. If it is concluded it is more likely than not that the fair value of a reporting unit exceeds its carrying amount, then a quantitative impairment

assessment is not necessary. If it is determined that goodwill has been impaired, then its carrying value is written down to fair value. The goodwill impairment test involves a two-step process. The first step, identifying a potential impairment, compares the fair value of a reporting unit with its carrying amount, including goodwill. If the carrying value of the reporting unit exceeds its fair value, the second step would need to be conducted; otherwise, no further steps are necessary as no potential impairment exists. If necessary, the second step to measure the impairment loss would be to compare the implied fair value of the reporting unit goodwill with the carrying amount of that goodwill. Any excess of the reporting unit goodwill carrying value over the respective implied fair value is recognized as an impairment loss. The Company performed its annual impairment assessment as of December 31, 2018 utilizing a qualitative evaluation and concluded that it was more likely than not that the fair value of Adesis (see Note 3) is greater than its carrying value. Company management believes it has made reasonable estimates and assumptions to calculate the fair value of the reporting unit. Future impairment tests will continue to be performed annually in the fiscal fourth quarter, or sooner if a triggering event occurs. As of December 31, 2018, no indications of impairment existed.

Purchased intangible assets with finite lives are carried at cost, less accumulated amortization. Amortization is computed over the estimated useful lives of the respective assets.

Fair Value of Financial Instruments

The carrying values of accounts receivable, other current assets, and accounts payable approximate fair value in the accompanying financial statements due to the short-term nature of those instruments. The Company’s other financial instruments, which include cash equivalents and investments, are carried at fair value.

Fair Value Measurements

Fair value is defined as an exit price, representing the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants based on the highest and best use of the asset or liability. The Company uses valuation techniques to measure fair value that maximize the use of observable inputs and minimize the use of unobservable inputs. Observable inputs are inputs that market participants would use in pricing the asset or liability, and are based on market data obtained from sources independent of the Company. Unobservable inputs reflect assumptions market participants would use in pricing the asset or liability based on the best information available in the circumstances.

Revenue Recognition and Deferred Revenue

Material sales relate to the Company’s sale of its OLED materials for incorporation into its customers’ commercial OLED products or for their OLED development and evaluation activities. Material sales are recognized at the time title passes, which is typically at the time of shipment or at the time of delivery, depending upon the contractual agreement between the parties.

The rights and benefits to the Company’s OLED technology are conveyed to the customer through technology license agreements and material supply agreements. These agreements are combined and the licenses and materials sold under these combined agreements are not distinct from each other for financial reporting purposes and as such, are accounted for as a single performance obligation. Accordingly, total contract consideration is estimated and recognized over the contract term based on material units sold during the period at their estimated per unit fee. Total contract consideration includes fixed amounts designated in contracts with customers as license fees as well as estimates of material fees and royalties to be earned.

Various estimates are relied upon to recognize revenue. The Company estimates total material units to be purchased by its customers over the contract term based on historical trends, industry estimates and its forecast process and related amounts to be charged. Additionally, management estimates the total sales-based royalties based on the

estimated net sales revenue of its customers over the contract term.

Contract research services revenue is revenue earned by Adesis through performing organic and organometallic synthetics research, development and commercialization on a contractual basis. These services range from intermediates for structure-activity relationship studies, reference agents and building blocks for combinatorial synthesis, re-synthesis of key intermediates, specialty organic chemistry needs, and selective toll manufacturing. These services are provided to third-party pharmaceutical and life sciences firms and other technology firms at fixed costs or on an annual contract basis. Revenue is recognized as services are performed with billing schedules and payment terms negotiated on a contract-by-contract basis. Payments received in excess of revenue recognized are recorded as deferred revenue. In other cases, services may be provided and revenue is recognized before the customer is invoiced. In these cases, revenue recognized will exceed amounts billed and the difference, representing amounts which are currently unbillable to the customer pursuant to contractual terms, is recorded as an unbilled receivable.

Technology development and support revenue is revenue earned from government contracts, development and technology evaluation agreements and commercialization assistance fees, which includes reimbursements by government entities for all or a portion of the research and development costs the Company incurs in relation to its government contracts. Revenues are recognized proportionally as research and development costs are incurred, or as defined milestones are achieved, and are included in contract research services in the accompanying consolidated statements of income.

In 2018, the Company entered into a commercial license agreement with Samsung Display Co., Ltd. (SDC). This agreement, which covers the manufacture and sale of specified OLED display materials, was effective as of January 1, 2018 and lasts through the end of 2022 with an additional two-year extension option. Under this agreement, the Company is being paid a license fee, payable in quarterly installments over the agreement term of five years. The agreement conveys to SDC the non-exclusive right to use certain of the Company's intellectual property assets for a limited period of time that is less than the estimated life of the assets.

At the same time the Company entered into the current patent license agreement with SDC, the Company also entered into a new supplemental material purchase agreement with SDC. Under the current supplemental material purchase agreement, SDC agrees to purchase from the Company a minimum amount of phosphorescent emitter materials for use in the manufacture of licensed products. This minimum commitment is subject to SDC’s requirements for phosphorescent emitter materials and the Company’s ability to meet these requirements over the term of the supplemental agreement.

In 2015, the Company entered into an OLED patent license agreement and an OLED commercial supply agreement with LG Display Co., Ltd. (LG Display) which were effective as of January 1, 2015 and superseded the existing 2007 commercial supply agreement between the parties. The new agreements have a term that is set to expire by the end of 2022. The patent license agreement provides LG Display a non-exclusive, royalty bearing portfolio license to make and sell OLED displays under the Company's patent portfolio. The patent license calls for license fees, prepaid royalties and running royalties on licensed products. The agreements include customary provisions relating to warranties, indemnities, confidentiality, assignability and business terms. The agreements provide for certain other minimum obligations relating to the volume of material sales anticipated over the life of the agreements as well as minimum royalty revenue to be generated under the patent license agreement. The Company expects to generate revenue under these agreements that are predominantly tied to LG Display’s sales of OLED licensed products. The OLED commercial supply agreement provides for the sale of materials for use by LG Display, which may include phosphorescent emitters and host materials.

In 2016, the Company entered into long-term, multi-year OLED patent license and material purchase agreements with Tianma Micro-electronics Co., Ltd. (Tianma). Under the license agreement, the Company has granted Tianma non-exclusive license rights under various patents owned or controlled by the Company to manufacture and sell OLED display products. The license agreement calls for license fees and running royalties on licensed products. Additionally, the Company expects to supply phosphorescent OLED materials to Tianma for use in its licensed products.

In 2017, the Company entered into long-term, multi-year agreements with BOE Technology Group Co., Ltd. (BOE). Under these agreements, the Company has granted BOE non-exclusive license rights under various patents owned or controlled by the Company to manufacture and sell OLED display products. The Company has also agreed to supply phosphorescent OLED materials to BOE.

In 2018, the Company entered into long-term, multi-year OLED patent license and material purchase agreements with Visionox Technology, Inc. (Visionox). Under the license agreement, the Company has granted Visionox non-exclusive license rights under various patents owned or controlled by the Company to manufacture and sell OLED display products. The license agreement calls for license fees and running royalties on licensed products. Additionally, the Company expects to supply phosphorescent OLED materials to Visionox for use in its licensed

products.

The Company records taxes billed to customers and remitted to various governmental entities on a gross basis in both revenues and cost of material sales in the consolidated statements of income. The amounts of these pass through taxes reflected in revenues and cost of material sales were $117,000, $409,000 and $171,000 for the years ended December 31, 2018, 2017 and 2016, respectively.

All sales transactions are billed and due within 90 days and substantially all are transacted in U.S. dollars.

See Recent Accounting Pronouncements for discussion of revenue recognition under the new standard, which became effective January 1, 2018.

Cost of Sales

Cost of sales consists of labor and material costs associated with the production of materials processed at the Company's manufacturing partners and at the Company's internal manufacturing processing facilities. The Company’s portion of cost of sales also includes depreciation of manufacturing equipment, as well as manufacturing overhead costs and inventory adjustments for excess and obsolete inventory.

Research and Development

Expenditures for research and development are charged to operations as incurred.

Patent Costs

Costs associated with patent applications, patent prosecution, patent defense and the maintenance of patents are charged to expense as incurred. Costs to successfully defend a challenge to a patent are capitalized to the extent of an evident increase in the value of the patent. Costs that relate to an unsuccessful outcome are charged to expense.

Amortization of Acquired Technology

Amortization costs relate to technology acquired from BASF, Fujifilm and Motorola. These acquisitions were completed in the years ended December 31, 2016, 2012 and 2011, respectively. Acquisition costs are being amortized over a period of 10 years for the BASF and Fujifilm patents and 7.5 years for the Motorola patents.

Amortization of Other Intangible Assets

Other intangible assets from the Adesis acquisition are being amortized over a period of 10 to 15 years. See Notes 3 and 8 for further discussion.

Translation of Foreign Currency Financial Statements and Foreign Currency Transactions

The Company's reporting currency is the U.S. dollar. The functional currency for the Company's Ireland subsidiary is also the U.S. dollar and the functional currency for each of the Company's Asia-Pacific foreign subsidiaries is its local currency. The Company translates the amounts included in the consolidated statements of income from its Asia-Pacific foreign subsidiaries into U.S. dollars at weighted-average exchange rates, which the Company believes are representative of the actual exchange rates on the dates of the transactions. The Company's foreign subsidiaries' assets and liabilities are translated into U.S. dollars from the local currency at the actual exchange rates as of the end of each reporting date, and the Company records the resulting foreign exchange translation adjustments in the consolidated balance sheets as a component of accumulated other comprehensive loss. The overall effect of the translation of foreign currency and foreign currency transactions to date has been insignificant.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. The Company recognizes the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount of which the likelihood of realization is greater than 50%. Changes in recognition or measurement are reflected in the period in which the change in

judgment occurs. The Company records interest and penalties, if any, related to unrecognized tax benefits as a component of tax expense.

Share-Based Payment Awards

The Company recognizes in the consolidated statements of income the grant-date fair value of equity based awards such as shares issued under employee stock purchase plans, restricted stock awards, restricted stock units and performance unit awards issued to employees and directors.

The grant-date fair value of stock awards is based on the closing price of the stock on the date of grant. The fair value of share-based awards is recognized as compensation expense on a straight-line basis over the requisite service period, net of forfeitures. The Company issues new shares upon the respective grant, exercise or vesting of the share-based payment awards, as applicable.

Performance unit awards are subject to either a performance-based or market-based vesting requirement. For performance-based vesting, the grant-date fair value of the award, based on fair value of the Company's common stock, is recognized over the service period, based on an assessment of the likelihood that the applicable performance goals will be achieved and compensation expense is periodically adjusted based on actual and expected performance. Compensation expense for performance unit awards with market-based vesting is calculated based on the estimated fair value as of the grant date utilizing a Monte Carlo simulation model and is recognized over the service period on a straight-line basis.

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued a new revenue recognition standard entitled Accounting Standards Codification (“ASC”) Topic 606, Revenue from Contracts with Customers. The objective of the standard is to establish the principles that an entity shall apply to report useful information to users of financial statements about the nature, amount, timing, and uncertainty of revenue and cash flows from a contract with a customer. The standard is effective for annual reporting periods beginning after December 15, 2017. The Company adopted the standard beginning January 1, 2018 using the “modified retrospective” approach, meaning the standard was applied only to the most current period presented in the financial statements, with a cumulative adjustment to retained earnings.

The new standard impacts how the Company recognizes revenue on its commercial license and material supply agreements with customers. In addition, the Company previously recognized royalty revenue one quarter in arrears based on sales information received from its customers typically received after disclosing that quarter’s results. Under ASC Topic 606, royalties to be earned over the contract term are estimated as part of total contract consideration and recognized as noted below. The estimates are updated on a quarterly basis.

The rights and benefits to the Company’s OLED technology are conveyed to the customer through technology license agreements and material supply agreements. These agreements are combined and the licenses and materials sold under these combined agreements are not distinct from each other for financial reporting purposes and as such, are accounted for as a single performance obligation. Accordingly, total contract consideration is estimated and recognized over the contract term based on material units sold at its estimated per unit fee.

Adoption of the new standard resulted in an increase in deferred revenue of $21.3 million offset by a reduction of retained earnings of $17.1 million, net of tax of $3.9 million, and unbilled receivables of $0.3 million as of January 1, 2018. The impact of the new standard to revenue for the year ended December 31, 2018 was a decrease of $78.9 million from the amount that would have been recorded under the prior accounting standard. See Note 19 for further discussion.

In February 2016, the FASB issued ASU No. 2016-02, Leases, which addresses the classification and recognition of lease assets and liabilities. The guidance addresses certain aspects of recognition and measurement, and quantitative and qualitative aspects of presentation and disclosure. The guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The Company will adopt the standard on January 1, 2019. The Company estimates that adoption of the new standard will result in a reduction in retained earnings of $592,000, net of tax of $157,000, offset by increases in net property and equipment of $7.0 million, other current liabilities of $1.3 million and other liabilities of $6.5 million.

In August 2016, the FASB issued ASU No. 2016-15, Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments. The objective of the standard is to reduce diversity in practice in how certain transactions are classified in the consolidated statements of cash flows. The ASU provides additional clarification guidance on the classification of certain cash receipts and payments in the consolidated statements of cash flows. The new guidance is effective for fiscal years and interim periods within those years beginning after December 15, 2017 and did not have any impact on the consolidated financial statements and related disclosures.

In October 2016, the FASB issued ASU No. 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory. ASU 2016-16 clarifies the accounting for the current and deferred income taxes for an intra-entity transfer of an asset other than inventory. ASU 2016-16 is effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years, with early adoption permitted. The new guidance is effective for fiscal years and interim periods within those years beginning after December 15, 2017 and did not have any impact on the consolidated financial statements and related disclosures.

In January 2017, the FASB issued ASU No. 2017-04, Intangibles – Goodwill and Other (Topic 350): Simplifying the Test of Goodwill Impairment, eliminating the requirement to calculate the implied fair value, essentially eliminating step two from the goodwill impairment test. The new standard requires goodwill impairment to be based upon the results of step one of the impairment test, which is defined as the excess of the carrying value of a reporting unit over its fair value. The impairment charge will be limited to the amount of goodwill allocated to that reporting unit. The standards update is effective prospectively for annual and interim goodwill impairment testing performed in fiscal years beginning after December 15, 2019, with early adoption permitted. The Company is evaluating the effect that adoption of ASU 2017-04 may have on its consolidated financial statements and related disclosures.

In May 2017, the FASB issued ASU No. 2017-09, Compensation – Stock Compensation (Topic 718): Scope of Modification Accounting. ASU 2017-09 clarifies which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting, in accordance with Topic 718. The guidance is effective for annual periods beginning after December 15, 2017, with early adoption permitted, and requires a prospective application to awards modified on or after the adoption date. The Company has not historically made changes to the terms or conditions of shared-based payment awards and the adoption of ASU 2017-09, beginning January 1, 2018, did not have any impact on the consolidated financial statements and related disclosures.

3. BUSINESS COMBINATIONS:

On June 23, 2016, the Company entered into an agreement to acquire Adesis, Inc., a privately held contract research organization (CRO) with then 43 employees specializing in organic and organometallic synthetic research, development, and commercialization. Adesis is a technology vendor to companies in the pharmaceutical, fine chemical, biomaterials, and catalyst industries, and had worked with the Company prior to the acquisition to help advance and accelerate a number of the Company's product offerings. The transaction closed on July 11, 2016. Under the terms of the agreement, the Company's subsidiary, UDC, Inc., acquired all outstanding shares of Adesis in a merger for $33.9 million in cash, and up to an additional $2.4 million in cash contingent upon Adesis' achievement of certain milestones within two years of the acquisition. The acquisition was funded through use of existing cash and investments.

Purchase Price Allocation

The Company accounted for Adesis using the acquisition method of accounting in accordance with applicable GAAP whereby the total purchase price was allocated to tangible and intangible assets acquired and liabilities assumed based on respective fair values. The contingent consideration arrangement required the Company to pay up to $1.2 million of additional consideration to the former shareholders of Adesis if revenues exceeded certain threshold levels at the end of each twelve-month period ended December 31, 2016 and December 31, 2017. For both of the years ended December 31, 2017 and 2016, the additional cash consideration earned by the former shareholders of Adesis was $1.2 million. The fair value of the contingent consideration was derived using a Monte Carlo simulation model based on management's projections of future revenue levels. The following table summarizes the values of the assets acquired and liabilities assumed at the date of acquisition (in thousands):

Cash consideration	$33,872
Contingent consideration	1,670
	$35,542
Allocation of purchase price:	
Current assets, including cash of $492	$2,204
Property and equipment	1,869
Accounts payable and accrued liabilities	(906)
Net tangible assets	3,167
Identifiable intangible assets	16,840
Goodwill	15,535
Total purchase price	$35,542

The purchase price exceeded the fair value of the net tangible assets and identifiable intangible assets acquired and, as a result, the Company recorded goodwill in connection with this transaction. This difference includes a going concern element that represents the Company's ability to earn a higher rate of return on this group of assets than would be expected on the separate assets as determined during the valuation process.

Transaction costs of $360,000 were recorded and charged to selling, general and administrative expense on the accompanying consolidated statements of income during 2016.

Intangible Assets Identified

The following table presents the intangible assets identified in the transaction:

Category	Estimated fair value (in thousands)	Estimated useful life (in years)
Customer relationships	$ 10,520	11.5
Developed IP, processes and recipes	4,820	15.0
Trade name/Trademarks	1,500	10.0
Total identifiable intangible assets	$ 16,840	

The fair value of the customer relationships asset was determined using the income approach through an excess earnings analysis which estimates value based on the present value of future economic benefits. The customer relationships intangible asset represents relationships between Adesis and its customers. The fair value of the internally-developed IP, processes and recipes was determined by utilizing the relief-from-royalty methodology. The fair value of the Adesis trade name asset was determined using the income approach through a relief-from-royalty analysis. The determination of useful lives was based upon consideration of market participant assumptions and transaction specific factors.

Impact on Operating Results

The results of Adesis' operations have been included in the Company's consolidated financial statements since the July 11, 2016 date of acquisition. The following unaudited pro forma information assumes the acquisition of Adesis occurred at the beginning of the respective periods presented (in thousands):

	2016
Revenue	$202,547
Net income	44,718

The unaudited pro forma information presented is for illustrative purposes only and does not reflect future events that may occur after December 31, 2018, or any operating efficiencies or inefficiencies that may result from the Adesis acquisition. Additionally, this unaudited pro forma information includes certain one-time costs associated with the Company's integration of the acquired Adesis operations. Therefore, the information is not necessarily indicative of the results that would have been achieved had the business been combined during the periods presented or the results that the Company will experience going forward.

4. CASH, CASH EQUIVALENTS AND INVESTMENTS:

The Company considers all highly liquid debt instruments purchased with an original maturity of three months or less to be cash equivalents. The Company classifies its remaining investments as available-for-sale. These debt securities are carried at fair market value, with unrealized gains and losses reported in shareholders' equity. Gains or losses on securities sold are based on the specific identification method. Investments as of December 31, 2018 and December 31, 2017 consisted of the following (in thousands):

Investment Classification	Amortized Cost	Unrealized Gains	(Losses)	Aggregate Fair Market Value
December 31, 2018				
Certificates of deposit	$ 500	$—	$ (1)	$ 499
Corporate bonds	114,678	1	(19)	114,660
U.S. Government bonds	317,984	14	(43)	317,955
	$ 433,162	$ 15	$ (63)	$ 433,114
December 31, 2017				
Certificates of deposit	$ 1,296	$ 1	$ (1)	$ 1,296
Corporate bonds	104,626	—	(252)	104,374
U.S. Government bonds	214,641	—	(139)	214,502
	$ 320,563	$ 1	$ (392)	$ 320,172

As of December 31, 2018 and 2017, there was none and $17.9 million of corporate bonds, respectively, and $128.8 million and none of U.S. government securities, respectively, included in cash equivalents on the consolidated balance sheet.

5. FAIR VALUE MEASUREMENTS:

The following table provides the assets and liabilities carried at fair value measured on a recurring basis as of December 31, 2018 (in thousands):

	Total carrying value as of December 31, 2018	Fair Value Measurements, Using Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Cash equivalents	$ 139,805	$ 139,805	$ —	$ —
Short-term investments	304,323	304,323	—	—
Long-term investments	—	—	—	—

The following table provides the assets and liabilities carried at fair value measured on a recurring basis as of December 31, 2017 (in thousands):

	Total carrying value as of December 31, 2017	Fair Value Measurements, Using Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Cash equivalents	$ 27,532	$ 27,532	$ —	$ —
Short-term investments	287,446	287,446	—	—
Long-term investments	14,794	14,794	—	—

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. Level 3 inputs are unobservable inputs based on management's own assumptions used to measure assets and liabilities at fair value. A financial asset's or liability's classification is determined based on the lowest level input that is significant to the fair value measurement.

Changes in fair value of the investments are recorded as unrealized gains and losses in other comprehensive income (loss). If a decline in fair value of an investment is deemed to be other than temporary, the cost of the Company's investment will be written down by the amount of the other-than-temporary impairment with a resulting charge to net income. There were no other-than-temporary impairments of investments as of December 31, 2018 or December 31, 2017.

6. INVENTORY:

Inventory consisted of the following (in thousands):

	December 31,	
	2018	2017
Raw materials	$31,203	$17,464
Work-in-process	781	2,977
Finished goods	38,016	15,824
Inventory	$70,000	$36,265

For the year ended December 31, 2018, the Company recorded an inventory write-down of $3.6 million as lower than anticipated customer demand created excess inventory levels in certain products. No inventory write-down was recorded for the years ended December 31, 2017 and 2016.

7. PROPERTY AND EQUIPMENT:
Property and equipment consist of the following (in thousands):

	December 31,	
	2018	2017
Land	$1,006	$1,006
Building and improvements	39,285	24,101
Office and lab equipment	55,333	33,269
Furniture, fixtures and computer related assets	6,941	4,431
Construction-in-progress	12,117	30,011
	114,682	92,818
Less: Accumulated depreciation	(44,943)	(36,368)
Property and equipment, net	$69,739	$56,450

Depreciation expense was $8.6 million, $4.9 million and $4.3 million for the years ended December 31, 2018, 2017 and 2016, respectively.

8. GOODWILL AND INTANGIBLE ASSETS:
The Company monitors the recoverability of goodwill annually or whenever events or changes in circumstances indicate the carrying value may not be recoverable. Purchased intangible assets subject to amortization consist primarily of acquired technology and other intangible assets that include trade names, customer relationships and internally developed IP processes.

Acquired Technology

Acquired technology consists of acquired license rights for patents and know-how obtained from PD-LD, Inc., Motorola, BASF SE (BASF) and Fujifilm. These intangible assets consist of the following (in thousands):

	December 31,	
	2018	2017
PD-LD, Inc.	$1,481	$1,481
Motorola	15,909	15,909
BASF	95,989	95,989
Fujifilm	109,462	109,462
	222,841	222,841
Less: Accumulated amortization	(111,890)	(91,312)
Acquired technology, net	$110,951	$131,529

Amortization expense related to acquired technology was $20.6 million, $20.6 million and $15.9 million for the years ended December 31, 2018, 2017 and 2016, respectively. Amortization expense is included in amortization of acquired technology and other intangible assets expense line item on the consolidated statements of income and is expected to be $20.5 million in each of the years ending December 31, 2019 through 2021, $15.8 million in the year ending December 31, 2022 and $33.6 million thereafter.

Motorola Patent Acquisition

In 2000, the Company entered into a royalty-bearing license agreement with Motorola whereby Motorola granted the Company perpetual license rights to what are now 74 issued U.S. patents relating to Motorola’s OLED technologies, together with foreign counterparts in various countries. The last of the issued U.S. patents expired in 2018.

On March 9, 2011, the Company purchased these patents from Motorola, including all existing and future claims and causes of action for any infringement of the patents, pursuant to a Patent Purchase Agreement. The Patent Purchase Agreement effectively terminated the Company's license agreement with Motorola, including any obligation to make royalty payments to Motorola. The technology acquired from Motorola was amortized over a period of 7.5 years.

Fujifilm Patent Acquisition

On July 23, 2012, the Company entered into a Patent Sale Agreement with Fujifilm. Under the agreement, Fujifilm sold more than 1,200 OLED-related patents and patent applications in exchange for a cash payment of $105.0 million, plus costs incurred in connection with the purchase. The agreement contains customary representations and warranties and covenants, including respective covenants not to sue by both parties thereto. The agreement permitted the Company to assign all of its rights and obligations under the agreement to its affiliates, and the Company assigned, prior to the consummation of the transactions contemplated by the agreement, its rights and obligations to UDC Ireland Limited (UDC Ireland), a wholly-owned subsidiary of the Company formed under the laws of the Republic of Ireland. The transactions contemplated by the agreement were consummated on July 26, 2012. The Company recorded the $105.0 million plus $4.5 million of purchase costs as acquired technology, which is being amortized over a period of 10 years.

BASF Patent Acquisition

On June 28, 2016, UDC Ireland entered into and consummated an IP Transfer Agreement with BASF. Under the IP Transfer Agreement, BASF sold to UDC Ireland all of its rights, title and interest to certain of its owned and co-owned intellectual property rights relating to the composition of, development, manufacture and use of OLED materials, including OLED lighting and display stack technology, as well as certain tangible assets. The intellectual property includes knowhow and more than 500 issued and pending patents in the area of phosphorescent materials and technologies. These assets were acquired in exchange for a cash payment of €86.8 million ($95.8 million). In addition, UDC Ireland also took on certain rights and obligations under three joint research and development agreements to which BASF was a party. The IP Transfer Agreement also contains customary representations, warranties and covenants of the parties. UDC Ireland recorded the payment of €86.8 million ($95.8 million) and acquisition costs incurred of $217,000 as acquired technology, which is being amortized over a period of 10 years.

Other Intangible Assets

As a result of the Adesis acquisition in June 2016, the Company recorded $16.8 million of other intangible assets, including $10.5 million assigned to customer relationships with a weighted average life of 11.5 years, $4.8 million of internally developed IP, processes and recipes with a weighted average life of 15 years, and $1.5 million assigned to trade name and trademarks with a weighted average life of 10 years. At December 31, 2018, these other intangible assets consist of the following (in thousands):

	December 31, 2018		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	$10,520	$ (2,228)	$ 8,292
Developed IP, processes and recipes	4,820	(788)	4,032
Trade name/Trademarks	1,500	(368)	1,132
Total identifiable intangible assets	$16,840	$ (3,384)	$ 13,456

Amortization expense related to other intangible assets was $1.4 million, $1.4 million and $615,000 for the years ended December 31, 2018, 2017, and 2016, respectively. Amortization expense is included in amortization of acquired technology and other intangible assets expense line item on the consolidated statements of income and is expected to be $1.4 million for each of the next five fiscal years (2019 - 2023) and $6.4 million thereafter.

Goodwill

As a result of the Adesis acquisition, the Company recorded $15.5 million of goodwill. The Company performs its annual assessment of goodwill during the fourth quarter of the fiscal year unless events suggest an impairment may have been incurred in an interim period. Application of the goodwill impairment test requires the exercise of judgment, including the determination of the fair value of each reporting unit. The Company estimates the fair value of reporting units using an income approach based on the present value of estimated future cash flows. As part of the annual assessment of goodwill completed during the fourth quarter ended December 31, 2018, there were no significant indicators to conclude that an impairment of the goodwill associated with the acquisition of Adesis had occurred.

9. ACCRUED EXPENSES:

Accrued expenses consist of the following (in thousands):

	December 31,	
	2018	2017
Compensation	$13,803	$20,997
Royalties	6,996	9,746
Research and development agreements	3,572	48
Professional fees	655	748
Consulting	527	491
Other	10,504	2,989
	$36,057	$35,019

10. RESEARCH AND LICENSE AGREEMENTS WITH PRINCETON UNIVERSITY, UNIVERSITY OF SOUTHERN CALIFORNIA AND THE UNIVERSITY OF MICHIGAN:

The Company funded OLED technology research at Princeton University and, on a subcontractor basis, at the University of Southern California for 10 years under a Research Agreement executed with Princeton University in August 1997 (the 1997 Research Agreement). The principal investigator conducting work under the 1997 Research Agreement transferred to the University of Michigan in January 2006. Following this transfer, the 1997 Research Agreement was allowed to expire on July 31, 2007.

As a result of the transfer, the Company entered into a new Sponsored Research Agreement with the University of Southern California to sponsor OLED technology research and, on a subcontractor basis, with the University of Michigan. This new Sponsored Research Agreement (as amended, the 2006 Research Agreement) was effective as of May 1, 2006 and had an original term of three years. On May 1, 2009, the Company amended the 2006 Research Agreement to extend the term of the agreement for an additional four years. The 2006 Research Agreement superseded the 1997 Research Agreement with respect to all work being performed at the University of Southern California and the University of Michigan. Payments under the 2006 Research Agreement were made to the University of Southern California on a quarterly basis as actual expenses were incurred. The Company incurred a total of $5.0 million in research and development expense for work performed under the 2006 Research Agreement, which ended on April 30, 2013.

Effective June 1, 2013, the Company amended the 2006 Research Agreement again to extend the term of the agreement for an additional four years. The Company incurred a total of $4.6 million in research and development expense for work performed under the 2006 Research Agreement during the extended term.

Effective May 1, 2017, the Company amended the 2006 Research Agreement once again to extend the term of the agreement for an additional three years. As of December 31, 2018, in connection with this amendment, the Company was obligated to pay the University of Southern California up to $4.1 million for work to be performed during the remaining extended term, which expires April 30, 2020. From May 1, 2017 through December 31, 2018, the Company incurred $1.6 million in research and development expense for work performed under the 2006 Research Agreement.

In connection with entering into the 2006 Research Agreement, the Company amended the 1997 Amended License Agreement to include the University of Michigan as a party to that agreement effective as of January 1, 2006. Under this amendment, Princeton University, the University of Southern California and the University of Michigan have granted the Company a worldwide exclusive license, with rights to sublicense, to make, have made, use, lease and/or sell products and to practice processes based on patent applications and issued patents arising out of work performed under the 2006 Research Agreement. The financial terms of the 1997 Amended License Agreement were not impacted

by this amendment.

On October 9, 1997, the Company, Princeton University and the University of Southern California entered into an Amended License Agreement (as amended, the 1997 Amended License Agreement) under which Princeton University and the University of Southern California granted the Company worldwide, exclusive license rights, with rights to sublicense, to make, have made, use, lease and/or sell products and to practice processes based on patent applications and issued patents arising out of work performed by Princeton University and the University of Southern California under the 1997 Research Agreement. Under this 1997 Amended License Agreement, the Company is required to pay Princeton University royalties for licensed products sold by the Company or its sublicensees. For licensed products sold by the Company, the Company is required to pay Princeton University 3% of the net sales price of these products. For licensed products sold by the Company's sublicensees, the Company is required to pay Princeton 3% of the revenues received by the Company from these sublicensees. These royalty rates are subject to renegotiation for products not reasonably conceivable as arising out of the 1997 Research Agreement if Princeton University reasonably determines that the royalty rates payable with respect to these products are not fair and competitive.

The Company is obligated, under the 1997 Amended License Agreement, to pay to Princeton University minimum annual royalties. The minimum royalty payment is $100,000 per year. The Company recorded royalty expense in connection with this agreement of $7.0 million, $9.7 million, and $5.8 million for the years ended December 31, 2018, 2017, and 2016, respectively.

The Company also is required, under the 1997 Amended License Agreement, to use commercially reasonable efforts to bring the licensed OLED technology to market. However, this requirement is deemed satisfied if the Company invests a minimum of $800,000 per year in research, development, commercialization or patenting efforts respecting the patent rights licensed to the Company.

11. EQUITY AND CASH COMPENSATION UNDER THE PPG AGREEMENTS:

On September 22, 2011, the Company entered into an Amended and Restated OLED Materials Supply and Service Agreement with PPG (the New OLED Materials Agreement), which replaced the original OLED Materials Agreement with PPG effective as of October 1, 2011. The term of the New OLED Materials Agreement ran through December 31, 2015 and shall be automatically renewed for additional one year terms, unless terminated by the Company by providing prior notice of one year or terminated by PPG by providing prior notice of two years. The agreement was automatically renewed through December 31, 2019. The New OLED Materials Agreement contains provisions that are substantially similar to those of the original OLED Materials Agreement. Under the New OLED Materials Agreement, PPG continues to assist the Company in developing its proprietary OLED materials and supplying the Company with those materials for evaluation purposes and for resale to its customers.

Under the New OLED Materials Agreement, the Company compensates PPG on a cost-plus basis for the services provided during each calendar quarter. The Company is required to pay for some of these services in all cash. Up to 50% of the remaining services are payable, at the Company’s sole discretion, in cash or shares of the Company’s common stock, with the balance payable in cash. The actual number of shares of common stock issuable to PPG is determined based on the average closing price for the Company’s common stock during a specified number of days prior to the end of each calendar half-year period ending on March 31 and September 30. If, however, this average closing price is less than $20.00, the Company is required to compensate PPG in cash. No shares were issued for services to PPG for the years ended December 31, 2018, 2017 and 2016.

The Company is also required to reimburse PPG for raw materials used for research and development. The Company records the purchases of these raw materials as a current asset until such materials are used for research and development efforts.

The Company recorded research and development expense of $771,000, $1.7 million and $2.3 million for the years ended December 31, 2018, 2017 and 2016, respectively, in relation to the cash portion of the reimbursement of expenses and work performed by PPG, excluding amounts paid for commercial chemicals.

12. SHAREHOLDERS' EQUITY:

Preferred Stock

The Company’s Articles of Incorporation authorize it to issue up to 5,000,000 shares of preferred stock with designations, rights and preferences determined from time-to-time by the Company’s Board of Directors. Accordingly, the Company’s Board of Directors is empowered, without shareholder approval, to issue preferred stock with dividend, liquidation, conversion, voting or other rights superior to those of shareholders of the Company’s common stock.

In 1995, the Company issued 200,000 shares of Series A Nonconvertible Preferred Stock (Series A) to American Biomimetics Corporation (ABC) pursuant to a certain Technology Transfer Agreement between the Company and ABC. The Series A shares have a liquidation value of $7.50 per share. Series A shareholders, as a single class, have the right to elect two members of the Company's Board of Directors. This right has never been exercised. Holders of the Series A shares are entitled to one vote per share on matters which shareholders are generally entitled to vote. The Series A shareholders are not entitled to any dividends.

As of December 31, 2018, the Company had issued 200,000 shares of preferred stock, all of which were outstanding.

Common Stock

On June 21, 2018, the Company's shareholders approved an amendment to the Company's Amended and Restated Articles of Incorporation to increase the number of authorized shares of the Company's common stock from 100,000,000 to 200,000,000. The amendment was filed with the Pennsylvania Department of State, and became effective on July 17, 2018.

As of December 31, 2018, the Company had issued 48,681,524 shares of common stock, of which 47,319,887 were outstanding. During the year ended December 31, 2018, the Company repurchased 3,774 shares of common stock, now held as treasury stock, for an aggregate purchase price of $477,000.

Scientific Advisory Board and Employee Awards

During the year ended December 31, 2018 and 2017, the Company granted a total of 2,456 and 5,590 shares, respectively, of fully vested common stock to employees and non-employee members of the Scientific Advisory Board for services performed in 2017 and 2016, respectively. The fair value of the shares issued to members of the Scientific Advisory Board was $300,000 for both years ended December 31, 2018 and 2017. No fully vested common stock was issued to employees during 2018 and the fair value of the shares issued to employees during 2017 was $165,000. In connection with the issuance of these employee grants during 2017, 605 shares, with fair value of $55,000, were withheld in satisfaction of employee tax withholding obligations.

Dividends

During the year ended December 31, 2018, the Company declared and paid cash dividends of $0.24 per common share, or $11.3 million, on the Company's outstanding common stock.

On February 21, 2019, the Company's Board of Directors declared a first quarter dividend of $0.10 per share of common stock. Payment of the dividend will be made on March 29, 2019 to shareholders of record at the close of business on March 15, 2019.

13. ACCUMULATED OTHER COMPREHENSIVE LOSS:
Amounts related to the changes in accumulated other comprehensive loss were as follows (in thousands):

	Unrealized gain (loss) on available-for-sale-securities	Net unrealized gain (loss) on retirement plan [2]	Change in cumulative foreign currency translation adjustment	Total	Affected line items in the consolidated statements of operations
Balance January 1, 2016, net of tax	$ (111)	$ (9,708)	$ —	$ (9,819)	
Other comprehensive loss before reclassification	(135)	(1,731)	(65)	(1,931)	
Reclassification to net income [1]	—	1,084	—	1,084	Selling, general and administrative, research and development and cost of material sales
Change during period	(135)	(647)	(65)	(847)	
Balance December 31 2016,	(246)	(10,355)	(65)	(10,666)	

net of tax					
Other comprehensive gain (loss)					
before reclassification	(12)	(2,184)	28	(2,168)	
Reclassification to net income [1]	—	1,370	—	1,370	Selling, general and administrative, research and development and cost of material sales
Change during period	(12)	(814)	28	(798)	
Balance December 31, 2017, net of tax	(258)	(11,169)	(37)	(11,464)	
Other comprehensive gain (loss)					
before reclassification	268	(6,690)	(9)	(6,431)	
Reclassification to net income [1]	—	1,661	—	1,661	Selling, general and administrative, research and development and cost of material sales
Change during period	268	(5,029)	(9)	(4,770)	
Balance December 31, 2018, net of tax	$ 10	$ (16,198)	$ (46)	$(16,234)	

(1) The Company reclassified amortization of plan amendment cost, prior service cost, and actuarial loss for its retirement plan from accumulated other comprehensive loss to net income of $1.7 million, $1.4 million and $1.1 million for the years ended December 31, 2018, 2017 and 2016, respectively.

(2) Refer to Note 15: Employee Retirement Plans

14. STOCK-BASED COMPENSATION:

Equity Compensation Plan

In 1995, the Board of Directors of the Company adopted a stock option plan, which was most recently amended and restated in 2014 and is now called the Equity Compensation Plan. The Equity Compensation Plan provides for the granting of incentive and nonqualified stock options, shares of common stock, stock appreciation rights and performance units to employees, directors and consultants of the Company. Stock options are exercisable over periods determined by the Compensation Committee, but for no longer than 10 years from the grant date. Through December 31, 2018, the Company's shareholders have approved increases in the number of shares reserved for issuance under the Equity Compensation Plan to 10,500,000, and have extended the term of the plan through 2024. As of December 31, 2018, there were 2,403,523 shares that remained available to be granted under the Equity Compensation Plan.

Stock Options

The following table summarizes the stock option activity during the year ended December 31, 2018 for all the grants under the Equity Compensation Plan (in thousands, except share and per share data):

	Options	Weighted Average Exercise Price
Outstanding at January 1, 2018	500	$ 10.04
Granted	—	—
Exercised	—	—
Forfeited/ Expired	—	—
Cancelled	—	—
Outstanding at December 31, 2018	500	10.04
Vested and expected to vest	500	10.04
Exercisable at December 31, 2018	500	$ 10.04

No stock options were granted during the years ended December 31, 2018, 2017 or 2016.

A summary of stock options outstanding and exercisable by price range at December 31, 2018 is as follows (in thousands, except share and per share data):

	Outstanding and Exercisable			
Exercise Price	Number of Options Outstanding at December 31,	Weighted Average Remaining Contractual	Weighted Average Exercise Price	Aggregate Intrinsic Value (A)

	2018	Life (Years)		
$ 10.04	500	0.5	$ 10.04	$ 42

(A) The difference between the stock option's exercise price and the closing price of common stock at December 31, 2018.

The total intrinsic value of stock options exercised during the years ended December 31, 2018, 2017 and 2016 was none, $146,000 and $507,000, respectively. There was no compensation expense recognized for the years ended December 31, 2018, 2017 and 2016.

During the years ended December 31, 2018, 2017 and 2016, no shares of common stock were tendered to net share settle the exercise of options.

Stock Awards

The following table summarizes the activity related to restricted stock unit (“RSU”) share based payment awards:

	Number of Shares	Weighted-Average Grant-Date Fair Value
Unvested, January 1, 2018	110,683	$ 88.91
Granted	51,968	115.48
Vested	(69,670)	97.14
Forfeited	(600)	103.09
Unvested, December 31, 2018	92,381	$ 97.56

The weighted average grant-date fair value of RSU awards granted was $115.48, $116.58 and $53.85 during the years ended December 31, 2018, 2017 and 2016, respectively. The fair value as of the respective vesting dates of RSUs was $8.1 million, $8.3 million and $5.4 million for 2018, 2017 and 2016, respectively.

The following table summarizes the activity related to restricted stock award (“RSA”) share based payment awards:

	Number of Shares	Weighted-Average Grant-Date Fair Value
Unvested, January 1, 2018	579,937	$ 46.72
Granted	2,456	122.15
Vested	(172,444)	47.75
Unvested, December 31, 2018	409,949	$ 46.74

The weighted average grant-date fair value of RSA awards granted was $122.15, $83.25 and $65.37 during the years ended December 31, 2018, 2017 and 2016, respectively. The fair value as of the respective vesting dates of RSAs was $17.7 million, $14.8 million and $8.6 million for 2018, 2017 and 2016, respectively.

Restricted Stock Awards and Units

The Company has issued restricted stock awards and units to employees and non-employees with vesting terms of one to six years. The fair value is equal to the market price of the Company’s common stock on the date of grant for awards granted to employees and equal to the market price at the end of the reporting period for unvested non-employee awards or upon the date of vesting for vested non-employee awards. Expense for restricted stock awards and units is amortized ratably over the vesting period for the awards issued to employees and using a graded vesting method for the awards issued to non-employees.

For the years ended December 31, 2018, 2017 and 2016, the Company recorded, as compensation charges related to restricted stock awards and units issued to employees and non-employees, selling, general and administrative expense of $7.6 million, $8.5 million and $6.6 million, manufacturing expense of $758,000, $443,000 and $1.1 million and research and development expense of $2.0 million, $1.6 million and $1.7 million, respectively.

The majority of the Company's restricted stock awards and units that vested in 2018, 2017 and 2016 were net-share settled such that the Company withheld shares with value equivalent to the employees' minimum statutory obligation for the applicable income and other employment taxes, and remitted the cash to the appropriate tax authorities. The total shares withheld were approximately 86,679, 89,661 and 84,135 for 2018, 2017 and 2016, respectively, and were based on the value of the restricted vesting dates as determined by the Company's closing stock price. Total payments for the employees' tax obligations to taxing authorities were $9.2 million, $7.8 million and $4.5 million in 2018, 2017 and 2016, respectively, and are reflected as a financing activity within the consolidated statements of cash flows.

For the years ended December 31, 2018, 2017 and 2016, the Company recorded as compensation charges related to all restricted stock units to non-employee members of the Scientific Advisory Board whose unvested shares are marked to market each reporting period, research and development expense of $64,000, $976,000 and $242,000, respectively.

Board of Directors Compensation

The Company has granted restricted stock units to non-employee members of the Board of Directors with vesting terms of approximately one year. The fair value is equal to the market price of the Company's common stock on the date of grant. The restricted stock units are issued and expense is recognized ratably over the vesting period. For the years ended December 31, 2018, 2017 and 2016, the Company recorded compensation charges for services performed related to all restricted stock units granted to non-employee members of the Board of Directors, selling and administrative expense of $4.3 million, $1.6 million and $1.5 million, respectively. Restricted stock issued to non-employee members of the Board of Directors during 2018, 2017 and 2016 was 25,000, 27,500 and 30,000 shares, respectively.

As of December 31, 2018, the total unrecognized cost related to RSUs and RSAs was $19.4 million, which the Company expects to recognize over a weighted average period of 1.84 years.

Performance Unit Awards

The following table summarizes the activity related to performance unit awards ("PSU") share based payment awards:

	Number of Shares	Weighted-Average Grant-Date Fair Value
Unvested, January 1, 2018	73,315	$ 62.36
Granted	40,601	119.62
Vested	(61,186)	45.19
Unvested, December 31, 2018	52,730	$ 86.43

During the years ended December 31, 2018, 2017 and 2016, respectively, the Company granted 40,601, 24,664 and 25,045 performance units, of which 6,022, 7,817 and 12,520 are subject to performance-based vesting requirements and 6,025, 7,821 and 12,525 are subject to market-based vesting requirements, and will vest over the terms described below. During the years ended December 31, 2018 and 2017, there were also 28,554 and 9,026 incremental performance-based shares that vested resulting from an increased vesting factor based on Company performance. The weighted average grant date fair value of the performance unit awards granted was $119.62, $105.65 and $58.46 during the years ended December 31, 2018, 2017 and 2016, respectively, as determined by the Company's common stock on date of grant for the units with performance-based vesting and a Monte-Carlo simulation for the units with market-based vesting.

Each performance unit award is subject to both a performance-vesting requirement (either performance-based or market-based) and a service-vesting requirement. The performance-based vesting requirement is tied to the Company's cumulative revenue growth compared to the cumulative revenue growth of companies comprising the Nasdaq Electronics Components Index, as measured over a specific performance period. The market-based vesting requirement is tied to the Company's total shareholder return relative to the total shareholder return of companies comprising the Nasdaq Electronics Components Index, as measured over a specific performance period. The maximum number of performance units that may vest based on performance is two times the shares granted. Further, if the Company's total shareholder return is negative, the performance units may not vest at all.

For the years ended December 31, 2018, 2017 and 2016, the Company recorded, as compensation charges related to all performance stock units, selling, general and administrative expense of $1.3 million, $1.2 million and $1.3 million, manufacturing expense of $141,000, $119,000 and $133,000 and research and development expenses of $330,000, $276,000 and $356,000, respectively. In connection with the vesting of performance units during the year ended December 31, 2018, 25,208 shares with an aggregate fair value of $2.9 million were withheld in satisfaction of employee tax withholding obligations. During the year ended December 31, 2017, 19,217 shares with an aggregate fair value of $1.6 million were withheld in satisfaction of employee tax withholding obligations.

As of December 31, 2018, the total unrecognized compensation cost related to PSUs was $1.4 million, which the Company expects to recognize over a weighted average period of 1.56.

Employee Stock Purchase Plan

On April 7, 2009, the Board of Directors of the Company adopted an Employee Stock Purchase Plan (ESPP). The ESPP was approved by the Company’s shareholders and became effective on June 25, 2009. The Company has reserved 1,000,000 shares of common stock for issuance under the ESPP. Unless terminated sooner by the Board of Directors, the ESPP will expire when all reserved shares have been issued.

Eligible employees may elect to contribute to the ESPP through payroll deductions during consecutive three-month purchase periods, the first of which began on July 1, 2009. Each employee who elects to participate will be deemed to have been granted an option to purchase shares of the Company's common stock on the first day of the purchase period. Unless the employee opts out during the purchase period, the option will automatically be exercised on the last day of the period, which is the purchase date, based on the employee's accumulated contributions to the ESPP. The purchase price will equal 85% of the lesser of the closing price per share of common stock on the first day of the period or the last business day of the period.

Employees may allocate up to 10% of their base compensation to purchase shares of common stock under the ESPP; however, each employee may purchase no more than 12,500 shares on a given purchase date, and no employee may purchase more than $25,000 of common stock under the ESPP during a given calendar year.

For the years ended December 31, 2018, 2017 and 2016, the Company issued 10,303, 9,730 and 9,386 shares, respectively, of its common stock under the ESPP, resulting in proceeds of $798,000, $734,000 and $439,000, respectively. For the years ended December 31, 2018, 2017 and 2016, the Company recorded charges of $82,000, $69,000 and $45,000, respectively, to selling, general and administrative expense, $81,000, $46,000, $15,000, respectively, to manufacturing expense and $130,000, $94,000 and $67,000, respectively, to research and development expense, related to ESPP equal to the amount of the discount and the value of the look-back feature.

15. EMPLOYEE RETIREMENT PLANS:

Defined Contribution Plan

The Company maintains the Universal Display Corporation 401(k) Plan (the Plan) in accordance with the provisions of Section 401(k) of the Internal Revenue Code (the Code). The Plan covers substantially all full-time employees of the Company. Participants may contribute up to 90% of their total compensation to the Plan, not to exceed the limit as defined in the Code. Since January 1, 2017, once an employee is eligible to participate in the Plan, the Company will make a non-elective contribution equal to 3% of the employee's total compensation. For the years ended December 31, 2018, 2017 and 2016, the Company contributed $1.2 million, $601,000 and $459,000, respectively, to the Plan.

Defined Benefit Plan

On March 18, 2010, the Compensation Committee and the Board of Directors of the Company approved and adopted the Universal Display Corporation Supplemental Executive Retirement Plan (SERP), effective as of April 1, 2010. On March 3, 2015, the Compensation Committee and the Board of Directors amended the SERP to include salary and bonus as part of the plan. Prior to this amendment, the SERP benefit did not take into account any bonuses. The purpose of the SERP, which is unfunded, is to provide certain of the Company's key employees with supplemental pension benefits following a cessation of their employment. As of December 31, 2018 there were seven participants in the SERP.

The SERP benefit is based on a percentage of the participant's annual base salary and in certain cases, the participant's average annual bonus for the most recent three fiscal years ending prior to the participant's date of termination of employment with the Company for the life of the participant. For this purpose, annual base salary means 12 times the highest monthly base salary paid or payable to the participant during the 24-month period immediately preceding the participant's date of termination of employment, or, if required, the date of a change in control of the Company.

Under the SERP, if a participant resigns or is terminated without cause at or after age 65 and with at least 20 years of service, he or she will be eligible to receive a SERP benefit. The benefit is based on a percentage of the participant's annual base salary and bonus for the life of the participant. This percentage is 50%, 25% or 15%, depending on the participant's benefit class.

If a participant resigns at or after age 65 and with at least 15 years of service, he or she will be eligible to receive a prorated SERP benefit. If a participant is terminated without cause or on account of a disability after at least 15 years of service, he or she will be eligible to receive a prorated SERP benefit regardless of age. The prorated benefit in either case would be based on the participant's number of years of service (up to 20), divided by 20. In the event a participant is terminated for cause, his or her SERP benefit and any future benefit payments are subject to immediate forfeiture.

The SERP benefit is payable in installments over 10 years, beginning at the later of age 65 or the date of the participant's separation from service. Payments are based on a present value calculation of the benefit amount for the actuarial remaining life expectancy of the participant. This calculation is made as of the date benefit payments are to begin (later of age 65 or separation from service). If the participant dies after reaching age 65, any future or remaining benefit payments are made to the participant's beneficiary or estate. If the participant dies before reaching age 65, the benefit is forfeited.

In the event of a change in control of the Company, each participant will become immediately vested in his or her SERP benefit. Unless the participant's benefit has already fully vested, if the participant has less than 20 years of service at the time of the change in control, he or she will receive a prorated benefit based on his or her number of years of service (up to 20), divided by 20. If the change in control qualifies as a "change in control event" for purposes of Section 409A of the Internal Revenue Code, then each participant (including former employees who are entitled to SERP benefits) will receive a lump sum cash payment equal to the present value of the benefit immediately upon the change in control.

Certain of the Company's executive officers are designated as special participants under the SERP. If these participants resign or are terminated without cause after 20 years of service, or at or after age 65 and with at least 15 years of service, they will be eligible to receive a SERP benefit. If they are terminated without cause or on account of a disability, they will be eligible to receive a prorated SERP benefit regardless of age. The prorated benefit would be based on the participant's number of years of service (up to 20), divided by 20.

The SERP benefit for special participants is based on 50% of their annual base salary and bonus for their life and the life of their surviving spouse, if any. Payments are based on a present value calculation of the benefit amount for the actuarial remaining life expectancies of the participant and their surviving spouse, if any. If they die before reaching age 65, the benefit is not forfeited if the surviving spouse, if any, lives until the participant would have reached age 65. If their spouse also dies before the participant would have reached age 65, the benefit is forfeited.

The Company records amounts relating to the SERP based on calculations that incorporate various actuarial and other assumptions, including discount rates, rate of compensation increases, retirement dates, and life expectancies. The net periodic costs are recognized as employees render the services necessary to earn the SERP benefits.

In connection with the initiation and subsequent amendments of the SERP, the Company recorded cost related to prior service of $20.4 million as accumulated other comprehensive loss as of December 31, 2018. The prior service cost is being amortized as a component of net periodic pension cost over the average of the remaining service period of the employees expected to receive benefits under the plan. The prior service cost expected to be amortized for the year ending December 31, 2019 is $3.2 million.

Information relating to the Company's plan is as follows (in thousands):

	Year Ended December 31,	
	2018	2017
Change in benefit obligation:		
Benefit obligation, beginning of year	$33,176	$27,563
Service cost	1,301	1,214
Interest cost	1,047	1,013
Actuarial loss	8,531	2,952
Plan amendment	—	434
Benefit obligation, end of year	44,055	33,176
Fair value of plan assets	—	—
Unfunded status of the plan, end of year	$44,055	$33,176
Current liability	—	—
Noncurrent liability	$44,055	$33,176

The accumulated benefit obligation for the plan was approximately $41.3 million and $30.4 million as of December 31, 2018 and 2017, respectively.

The components of net periodic pension cost were as follows (in thousands):

	Year Ended December 31,		
	2018	2017	2016
Service cost	$1,301	$1,214	$1,415
Interest cost	1,047	1,013	875
Amortization of prior service cost	1,683	1,667	1,660
Amortization of loss	435	457	15
Total net periodic benefit cost	$4,466	$4,351	$3,965

The measurement date is the Company's fiscal year end. The net periodic pension cost is based on assumptions determined at the prior year end measurement date.

Assumptions used to determine the year end benefit obligation were as follows:

	Year Ended December 31,	
	2018	2017
Discount rate	3.82%	3.22%
Rate of compensation increases	3.50%	3.50%

Assumptions used to determine the net periodic pension cost were as follows:

	Year Ended December 31,		
	2018	2017	2016
Discount rate	3.22%	3.41%	3.57%
Rate of compensation increases	3.50%	3.50%	3.50%

Actuarial gains and losses are amortized from accumulated other comprehensive loss into net periodic pension cost over future years based upon the average remaining service period of active plan participants, when the accumulation of such gains or losses exceeds 10% of the year end benefit obligation. The cost or benefit of plan changes that increase or decrease benefits for prior employee service (prior service cost or credit) is included in the Company's results of income on a straight-line basis over the average remaining service period of active plan participants.

The estimated amounts to be amortized from accumulated other comprehensive loss into the net periodic pension cost in 2019 are as follows (in thousands):

Amortization of prior service cost	$1,595
Amortization of loss	1,642
Total	$3,237

Benefit payments, which reflect estimated future service, are currently expected to be paid as follows (in thousands):

Year	Projected

	Benefits
2019	$ —
2020	3,551
2021	3,640
2022	4,122
2023	4,427
2024-2028	25,977
Thereafter	23,647

16. COMMITMENTS AND CONTINGENCIES:

Commitments

Under the 2006 Research Agreement with USC, the Company is obligated to make certain payments to USC based on work performed by USC under that agreement, and by Michigan under its subcontractor agreement with USC. See Note 10 for further explanation.

Under the terms of the 1997 Amended License Agreement, the Company is required to make minimum royalty payments to Princeton. See Note 10 for further explanation.

The Company has agreements with six executive officers and one employee which provide for certain cash and other benefits upon termination of employment of the officer in connection with a change in control of the Company. If the executive’s employment is terminated in connection with the change in control, the executive is entitled to a lump-sum cash payment equal to two times the sum of the average annual base salary and bonus of the officer and immediate vesting of all stock options and other equity awards that may be outstanding at the date of the change in control, among other items.

In order to manage manufacturing lead times and help ensure adequate material supply, the Company entered into a New OLED Materials Agreement (see Note 11) that allows PPG to procure and produce inventory based upon criteria as defined by the Company. These purchase commitments consist of firm, noncancelable and unconditional commitments. In certain instances, this agreement allows the Company the option to reschedule and adjust the Company's requirements based on its business needs prior to firm orders being placed. As of December 31, 2018, 2017 and 2016, the Company had purchase commitments for inventory of $15.9 million, $14.2 million and $5.0 million, respectively.

The Company had lease obligations of $10.9 million for each of the years ended December 31, 2018, 2017 and 2016 .

Patent Related Challenges and Oppositions

Each major jurisdiction in the world that issues patents provides both third parties and applicants an opportunity to seek a further review of an issued patent. The process for requesting and considering such reviews is specific to the jurisdiction that issued the patent in question, and generally does not provide for claims of monetary damages or a review of specific claims of infringement. The conclusions made by the reviewing administrative bodies tend to be appealable and generally are limited in scope and applicability to the specific claims and jurisdiction in question.

The Company believes that opposition proceedings are frequently commenced in the ordinary course of business by third parties who may believe that one or more claims in a patent do not comply with the technical or legal requirements of the specific jurisdiction in which the patent was issued. The Company views these proceedings as reflective of its goal of obtaining the broadest legally permissible patent coverage permitted in each jurisdiction. Once a proceeding is initiated, as a general matter, the issued patent continues to be presumed valid until the jurisdiction's applicable administrative body issues a final non-appealable decision. Depending on the jurisdiction, the outcome of these proceedings could include affirmation, denial or modification of some or all of the originally issued claims. The Company believes that as OLED technology becomes more established and its patent portfolio increases in size, so will the number of these proceedings.

Below are summaries of certain active proceedings that have been commenced against issued patents that are either exclusively licensed to the Company or which are now assigned to the Company. The Company does not believe that the confirmation, loss or modification of the Company's rights in any individual claim or set of claims that are the subject of the following legal proceedings would have a material impact on the Company's materials sales or licensing business or on the Company's consolidated financial statements, including its consolidated statements of income, as a whole. However, as noted within the descriptions, some of the following proceedings involve issued patents that relate to the Company's fundamental phosphorescent OLED technologies and the Company intends to vigorously defend against claims that, in the Company's opinion, seek to restrict or reduce the scope of the originally issued claim, which may require the expenditure of significant amounts of the Company's resources. In certain circumstances, when permitted, the Company may also utilize the proceedings to request modification of the claims to better distinguish the patented invention from any newly identified prior art and/or improve the claim scope of the patent relative to commercially important categories of the invention. The entries marked with an "*" relate to the Company's UniversalPHOLED® phosphorescent OLED technology, some of which may be commercialized by the Company.

Opposition to European Patent No. 1390962

On November 16, 2011, Osram AG and BASF SE each filed a Notice of Opposition to European Patent No. 1390962 (the EP '962 patent), which relates to the Company's white phosphorescent OLED technology. The EP '962 patent, which was issued on February 16, 2011, is a European counterpart patent to U.S. patents 7,009,338 and 7,285,907. They are exclusively licensed to the Company by Princeton, and the Company is required to pay all legal costs and fees associated with this proceeding.

The EPO combined the oppositions into a single opposition proceeding, and a hearing on this matter was held in December 2015, wherein the EPO Opposition Division revoked the patent claims for alleged insufficiencies under EPC Article 83. The Company believes the EPO's decision relating to the original claims is erroneous, and has appealed the decision. Subsequent to the filing of the appeal, BASF withdrew its opposition to the patent. The patent, as originally granted by the EPO, is deemed valid during the pendency of the appeals process.

At this time, based on its current knowledge, the Company believes that the patent being challenged should be declared valid and that all or a significant portion of the Company's claims should be upheld. However, the Company cannot make any assurances of this result.

Opposition to European Patent No. 1933395*

On February 24 and 27, 2012, Sumitomo, Merck Patent GmbH and BASF SE filed oppositions to the Company's European Patent No. 1933395 (the EP '395 patent). The EP ‘395 patent is a counterpart to the EP ‘637 patent, and, in part, to U.S. Patents 7,001,536; 6,902,830; and 6,830,828, and to JP patents 4358168 and 4357781. This patent is exclusively licensed to the Company by Princeton, and the Company is required to pay all legal costs and fees associated with this proceeding.

At an Oral Hearing on October 14, 2013, the EPO panel issued a decision that affirmed the basic invention and broad patent coverage in the EP '395 patent, but narrowed the scope of the original claims.

On February 26, 2014, the Company appealed the ruling to reinstate a broader set of claims. The patent, as originally granted by the EPO, is deemed to be valid during the pendency of an appeals process. Two of the three opponents also filed their own appeals of the ruling. In January 2015, Sumitomo withdrew its opposition of the '395 patent, and the EPO accepted the withdrawal notice. The appeal proceedings were held in the second quarter of 2016. As a result of the proceedings, the board concluded the oral proceedings and proposed to reinstate a broader set of claims pending the resolution of a remaining question of the applicable law, a question that the board has deferred to the Enlarged Board of Appeals for review. In December 2017, the Enlarged Board of Appeals issued a written opinion in which they have generally followed the Company’s reasoning regarding the question of law. The written opinion should be used as guidance by the EPO opposition panel when the oral proceedings are rescheduled. The originally-granted claims remain in force during the pendency of this process.

In addition to the above proceedings and now concluded proceedings which have been referenced in prior filings, from time to time, the Company may have other proceedings that are pending which relate to patents the Company acquired as part of the Fujifilm patent or BASF OLED patent acquisitions or which relate to technologies that are not currently widely utilized in the marketplace.

17. CONCENTRATION OF RISK:

Revenues and accounts receivable from the Company's largest customers for the years ended December 31, were as follows (in thousands):

	2018		2017		2016	
Customer	% of Total Revenue	Accounts Receivable	% of Total Revenue	Accounts Receivable	% of Total Revenue	Accounts Receivable
A	37%	$ 14,419	62%	$ 19,588	63%	$ 12,050
B	33%	11,990	24%	17,348	28%	9,128
C	10%	9,071	6%	10,632	4%	1,427

Revenues from outside of North America represented approximately 94%, 97%, and 98% of the consolidated revenue for the years ended December 31, 2018, 2017 and 2016, respectively. Revenues by geographic area are as follows (in thousands):

	Year Ended December 31,		
Country	2018	2017	2016
South Korea	$171,915	$289,418	$181,771
China	51,931	24,892	7,180
Japan	6,823	8,542	4,310
Other non-U.S. locations	2,967	2,438	1,849
Total non-U.S. locations	233,636	325,290	195,110
United States	13,778	10,339	3,776
Total revenue	$247,414	$335,629	$198,886

The Company attributes revenue to different geographic areas on the basis of the location of the customer.

Long-lived assets (net), by geographic area are as follows (in thousands):

	2018	2017
United States	$64,560	$53,991
Other	5,179	2,459
Total long-lived assets	$69,739	$56,450

Substantially all chemical materials were purchased from one supplier. See Note 11.

18. INCOME TAXES:

The components of income before income taxes are as follows (in thousands):

	Year ended December 31,		
	2018	2017	2016
United States	$13,565	$100,260	$69,595
Foreign	50,746	49,277	(997)
Income before income tax	$64,311	$149,537	$68,598

The components of the income tax expense are as follows (in thousands):

	Year ended December 31,		
	2018	2017	2016
Current income tax expense:			
Federal	$(9,097)	$(5,817)	$(4,485)
State	(511)	(54)	(47)
Foreign	(8,677)	(15,406)	(12,902)
	(18,285)	(21,277)	(17,434)
Deferred income tax (expense) benefit:			
Federal	12,622	(24,425)	(2,683)
State	611	(23)	(503)
Foreign	(419)	73	92
	12,814	(24,375)	(3,094)
Income tax expense	$(5,471)	$(45,652)	$(20,528)

Reconciliation of the statutory U.S. federal tax rate to the Company's effective tax rate is as follows:

	Year ended December 31,		
	2018	2017	2016
Statutory U.S. federal income tax rate	21.0%	35.0%	35.0%
State income taxes, net of federal benefit	(0.2)%	0.0 %	0.5 %
Effect of foreign operations	(4.7)%	(7.1)%	0.9 %
Accruals and reserves	0.0 %	0.1 %	3.2 %
Nondeductible employee compensation	1.7 %	1.5 %	1.5 %
Research tax credits	(2.7)%	(0.7)%	(1.3)%
Change in valuation allowance	0.0 %	(4.1)%	(9.7)%
Stock based compensation	(2.7)%	(1.9)%	0.0 %
U.S. Tax Cuts and Jobs Act	(3.5)%	7.7 %	0.0 %
U.S. International Tax (Sub F, GILTI, FDII)	(1.2)%	0.0 %	0.0 %
Other	0.8 %	0.0 %	(0.2)%
Effective tax rate	8.5 %	30.5%	29.9%

The following table summarizes Company tax loss and tax credit carry forwards for tax return purposes at December 31, 2018 (in thousands):

	Related Tax Deduction	Tax Benefit	Expiration Date
Tax credit carry forwards:			
State research tax credits	n/a	$ 2,893	2026 to 2033
Total credit carry forwards	n/a	$ 2,893	

Significant components of the Company's net deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2018	2017
Deferred tax asset:		
Capitalized technology license	$553	$804
Capitalized research expenditures	4,710	3,719
Accruals and reserves	2,890	962
Retirement plan	9,570	7,125
Deferred revenue	12,028	206
Tax credit carry forwards	2,895	21,562
Stock-based compensation	1,701	1,819
Other	47	59
	34,394	36,256
Valuation allowance	(2,893)	(2,460)
Deferred tax assets	31,501	33,796
Deferred tax liability:		
Accruals and reserves	(7,124)	(6,774)
Deferred tax liabilities	(7,124)	(6,774)
Net deferred tax assets	$24,377	$27,022

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent on the Company's ability to generate future taxable income to obtain benefit from the reversal of temporary differences, net operating loss carryforwards and tax credits. As part of its assessment, management considers the scheduled reversal of deferred tax liabilities, projected future taxable income, and tax planning strategies. At this time there is no evidence to release the valuation allowance that relates to the New Jersey research and development credit.

On December 27, 2018 the Korean Supreme Court, citing prior cases, held that the applicable law and interpretation of the Korea-US Tax Treaty were clear that only royalties paid with respect to Korean registered patents are Korean source income and subject to Korean withholding tax. Based on this recent decision, the Company has decided to immediately litigate the Korean withholding on the 2018 royalty payments while continuing the US- Korean Mutual Agreement Procedure (MAP) for the years 2011 through 2017.

UDC has engaged a leading Korean law firm to litigate the 2018 withholding and has been advised that there is a more-likely-than-not chance of success. As a result, UDC has recorded a long-term asset of $13.6 million representing the allocation of withholding to non-Korean patents and a tax expense of $1.3 million representing an allocation of withholding to Korean registered patents.

With respect to the Korean withholding for the years 2011 through 2017, UDI has decided to continue the MAP which was accepted by the Korean National Tax Service on September 15, 2017. The Company believes that it is more-likely-than-not that a favorable settlement will be reached resulting in a reduction of the Korean withholding taxes previously withheld since 2011. A long-term receivable of $36.9 million for estimated refunds due from the Korean government, a long-term payable of $16.2 million for estimated amounts due to the U.S. Federal government based on amendment of prior year U.S. tax returns for the lower withholding amounts, and a reduction of deferred tax assets for foreign tax credits and R&D credits of $20.7 million has been recorded on the December 31, 2018 balance sheet for this matter.

On October 30, 2018, the Korean National Tax Service (KNTS) concluded a tax audit with LG Display (LGD) that included the licensing and royalty payments made to UDI during the years 2015 through 2017. KNTS questioned

whether UDI was the beneficial owner of these payments and assessed UDI a charge of $13.2 million for withholding and interest for the three-year period. UDI has engaged a leading Korean law firm which believes it is more-likely-than-not that UDI has beneficial ownership of the underlining intellectual property. As a result, a petition has been filed with the Tax Tribunal. Based on this authority, UDI has paid the assessment which is recorded as a long-term asset as of December 31, 2018. The above estimates may change in the future and ultimately upon settlement of these uncertain tax positions.

For the years ended December 31, 2018, 2017 and 2016, the Company has incurred Korean withholding tax of $14.9 million, $17.6 million and $14.4 million, respectively; which is currently being appealed based on the interpretation of the Korean – U. S. tax treaty and recent Korean Supreme Court decisions.

The Company's 2013 federal income tax return was audited by the Internal Revenue Services with no change; the years 2014 to 2016 are open and subject to examination. The state and foreign tax returns are open for a period of generally three to four years.

19. REVENUE RECOGNITION:
Adoption of ASC Topic 606, "Revenue from Contracts with Customers"

The Company adopted the standard beginning January 1, 2018 using the "modified retrospective" approach, meaning the standard was applied only to the most current period presented in the financial statements, with a cumulative adjustment to retained earnings. Under this transition method, the Company elected to apply ASC Topic 606 only to contracts that were not complete at the initial adoption date.

The new standard impacts how the Company recognizes revenue on its commercial license and material supply agreements with customers. Previously, the Company recognized license fees on a straight-line basis or as received from the customer, and royalty revenue one quarter in arrears based on sales information received from its customers typically received after disclosing that quarter's results. Under the new standard, total contract consideration is estimated and recognized over the contract term based on material units sold at its estimated per unit fee. Total contract consideration includes fixed amounts designated in contracts with customers as license fees as well as estimates of material fees and royalties to be earned.

Adoption of the new standard resulted in an increase in deferred revenue of $21.3 million offset by a reduction of retained earnings of $17.1 million, net of tax of $3.9 million, and unbilled receivables of $0.3 million as of January 1, 2018. The impact of the new standard to revenue for the year ended December 31, 2018 was a decrease of $78.9 million from the amount that would have been reported under the prior accounting standard. The following tables summarize the impacts of adopting Topic 606 on the Company's consolidated financial statements for the year ended December 31, 2018.

i. Consolidated Balance Sheet (in thousands)

		Impact of changes in accounting policies	
December 31, 2018	As reported	Adjustment	Balances without adoption of Topic 606
ASSETS			
Other assets (current and non-current)	$70,892	$ —	$70,892
Deferred income taxes	24,377	(11,153)	13,224
TOTAL ASSETS	933,424	(11,153)	922,271
LIABILITIES AND SHAREHOLDERS' EQUITY			
Deferred revenue (current and non-current)	122,567	(99,885)	22,682
Retained earnings	129,552	88,732	218,284
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	933,424	(11,153)	922,271

ii. Consolidated Statements of Income (in thousands)

	Impact of changes in accounting policies		
Year Ended December 31, 2018	As reported	Adjustment	Balances without adoption of Topic 606
REVENUE	$247,414	$ 78,885	$326,299
Gross margin	193,873	78,885	272,758
OPERATING INCOME	56,735	78,885	135,620
INCOME BEFORE INCOME TAXES	64,311	78,885	143,196
INCOME TAX EXPENSE	(5,471)	(7,252)	(12,723)
NET INCOME	58,840	71,633	130,473

iii. Consolidated Statement of Cash Flows (in thousands)

	Impact of changes in accounting policies		
Year Ended December 31, 2018	As reported	Adjustment	Balances without adoption of Topic 606
Net income	$58,840	$ 71,633	$130,473
Amortization of deferred revenue and recognition of unbilled receivables	(68,905)	(81,991)	(150,896)
Deferred income tax expense	(12,814)	10,358	(2,456)
Other assets (current and non-current)	(59,062)	—	(59,062)
CASH FLOW FROM OPERATING ACTIVITIES	121,796	—	121,796

For the years ended December 31, 2018, 2017 and 2016, the Company recorded 95%, 97% and 98% of its revenue from sales of materials and 5%, 3% and 2% from the providing of services through Adesis, respectively.

The rights and benefits to the Company's OLED technology are conveyed to the customer through technology license agreements and material supply agreements. The Company believes that the licenses and materials sold under these combined agreements are not distinct from each other for financial reporting purposes and as such, are accounted for as a single performance obligation. Accordingly, total contract consideration, including material, license and royalty fees, is estimated and recognized over the contract term based on material units sold at the estimated per unit fee over the life of the contract.

Various estimates are relied upon to recognize revenue. The Company estimates total material units to be purchased by its customers over the contract term based on historical trends, industry estimates and its forecast process. Additionally, management estimates the total sales-based royalties based on the estimated net sales revenue of its customers over the contract term. Management is using the expected value method to estimate the material per unit fee.

Contract Balances

The following table provides information about assets and liabilities associated with our contracts from customers (in thousands):

	As of December 31, 2018
Accounts receivable	$ 43,129
Short-term unbilled receivables	1,020
Long-term unbilled receivables	—
Short-term deferred revenue	80,782
Long-term deferred revenue	41,785

Short-term and long-term unbilled receivables are classified as other current assets and other assets, respectively, on the Consolidated Balance Sheet. The deferred revenue balance at December 31, 2018 will be recognized as materials are shipped to customers over the remaining contract periods. The significant customer contracts (individually representing greater than 10% of revenue) expire in 2022. As of December 31, 2018, the Company had $13.1 million of backlog associated with committed purchase orders from its customers for phosphorescent emitter material. These orders are anticipated to be fulfilled within the next 90 days.

Significant changes in the unbilled receivables and deferred liabilities balances during the period are as follows (in thousands):

	Year Ended December 31, 2018	
	Unbilled Receivables	Deferred Revenue
	Increase (Decrease)	(Increase) Decrease
Balance at December 31, 2017	$70	$(38,883)
Adoption of revenue standard on January 1, 2018	307	(21,307)
Adjusted balance on January 1, 2018	377	(60,190)
Revenue recognized that was previously included in deferred revenue	—	64,562
Increases due to cash received	—	(130,639)
Cumulative catch-up adjustment arising from changes in estimates of transaction price	—	3,700
Unbilled receivables recognized	2,024	—
Transferred to receivables from unbilled receivables	(1,381)	—
Net change	643	(62,377)
Balance at December 31, 2018	$1,020	$(122,567)

20. NET INCOME PER COMMON SHARE:

The Company computes earnings per share in accordance with ASC Topic 260, Earnings per Share ("ASC 260"), which requires earnings per share for each class of stock to be calculated using the two-class method. The two-class method is an allocation of income between the holders of common stock and the Company's participating security holders. Under the two-class method, income for the reporting period is allocated between common shareholders and other security holders based on their respective participation rights in undistributed income. Unvested share-based payment awards that contain non-forfeitable rights to dividends or dividend equivalents are participating securities and, therefore, are included in computing earnings per share pursuant to the two-class method.

Basic net income per common share is computed by dividing net income allocated to common shareholders by the weighted-average number of shares of common stock outstanding for the period excluding unvested restricted stock units and performance units. Net income allocated to the holders of the Company's unvested restricted stock awards is calculated based on the shareholders proportionate share of weighted average shares of common stock outstanding on an if-converted basis.

For purposes of determining diluted net income per common share, basic net income per share is further adjusted to include the effect of potential dilutive common shares outstanding, including stock options, restricted stock units and performance units, and the impact of shares to be issued under the ESPP.

The following table is a reconciliation of net income and the shares used in calculating basic and diluted net income per common share for the year ended December 31, 2018, 2017 and 2016 (in thousands, except share and per share data):

	Year Ended December 31,		
	2018	2017	2015
Numerator:			
Net income	$58,840	103,885	48,070
Adjustment for Basic EPS:			
Earnings allocated to unvested shareholders	$(690)	(1,638)	(734)
Adjusted net income	$58,150	102,247	47,336
Denominator:			
Weighted average common shares outstanding – Basic	46,849,588	46,725,289	46,408,460
Effect of dilutive shares:			
Common stock equivalents arising from stock options and ESPP	1,956	2,611	5,398
Restricted stock awards and units and performance units	45,222	77,294	122,122
Weighted average common shares outstanding – Diluted	46,896,766	46,805,194	46,535,980
Net income per common share:			
Basic	$1.24	$2.19	$1.02
Diluted	$1.24	$2.18	$1.02

For the year ended December 31, 2018, 2017, and 2016, the combined effects of unvested restricted stock awards, restricted stock units, performance unit awards and stock options of 4,414, none and 2,981, respectively, were excluded from the calculation of diluted EPS as their impact would have been antidilutive.

21. QUARTERLY SUPPLEMENTAL FINANCIAL DATA (UNAUDITED):

The following tables present certain unaudited consolidated quarterly financial information for each of the eight quarters in the two-year period ended December 31, 2018. In the opinion of Company management, this quarterly information has been prepared on the same basis as the consolidated financial statements and includes all adjustments (consisting of only normal recurring adjustments) necessary to present fairly the information for the periods presented. The results of operations for any quarter are not necessarily indicative of the results for the full year or for any future period.

Presented below is a summary of the unaudited quarterly financial information for the year ended December 31, 2018 (in thousands, except per share data):

	Three Months Ended				
	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	Total
Revenue	$43,572	$56,149	$ 77,550	$ 70,143	$247,414
Net income	$5,959	$10,814	$ 22,818	$ 19,249	$58,840
Net income per common share:					
Basic	$0.13	$0.23	$ 0.48	$ 0.40	$1.24
Diluted	$0.13	$0.23	$ 0.48	$ 0.40	$1.24

Presented below is a summary of the unaudited quarterly financial information for the year ended December 31, 2017 (in thousands, except per share data):

	Three Months Ended				
	March 31, 2017	June 30, 2017 (1)	September 30, 2017	December 31, 2017 (1) (2)	Total
Revenue	$55,566	$102,513	$ 61,683	$115,867	$335,629
Net income	$10,365	$47,187	$ 13,520	$32,813	$103,885
Net income per common share:					
Basic	$0.22	$0.99	$ 0.28	$0.70	$2.19
Diluted	$0.22	$0.99	$ 0.28	$0.69	$2.18

(1) Prior to the adoption of ASC 606 on January 1, 2018, the Company recorded as revenue the receipt of the semi-annual license fee payment of $45.0 million from SDC in the second and fourth quarters.

(2) The enactment of the Tax Cuts and Jobs Act in December 2017 resulted in a one-time charge of $11.5 million in the fourth quarter.

Per share amounts for each quarter have been calculated separately. Accordingly, quarterly amounts may not add to annual amounts.

22. SUBSEQUENT EVENTS:

In January 2019, the Company closed on the purchase of an additional property in Ewing, New Jersey, adjacent to its corporate headquarters, as part of its plans to expand operations. The Company is also planning to close on the purchase of additional property by the end of the first quarter of 2019. When the purchases are complete, the new facilities will add approximately 88,000 square feet at a cost of approximately $8.0 million. The new facilities will initially allow for expansion in the areas of research and development and manufacturing logistics.