IPG PHOTONICS CORP
Form 10-Q
August 08, 2017
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

ý QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended June 30, 2017
OR
¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Commission File Number 001-33155
IPG PHOTONICS CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	04-3444218
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
50 Old Webster Road, Oxford, Massachusetts	01540
(Address of principal executive offices)	(Zip code)

(508) 373-1100
(Registrant’s telephone number, including area code)

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 ý NO ¨

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 ý NO ¨

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

Large Accelerated Filer	ý	Accelerated Filer	¨
Non-Accelerated Filer	¨	Smaller Reporting Company	¨

Emerging Growth Company ¨

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).   YES ¨   NO ý

As of August 7, 2017, there were 53,825,548 shares of the registrant's common stock issued and outstanding.

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PART I-FINANCIAL INFORMATION
ITEM 1. UNAUDITED INTERIM FINANCIAL STATEMENTS
IPG PHOTONICS CORPORATION
CONSOLIDATED BALANCE SHEETS

	June 30, 2017	December 31, 2016
	(In thousands, except share and per share data)	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$808,111	$623,855
Short-term investments	122,304	206,779
Accounts receivable, net	237,332	155,901
Inventories	260,661	239,010
Prepaid income taxes	37,912	34,128
Prepaid expenses and other current assets	44,454	41,289
Total current assets	1,510,774	1,300,962
DEFERRED INCOME TAXES, NET	47,843	42,442
GOODWILL	28,728	19,828
INTANGIBLE ASSETS, NET	32,294	28,789
PROPERTY, PLANT AND EQUIPMENT, NET	389,853	379,375
OTHER ASSETS	21,050	18,603
TOTAL	$2,030,542	$1,789,999
LIABILITIES AND EQUITY		
CURRENT LIABILITIES:		
Current portion of long-term debt	$1,188	$3,188
Accounts payable	28,996	28,048
Accrued expenses and other liabilities	116,499	102,485
Income taxes payable	10,102	24,554
Total current liabilities	156,785	158,275
DEFERRED INCOME TAXES AND OTHER LONG-TERM LIABILITIES	48,025	36,365
LONG-TERM DEBT, NET OF CURRENT PORTION	21,375	37,635
Total liabilities	226,185	232,275
COMMITMENTS AND CONTINGENCIES (NOTE 12)		
IPG PHOTONICS CORPORATION EQUITY:		
Common stock, $0.0001 par value, 175,000,000 shares authorized; 53,793,622 and 53,492,316 shares issued and outstanding, respectively, at June 30, 2017; 53,354,579 and 53,251,805 shares issued and outstanding, respectively, at December 31, 2016	5	5
Treasury stock, at cost (301,306 and 102,774 shares held)	(33,058)	(8,946)
Additional paid-in capital	681,263	650,974
Retained earnings	1,275,314	1,094,108
Accumulated other comprehensive loss	(119,167)	(178,583)
Total IPG Photonics Corporation equity	1,804,357	1,557,558
NONCONTROLLING INTERESTS	—	166
Total equity	1,804,357	1,557,724
TOTAL	$2,030,542	$1,789,999

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF INCOME

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
	(in thousands, except per share data)			
NET SALES	$369,373	$252,787	$655,219	$460,035
COST OF SALES	163,077	115,084	291,656	207,921
GROSS PROFIT	206,296	137,703	363,563	252,114
OPERATING EXPENSES:				
Sales and marketing	12,136	9,689	22,963	17,723
Research and development	25,960	18,412	48,740	35,901
General and administrative	19,875	16,151	37,601	30,052
Loss (gain) on foreign exchange	7,183	(1,556)	11,636	3,411
Total operating expenses	65,154	42,696	120,940	87,087
OPERATING INCOME	141,142	95,007	242,623	165,027
OTHER INCOME (EXPENSE), Net:				
Interest income, net	468	270	776	462
Other income (expense), net	23	141	(506)	148
Total other income (expense)	491	411	270	610
INCOME BEFORE PROVISION FOR INCOME TAXES	141,633	95,418	242,893	165,637
PROVISION FOR INCOME TAXES	(37,530)	(28,387)	(63,858)	(49,277)
NET INCOME	104,103	67,031	179,035	116,360
LESS: NET LOSS ATTRIBUTABLE TO NONCONTROLLING INTERESTS	(13)	(27)	(26)	(25)
NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION	$104,116	$67,058	$179,061	$116,385
NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION PER SHARE:				
Basic	$1.95	$1.26	$3.35	$2.20
Diluted	$1.91	$1.25	$3.29	$2.17
WEIGHTED AVERAGE SHARES OUTSTANDING:				
Basic	53,380	53,065	53,403	52,981
Diluted	54,471	53,788	54,450	53,705

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
	(In thousands)			
Net income	$104,103	$67,031	$179,035	$116,360
Other comprehensive income, net of tax:				
Translation adjustments	32,522	(3,615)	59,221	24,880
Unrealized (loss) gain on derivatives	(30)	151	(46)	151
Loss on available-for-sale investments, net of tax reclassified to net income	—	—	298	—
Total other comprehensive loss	32,492	(3,464)	59,473	25,031
Comprehensive income	136,595	63,567	238,508	141,391
Comprehensive loss attributable to noncontrolling interest	(37)	(19)	(26)	(13)
Comprehensive income attributable to IPG Photonics Corporation	$136,632	$63,586	$238,534	$141,404

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Six Months Ended June 30,	
	2017	2016
	(In thousands)	
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$179,035	$116,360
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	29,714	23,653
Deferred income taxes	4,533	(9,268)
Stock-based compensation	11,059	10,436
Unrealized (gains) losses on foreign currency transactions	5,538	2,240
Other	688	294
Provisions for inventory, warranty & bad debt	22,754	20,459
Changes in assets and liabilities that (used) provided cash:		
Accounts receivable	(73,634)	2,885
Inventories	(25,820)	(34,668)
Prepaid expenses and other current assets	(2,768)	(652)
Accounts payable	1,914	(8,441)
Accrued expenses and other liabilities	2,102	(4,341)
Income and other taxes payable	(22,013)	(10,653)
Net cash provided by operating activities	133,102	108,304
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of and deposits on property, plant and equipment	(43,632)	(70,863)
Proceeds from sales of property, plant and equipment	15,284	184
Purchases of short-term investments	(71,244)	(62,211)
Proceeds from short-term investments	156,171	41,720
Acquisition of businesses, net of cash acquired	(11,307)	(46,527)
Other	(568)	72
Net cash provided by (used in) investing activities	44,704	(137,625)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from line-of-credit facilities	6,761	4,002
Payments on line-of-credit facilities	(6,761)	(4,002)
Purchase of noncontrolling interests	(197)	(950)
Proceeds on long-term borrowings	—	23,750
Principal payments on long-term borrowings	(18,260)	(1,000)
Proceeds from issuance of common stock under employee stock option and purchase plans less payments for taxes related to net share settlement of equity awards	17,152	8,579
Purchase of treasury stock, at cost	(24,112)	—
Net cash (used in) provided by financing activities	(25,417)	30,379
EFFECT OF CHANGES IN EXCHANGE RATES ON CASH AND CASH EQUIVALENTS	31,867	3,696
NET INCREASE IN CASH AND CASH EQUIVALENTS	184,256	4,754
CASH AND CASH EQUIVALENTS — Beginning of period	623,855	582,532
CASH AND CASH EQUIVALENTS — End of period	$808,111	$587,286
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:		
Cash paid for interest	$975	$349
Cash paid for income taxes	$80,956	$66,478
Non-cash transactions:		

Demonstration units transferred from inventory to other assets	$1,845	$1,746
Inventory transferred to machinery and equipment	$1,531	$1,129
(Reductions) additions to property, plant and equipment included in accounts payable	$(1,892)	$806

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF EQUITY

	Six Months Ended June 30,			
	2017		2016	
	(In thousands, except share and per share data)			
	Shares	Amount	Shares	Amount
COMMON STOCK				
Balance, beginning of year	53,251,805	$5	52,883,902	$5
Exercise of stock options	419,161	—	244,895	—
Common stock issued under employee stock purchase plan	19,882	—	19,015	—
Purchased common stock	(198,532)	—	—	—
Balance, end of period	53,492,316	5	53,147,812	5
TREASURY STOCK				
Balance, beginning of year	(102,774)	(8,946)	—	—
Purchased treasury stock	(198,532)	(24,112)	—	—
Balance, end of period	(301,306)	(33,058)	—	—
ADDITIONAL PAID-IN CAPITAL				
Balance, beginning of year		650,974		607,649
Stock-based compensation		11,059		10,436
Proceeds from issuance of common stock under employee stock option plan less payments for taxes related to net share settlement of equity awards		15,483		10,316
Proceeds from issuance of common stock issued under employee stock purchase plan		1,669		1,293
Effect of adopted accounting standards		2,078		—
Balance, end of period		681,263		629,694
RETAINED EARNINGS				
Balance, beginning of year		1,094,108		833,356
Net income attributable to IPG Photonics Corporation		179,061		116,385
Effect of adopted accounting standards		2,145		—
Balance, end of period		1,275,314		949,741
ACCUMULATED OTHER COMPREHENSIVE LOSS				
Balance, beginning of year		(178,583)		(181,482)
Translation adjustments		59,164		24,880
Change in unrealized (loss) gain on derivatives, net of tax		(46)		151
Unrealized loss on available-for-sale investments, net of tax		(240)		—
Realized loss on available-for-sale investments, net of tax, reclassified to net income		538		—
Balance, end of period		(119,167)		(156,451)
TOTAL IPG PHOTONICS CORPORATION EQUITY		$1,804,357		$1,422,989
NONCONTROLLING INTERESTS ("NCI")				
Balance, beginning of year		166		1,137
Purchase of NCI		(197)		(950)
Net loss attributable to NCI		(26)		(25)
Other comprehensive income attributable to NCI		57		12
Balance, end of period		—		174
TOTAL EQUITY		$1,804,357		$1,423,163

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except share and per share data)

1. BASIS OF PRESENTATION

The accompanying unaudited consolidated financial statements have been prepared by IPG Photonics Corporation, or "IPG", "its" or the "Company". Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America have been condensed or omitted pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"). The consolidated financial statements include the Company's accounts and those of its subsidiaries. All intercompany balances have been eliminated in consolidation. These consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto in the Company's Annual Report on Form 10-K for the year ended December 31, 2016.

In the opinion of the Company's management, the unaudited financial information for the interim periods presented reflects all adjustments necessary for a fair presentation of the Company's financial position, results of operations and cash flows. The results reported in these consolidated financial statements are not necessarily indicative of results that may be expected for the entire year.

The Company has evaluated subsequent events through the time of filing this Quarterly Report on Form 10-Q with the SEC.

2. RECENT ACCOUNTING PRONOUNCEMENTS

Adoption of New Accounting Pronouncement

In January 2017, the FASB issued ASU No. 2017-01, "Business Combinations (Topic 805)" ("ASU 2017-01"). ASU 2017-01 revises the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. ASU 2017-01 is effective for public companies for annual reporting periods beginning after December 15, 2017, and interim reporting periods within such period. The amendments should be applied prospectively on or after the effective date. No disclosures are required at transition. Early application generally is allowed for transactions that have not been reported in financial statements which have been issued or made available for issuance. The Company has elected to early adopt this standard, and it did not have a material effect on its consolidated financial statements upon adoption.

Recently Issued Accounting Pronouncements

In May 2017, the FASB issued ASU No. 2017-09, "Scope of Modification Accounting" ("ASU 2017-09"). ASU 2017-09 amends ASC Topic 718 to better define what constitutes a modification of a share-based payment award by defining criteria that must be met for changes to a share-based payment award to not qualify as a modification. Changes to a share-based payment award must be accounted for as a modification under ASC Topic 718 unless all the newly defined criteria are met. ASU 2017-09 is effective for fiscal years beginning after December 15, 2017, which would be the Company's fiscal year ending December 31, 2018. The Company is currently evaluating the potential impact that the standard will have on its consolidated financial statements upon adoption.

In February 2017, the FASB issued ASU No. 2017-05, "Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets (Subtopic 610-20)" ("ASU 2017-05"). ASU 2017-05 was issued in conjunction with ASU No. 2014-09, "Revenue from Contracts with Customers" ("ASU 2014-09"), to clarify guidance for recognizing gains and losses from the transfer of nonfinancial assets in contracts with non-customers. The new guidance clarifies what constitutes an "in substance nonfinancial asset" and changes the accounting for partial sales of nonfinancial assets to be more consistent with the accounting for a sale of a business. The amendments should be applied at the same time as those in ASU 2014-09 with interim and annual reporting periods beginning after December 15, 2017, which would be the Company's fiscal year ending December 31, 2018. The Company is currently evaluating the potential impact that the standard will have on its consolidated financial statements upon adoption.

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles—Goodwill and Other (Topic 350)" ("ASU 2017-04"). ASU 2017-04 simplifies the accounting for goodwill impairments by eliminating step 2 from the goodwill impairment

test. ASU 2017-04 is effective for public companies for annual reporting periods beginning after December 15, 2020, and interim reporting periods within such period. The amendments should be applied prospectively on or after the effective date and require a disclosure as to the nature of and reason for the change in accounting principle upon transition. Early adoption is allowed for

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all entities as of January 1, 2017, for annual and any interim impairment tests occurring after January 1, 2017. The Company is currently evaluating the potential impact that the standard will have on its consolidated financial statements upon adoption.

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"). ASU 2016-16 eliminates the current exception that prohibits the recognition of current and deferred income tax consequences for intra-entity asset transfers (other than inventory) until the asset has been sold to an outside party. The amendments will be applied on a modified retrospective basis through a cumulative effect adjustment to retained earnings. Deferred tax assets should be assessed to determine if realizable. Disclosures will be required for the (i) reason for and notice of change, (ii) effect of change on income from continuing operations and (iii) cumulative effect of change on retained earnings. Public entities will apply these changes in annual reporting periods beginning after December 15, 2017, and interim reporting periods within such period. Early adoption is permitted. The Company is continuing to evaluate the standard but does not expect that it will have a material effect on its consolidated financial statements upon adoption.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)" ("ASU 2016-02"). ASU 2016-02 requires a lessee to recognize assets and liabilities on the balance sheet for leases with lease terms greater than twelve months. ASU 2016-02 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018, and early adoption is permitted. The Company is continuing to evaluate the standard but does not expect that it will have a material effect on its consolidated financial statements upon adoption.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities" ("ASU 2016-01"). ASU 2016-01 addresses certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. ASU 2016-01 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017, and early adoption is not permitted. The Company is currently evaluating the impact that the standard will have but does not expect it to have a material effect on its consolidated financial statements upon adoption.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" ("ASU 2014-09"). ASU 2014-09 supersedes the revenue recognition requirements in "Revenue Recognition (Topic 605)" and requires entities to recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. In August 2015, the FASB issued ASU No. 2015-14 "Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date," which defers the effective date of ASU 2014-09 one year to interim and annual reporting periods beginning after December 15, 2017, which would be the Company's fiscal year ending December 31, 2018. In May 2016, the FASB also issued ASU 2016-12, "Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients," to provide additional clarification of accounting for collections of sales taxes as well as recognition of revenue (i) associated with contract modifications, (ii) for noncash consideration, and (iii) based on the collectability of the consideration from the customer. The guidance also specifies when a contract should be considered "completed" for purposes of applying the transition guidance. The Company has completed an initial assessment of the new guidance and is in the process of completing documentation of this assessment. The Company does not expect the standard will have a material impact on the amount and timing of revenue recognized in the Company's consolidated financial statements. The Company has elected to use the modified retrospective application approach for transition to the new standard.

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IPG PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

3. INVENTORIES

Inventories consist of the following:

	June 30, 2017	December 31, 2016
Components and raw materials	$116,399	$93,284
Work-in-process	26,755	44,723
Finished components and devices	117,507	101,003
Total	$260,661	$239,010

The Company recorded inventory provisions totaling $5,435 and $5,772 for the three months ended June 30, 2017 and 2016, respectively, and $9,406 and $9,725 for the six months ended June 30, 2017 and 2016, respectively. These provisions relate to the recoverability of the value of inventories due to technological changes and excess quantities. These provisions are reported as a reduction to components and raw materials and finished components and devices.

4. ACCRUED EXPENSES AND OTHER LIABILITIES

Accrued expenses and other liabilities consist of the following:

	June 30, 2017	December 31, 2016
Accrued compensation	$43,352	$43,761
Customer deposits and deferred revenue	44,705	34,571
Current portion of accrued warranty	18,411	15,711
Other	10,031	8,442
Total	$116,499	$102,485

5. FINANCING ARRANGEMENTS

The Company's borrowings under existing financing arrangements consist of the following:

	June 30, 2017	December 31, 2016
Term debt:		
Long-term notes	$22,563	$40,823
Less: current portion	(1,188)	(3,188)
Total long-term debt	$21,375	$37,635

At June 30, 2017, the amount due on the Company's unsecured long-term note was $22,563 of which $1,188 is the current portion. The interest on this unsecured note is variable at 1.20% above the LIBOR rate and is fixed using an interest rate swap at 2.85% per annum. The unsecured note matures in May 2023, at which time the outstanding debt balance will be $15,438. The long-term note secured by the Company's corporate aircraft was repaid in the second quarter of 2017 when the Company sold the aircraft.

The Company also maintains U.S. and Euro lines-of-credit which are available to certain foreign subsidiaries and allow for borrowings in the local currencies of those subsidiaries. At June 30, 2017 and December 31, 2016, there were no amounts drawn on the U.S. line-of-credit, and there were $109 and $2,828, respectively, of guarantees issued against the facility which reduces the amount of the facility available to draw. At June 30, 2017 and December 31, 2016, there were no amounts drawn on the Euro lines-of-credit, and there were $11,112 and $8,221, respectively, of guarantees issued against those facilities which reduces the amount available to draw providing for total unused credit lines and overdraft facilities of $75,332 at June 30, 2017.

Subsequent to June 30, 2017, the Company entered into a new Euro credit facility, which replaced an expiring credit facility and increased the available line-of-credit to Euro 50,000 from Euro 30,000 and closed on the purchase of a corporate aircraft for $28,000 that replaced the previous aircraft sold during the second quarter of 2017. The Company financed the entire purchase with proceeds from borrowing on a new long-term note that is secured by the aircraft with a fixed interest rate of 2.75% that matures in July 2022, at which time the outstanding debt balance will be $15,375.

6. NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION PER SHARE

The following table sets forth the computation of diluted net income attributable to IPG Photonics Corporation per share:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
Net income attributable to IPG Photonics Corporation	$ 104,116	$ 67,058	$ 179,061	$ 116,385
Weighted average shares	53,380	53,065	53,403	52,981
Dilutive effect of common stock equivalents	1,091	723	1,047	724
Diluted weighted average common shares	54,471	53,788	54,450	53,705
Basic net income attributable to IPG Photonics Corporation per share	$ 1.95	$ 1.26	$ 3.35	$ 2.20
Diluted net income attributable to IPG Photonics Corporation per share	$ 1.91	$ 1.25	$ 3.29	$ 2.17

For the three months ended June 30, 2017 and 2016, respectively, the computation of diluted weighted average common shares excludes of 45,900 and 59,000 common stock equivalents which include 6,400 and 11,000 restricted stock units ("RSUs") and 200 and 0 performance stock units ("PSUs"), respectively. For the six months ended June 30, 2017 and 2016, it excludes 95,400 and 95,100 common stock equivalents which include 23,200 and 31,300 RSUs and 8,100 and 6,400 PSUs, respectively, because the effect of including them would be anti-dilutive.

Under ASU 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting" ("ASU 2016-09"), excess tax benefits and deficiencies as a result of stock option exercises and release of RSUs upon vesting are to be recognized as discrete items within income tax expense or benefit in the consolidated statements of comprehensive income in the reporting period in which they occur. The Company recognized excess tax benefits from stock award exercises and restricted stock unit vesting as a discrete tax benefit, which reduced the provision for income taxes for the three months ended June 30, 2017 by $3,394 and for the six months ended June 30, 2017 by $7,524. The adoption of ASU 2016-09 also increased the calculation of fully diluted shares outstanding for the three months ended June 30, 2017, by 238,917 shares and for six months ended June 30, 2017, by 210,776 shares.

On July 28, 2016, the Company announced that its Board of Directors authorized a share repurchase program (the "Program") to mitigate the dilutive impact of shares issued upon exercise or release under the Company's various employee and director equity compensation and employee stock purchase plans. Under the Program, the Company's management is authorized to repurchase shares of common stock in an amount not to exceed the number of shares issued to employees and directors under its various employee and director equity compensation and employee stock purchase plans from January 1, 2016 through December 31, 2017. The Program limits aggregate share repurchases to no more than $100,000 over a period ending June 30, 2018.

For the three months ended June 30, 2017, the Company repurchased 90,832 shares of its common stock with an average price of $127.41 per share in the open market. Also, for the six months ended June 30, 2017, the Company repurchased 198,532 shares of its common stock with an average price of $121.45 per share in the open market. The impact on the reduction of weighted average shares for the three months ended June 30, 2017 was 59,256 shares and for the six months ended June 30, 2017 was 99,421 shares. As the Program was announced in July 2016, there were no repurchases made by the Company for the three months ended June 30, 2016 or six months ended June 30, 2016.

7. DERIVATIVE FINANCIAL INSTRUMENTS

Derivative instruments – The Company's primary market exposures are to interest rates and foreign exchange rates. The Company uses certain derivative financial instruments to help manage these exposures. The Company executes these instruments with financial institutions it judges to be credit-worthy. The Company does not hold or issue derivative financial instruments for trading or speculative purposes.

The Company recognizes all derivative financial instruments as either assets or liabilities at fair value in the consolidated balance sheets. The Company has no derivatives that are not accounted for as a hedging instrument.

Cash flow hedges – The Company entered into a cash flow hedge which is an interest rate swap associated with a long-term note issued during the second quarter of 2016 that will terminate with the long-term note in May 2023. The fair value amounts in the consolidated balance sheet related to the interest rate swap were:

Notional Amounts[1]		Other Assets		Other Long-Term Liabilities	
June 30, 2017	December 31, 2016	June 30, 2017	December 31, 2016	June 30, 2017	December 31, 2016
$22,563	$ 23,156	$37	$ 77	$ —	$ —

(1) Notional amounts represent the gross contract/notional amount of the derivatives outstanding.

The derivative gains and losses in the consolidated statements of income related to the Company's interest rate swap contracts were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
Effective portion recognized in other comprehensive income, pretax:				
Interest rate swap	$(13)	$239	$(40)	$239
Effective portion reclassified from other comprehensive income to interest expense, pretax:				
Interest rate swap	$—	$—	$—	$—
Ineffective portion recognized in income:				
Interest rate swap	$—	$—	$—	$—

8. FAIR VALUE MEASUREMENTS

The Company's financial instruments consist of cash equivalents, short-term investments, accounts receivable, auction rate securities, accounts payable, drawings on revolving lines of credit, long-term debt, contingent purchase consideration and interest rate swaps.

The valuation techniques used to measure fair value are based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect internal market assumptions. These two types of inputs create the following fair value hierarchy: Level 1, defined as observable inputs such as quoted prices for identical instruments in active markets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs for which little or no market data exists, therefore requiring an entity to develop its own assumptions.

The carrying amounts of cash equivalents, short-term investments, accounts receivable, accounts payable and drawings on revolving lines of credit are considered reasonable estimates of their fair market value due to their short maturities. At June 30, 2017, the Company's long-term notes consisted entirely of a variable rate note, accordingly, the book value of the long-term note is considered a reasonable estimate of its fair market value.

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IPG PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

The following table presents information about the Company's assets and liabilities measured at fair value:

	Total	Fair Value Measurements at June 30, 2017		
		Level 1	Level 2	Level 3
Assets				
Cash equivalents	$390,764	$390,764	$—	$—
Short-term investments	122,179	122,179	—	—
Interest rate swap	37	—	37	—
Auction rate securities	1,148	—	—	1,148
Total assets	$514,128	$512,943	$37	$1,148
Liabilities				
Long-term notes	$22,563	$—	$22,563	$—
Total liabilities	$22,563	$—	$22,563	$—

	Total	Fair Value Measurements at December 31, 2016		
		Level 1	Level 2	Level 3
Assets				
Cash equivalents	$179,699	$179,699	$—	$—
Short-term investments	206,616	206,616	—	—
Interest rate swap	77	—	77	—
Auction rate securities	1,144	—	—	1,144
Total assets	$387,536	$386,315	$77	$1,144
Liabilities				
Long-term notes	$41,351	$—	$41,351	$—
Total liabilities	$41,351	$—	$41,351	$—

Short-term investments consist of liquid investments including U.S. government and government agency notes, corporate notes, commercial paper and certificates of deposit with original maturities of greater than three months but less than one year and are recorded at amortized cost. The fair value of the short-term investments considered available-for-sale as of December 31, 2016 was $41,591. This amount included an unrealized loss of $432. There were no short-term investments considered available-for-sale as of June 30, 2017. The fair value of the short-term investments considered held-to-maturity as of June 30, 2017 and December 31, 2016 was $122,179 and $165,025, respectively, which represents an unrealized loss of $125 and $163, respectively, as compared to the book value recorded on the Consolidated Balance Sheets for the same periods.
The fair value of the auction rate securities considered prices observed in inactive secondary markets for the securities held by the Company.
The fair value of accrued contingent purchase consideration incurred was determined using an income approach at the acquisition date and reporting date. That approach is based on significant inputs that are not observable in the market. Key assumptions include assessing the probability of meeting certain milestones required to earn the contingent purchase consideration.

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IPG PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

The following table presents information about the Company's movement in Level 3 assets and liabilities measured at fair value:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
Auction Rate Securities				
Balance, beginning of period	$1,146	$1,138	$1,144	$1,136
Change in fair value and accretion	2	2	4	4
Balance, end of period	$1,148	$1,140	$1,148	$1,140
Contingent Purchase Consideration				
Balance, beginning of period	$—	$21	$—	$20
Period transactions	—	—	—	—
Change in fair value and currency fluctuations	—	(1)	—	—
Balance, end of period	$—	$20	$—	$20

9. GOODWILL AND INTANGIBLES

The following table sets forth the changes in the carrying amount of goodwill for the six months ended June 30, 2017:

	Amounts
Balance at January 1	$ 19,828
Total goodwill arising from acquisition	8,900
Balance at June 30	$ 28,728

Intangible assets, subject to amortization, consisted of the following:

	June 30, 2017				December 31, 2016			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Lives	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Lives
Patents	$8,114	$ (5,103)	$3,011	7 Years	$8,114	$ (4,926)	$3,188	7 Years
Customer relationships	13,958	(4,360)	9,598	9 Years	12,727	(3,621)	9,106	9 Years
Production know-how	6,743	(4,577)	2,166	8 Years	6,618	(4,093)	2,525	8 Years
Technology, trademark and tradename	22,623	(5,104)	17,519	8 Years	17,910	(3,940)	13,970	8 Years
	$51,438	$ (19,144)	$32,294		$45,369	$ (16,580)	$28,789	

During the second quarter of 2017, the Company acquired 100% of the shares of OptiGrate Corporation ("OptiGrate"). OptiGrate is located in Oviedo, Florida. OptiGrate is a developer and manufacturer of volume Bragg gratings used in the production of lasers and laser diodes. The Company paid $16,870 to acquire OptiGrate, which represents the fair value on that date. Of the purchase price, $1,849 was held back in escrow for potential post-closing adjustments related to working capital and indemnities provided by the sellers. As a result of the acquisition, the Company recorded intangible assets of $1,010 related to customer relationships and $4,650 of technology, trademark and tradename. Additionally, the Company recorded $8,900 of goodwill related to expected synergies from having in-house supply of these optical components. The goodwill arising from this acquisition will not be deductible for tax purposes.

The purchase price allocations included in the Company's financial statements are estimates and are not complete. They are preliminary fair value estimates as of June 30, 2017 and may be subject to subsequent adjustment as the Company obtains additional information during the measurement period and finalizes its fair value estimates. Any

subsequent adjustments to
these fair value estimates occurring during the measurement period will result in an adjustment to goodwill or income, as applicable.

Subsequent to June 30, 2017, the Company closed the previously announced acquisition of 100% of the shares of Innovative Laser Technologies, LLC ("ILT") for $40,181 in cash, subject to working capital adjustments. ILT is a Minneapolis,

Minnesota based company which produces high precision laser-based systems for the medical device industry and other end user markets.

Amortization expense for the three months ended June 30, 2017 and 2016 was $1,168 and $901, respectively. Amortization expense for the six months ended June 30, 2017 and 2016 was $2,233 and $1,444, respectively. The estimated future amortization expense for intangibles for the remainder of 2017 and subsequent years is as follows:

2017	2018	2019	2020	2021	Thereafter	Total
$2,633	$5,201	$4,652	$4,141	$4,102	$11,565	$32,294

10. PRODUCT WARRANTIES

The Company typically provides one to three-year parts and service warranties on lasers and amplifiers. Most of the Company's sales offices provide support to customers in their respective geographic areas. Warranty reserves have generally been sufficient to cover product warranty repair and replacement costs.

The following table summarizes product warranty accrual activity recorded during the six months ended June 30, 2017 and 2016.

	2017	2016
Balance at January 1	$33,978	$28,210
Provision for warranty accrual	12,626	10,344
Warranty claims	(7,476)	(8,040)
Foreign currency translation	1,687	442
Balance at June 30	$40,815	$30,956

Accrued warranty reported in the accompanying consolidated financial statements as of June 30, 2017 and December 31, 2016 consisted of $18,411 and $15,711 in accrued expenses and other liabilities and $22,404 and $18,267 in other long-term liabilities, respectively.

11. INCOME TAXES

A reconciliation of the total amounts of unrecognized tax benefits is as follows:

	2017	2016
Balance at January 1	$6,403	$7,579
Change in prior period positions	(2,240)	—
Change for tax positions in current period	—	—
Balance at June 30	$4,163	$7,579

Substantially all of the liability for uncertain tax benefits related to various federal, state and foreign income tax matters, would benefit the Company's effective tax rate, if recognized.

12. COMMITMENTS AND CONTINGENCIES

From time to time, the Company may be involved in disputes and legal proceedings in the ordinary course of its business.

These proceedings may include allegations of infringement of intellectual property, commercial disputes and employment
matters. As of June 30, 2017 and through the filing date of these Financial Statements, the Company has no legal proceedings ongoing that management estimates could have a material effect on the Company's Consolidated Financial Statements.

13. LONG-LIVED ASSETS

Long-lived assets, which consist primarily of property, plant and equipment, are reviewed by management for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. In cases in which undiscounted expected future cash flows are less than the carrying value, an impairment loss is recorded equal to the amount by which the carrying value exceeds the fair value of assets. In the fourth quarter of 2016, the Company began assessing the possible sale of its corporate aircraft included within Property, Plant and

Equipment, net in its Consolidated Balance Sheets. As a result of this assessment and certain market indications of the aircraft's value if sold, the Company prepared an updated

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impairment analysis of the carrying value of the aircraft as of March 31, 2017. The impairment analysis was probability weighted considering market data available, future cash flows and whether or not the Company would sell the aircraft. Based on that analysis the Company recorded a $162 impairment charge included in general and administrative expense in its Consolidated Statements of Income for the six months ended June 30, 2017. There were no impairment losses recorded by the Company for the six months ended June 30, 2016. The corporate aircraft was sold during the three months ended June 30, 2017.

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

You should read the following discussion in conjunction with our consolidated financial statements and related notes included elsewhere in this Quarterly Report on Form 10-Q. This discussion contains forward looking statements that are based on management's current expectations, estimates and projections about our business and operations. Our actual results may differ materially from those currently anticipated and expressed in such forward-looking statements. See "Cautionary Statement Regarding Forward-Looking Statements."

Overview

We develop and manufacture a broad line of high-performance fiber lasers, fiber amplifiers, diode lasers, laser systems and optical accessories that are used for diverse applications, primarily in materials processing. We sell our products globally to original equipment manufacturers ("OEMs"), system integrators and end users. We market our products internationally primarily through our direct sales force.

We are vertically integrated such that we design and manufacture most of the key components used in our finished products, from semiconductor diodes to optical fiber preforms, finished fiber lasers and amplifiers. We also manufacture complementary products used with our lasers including optical delivery cables, fiber couplers, beam switches, optical processing heads and chillers. In addition, we offer laser-based systems for certain markets and applications.

Factors and Trends That Affect Our Operations and Financial Results

In reading our financial statements, you should be aware of the following factors and trends that our management believes are important in understanding our financial performance.

Net sales. We derive net sales primarily from the sale of fiber lasers and amplifiers. We also sell diode lasers, communications systems, laser systems and complementary products. We sell our products through our direct sales organization and our network of distributors and sales representatives, as well as system integrators. We sell our products to OEMs that supply materials processing laser systems, communications systems, medical laser systems and other laser systems for advanced applications to end users. We also sell our products to end users that build their own systems which incorporate our products or use our products as an energy or light source. Our scientists and engineers work closely with OEMs, systems integrators and end users to analyze their system requirements and match appropriate fiber laser or amplifier specifications. Our sales cycle varies substantially, ranging from a period of a few weeks to as long as one year or more, but is typically several months.

Sales of our products generally are recognized upon shipment, provided that no obligations remain and collection of the receivable is reasonably assured. Our sales typically are made on a purchase order basis rather than through long-term purchase commitments.

We develop our products to standard specifications and use a common set of components within our product architectures. Our major products are based upon a common technology platform. We continually enhance these and other products by improving their components and developing new components and new product designs.

The average selling prices of our products generally decrease as the products mature. These decreases result from factors such as decreased manufacturing costs and increases in unit volumes, increased competition, the introduction of new products and market share considerations. In the past, we have lowered our selling prices in order to penetrate new markets and applications. Furthermore, we may negotiate discounted selling prices from time to time with certain customers that purchase multiple units.

Gross margin. Our total gross margin in any period can be significantly affected by total net sales in any period, by product mix, that is, the percentage of our revenue in the period that is attributable to higher or lower-power products and the mix of sales between laser and amplifier sources and complete systems, by sales mix between OEM customers who purchase devices from us in high unit volumes and other customers, by mix of sales in different geographies and by other factors, some of which are not under our control.

Our product mix affects our margins because gross margin is generally higher in each product line for products with higher average output power. Certain specialty products also have higher gross margins. Also, the profit margins on systems can be lower than margins for our laser and amplifier sources, depending on the configuration, volume and availability of competitive products, among other factors.

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The mix of sales between OEM customers and other customers can affect gross margin because we provide sales price discounts on products based on the number of units ordered. As the number of OEM customers increase and the number of units ordered increases, the average sales price per unit will be reduced. We expect that the impact of reduced sales price per unit will be offset by the manufacturing efficiency provided by high unit volume orders, but the timing and extent of achieving these efficiencies may not always match the mix of sales in any given time period or be realized at all.

We also regularly review our inventory for items that are slow-moving, have been rendered obsolete or determined to be excess. Any write-off of such slow-moving, obsolete or excess inventory affects our gross margins. For example, we recorded provisions for inventory totaling $5.4 million and $5.8 million for the three months ended June 30, 2017 and 2016, respectively, and $22.8 million, $15.4 million and $11.3 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Sales and marketing expense. We expect to continue to expand our worldwide direct sales organization, build and expand applications centers, hire additional sales and marketing personnel at our existing and new geographic locations as well as to support sales of new product lines, increase the number of units for demonstration purposes and otherwise increase expenditures on sales and marketing activities in order to support the growth in our net sales. As such, we expect that our sales and marketing expenses will increase in the aggregate.

Research and development expense. We plan to continue to invest in research and development to improve our existing components and products and develop new components, products, systems and applications technologies. The amount of research and development expense we incur may vary from period to period. In general, if net sales continue to increase we expect research and development expense to increase in the aggregate.

General and administrative expense. We expect our general and administrative expenses to increase as we continue to invest in systems and resources in management, finance, legal, information technology, human resources and administration to support our worldwide operations. Legal expenses vary from quarter to quarter based primarily upon the level of litigation and transaction activities.

Foreign Exchange. Because we are a U.S. based company doing business globally, we have both translational and transactional exposure to fluctuations in foreign currency exchange rates. Changes in the relative exchange rate between the U.S. dollar and the foreign currencies in which our subsidiaries operate directly affects our sales, costs and earnings. Differences in the relative exchange rates between where we sell our products and where we incur manufacturing and other operating costs (primarily in the U.S., Germany and Russia) also affects our costs and earnings. Certain currencies experiencing significant exchange rate fluctuations like the Euro, the Russian Ruble, the Japanese Yen and Chinese Yuan have had and could have an additional significant impact on our sales, costs and earnings. Our ability to adjust the foreign currency selling prices of products in response to changes in exchange rates is limited and may not offset the impact of the changes in exchange rates on the translated value of sales or costs. In addition, if we increase the selling price of our products in local currencies this could have a negative impact on the demand for our products.

Major customers. While we have historically depended on a few customers for a large percentage of our annual net sales, the composition of this group can change from year to year. Net sales derived from our five largest customers as a percentage of our net sales was 27% for the six months ended June 30, 2017 and 22%, 25% and 23% for the full years 2016, 2015 and 2014, respectively. One of our customers accounted for 15% of our net sales for the six months ended June 30, 2017. None of our customers accounted for more than 10% of our net sales for the six months ended June 30, 2016. We seek to add new customers and to expand our relationships with existing customers. We anticipate that the composition of our significant customers will continue to change. If any of our significant customers substantially reduced their purchases from us, our results would be adversely affected.

Results of Operations for the three months ended June 30, 2017 compared to the three months ended June 30, 2016

Net sales. Net sales increased by $116.6 million, or 46.1%, to $369.4 million for the three months ended June 30, 2017 from $252.8 million for the three months ended June 30, 2016.

Three Months Ended June 30,				
2017		2016		Change
	% of Total		% of Total	

Materials processing	$353,065	95.6	%	$239,056	94.6	%	$114,009	47.7%
Other applications	16,308	4.4	%	13,731	5.4	%	2,577	18.8%
Total	$369,373	100.0	%	$252,787	100.0	%	$116,586	46.1%

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Sales by Product	Three Months Ended June 30,							
	2017			2016			Change	
		% of Total			% of Total			
High-Power Continuous Wave ("CW") Lasers	$222,204	60.2	%	$141,406	55.9	%	$80,798	57.1%
Medium-Power CW Lasers	29,988	8.1	%	27,121	10.7	%	2,867	10.6%
Low-Power CW Lasers	3,285	0.9	%	3,057	1.2	%	228	7.5 %
Pulsed Lasers	41,106	11.1	%	36,632	14.5	%	4,474	12.2%
Quasi-Continuous Wave ("QCW") Lasers	29,482	8.0	%	16,225	6.5	%	13,257	81.7%
Other Revenue including Amplifiers, Laser Systems, Service, Parts, Accessories and Change in Deferred Revenue	43,308	11.7	%	28,346	11.2	%	14,962	52.8%
Total	$369,373	100.0	%	$252,787	100.0	%	$116,586	46.1%

Materials processing

Sales for materials processing applications increased due to higher sales of high-power lasers, medium-power lasers, pulsed lasers, QCW lasers and laser systems.

- The increase in high-power laser sales related to growth in cutting and welding applications. High-power lasers continue to displace CO2 lasers. We believe this transition has also benefited from an accelerated replacement cycle for older CO2 based cutting systems and from displacement of non-laser technologies which has resulted in higher demand for the fiber based cutting and welding systems sold by our OEM customers. Within the cutting applications, we continue to see a migration to lasers with higher output powers which improve processing speeds and enable processing of thicker materials. The shift towards lasers with higher output powers has also benefited sales due to their higher average selling prices. The growth in high-power welding sales relates primarily to automotive applications.
- The increase in medium-power sales related to fine cutting, sintering and semiconductor wafer-inspection applications, partially offset by declines in average selling prices due to increased competition.
- Low-power laser sales increased slightly due to the increase in scientific and semiconductor applications, partially offset by a decrease in low-power laser sales for medical applications.
- Pulsed laser sales increased due to higher demand for marking and engraving applications. Within the pulsed laser category, increased sales of high-power pulsed lasers and green pulsed lasers were partially offset by decreased sales of pulsed lasers with lower average power.
- QCW laser sales increased due to the demand for welding and percussion hole drilling applications. The increase in demand for QCW in welding is primarily related to consumer electronics.
- Materials processing sales also increased as a result of higher laser systems and parts and service sales, which are included in Other Revenue in the Sales by Product chart above.

Other Applications

Sales for other applications increased due to higher sales for telecom partially offset by lower sales for advanced applications. The increase in telecom sales was driven by sales from Menara Networks, Inc. ("Menara"), which we acquired in the second quarter of 2016, and an increase in amplifier sales used for last mile fiber access to the home applications. Sales of telecom products are included in Other Revenue in the Sales by Product chart above. Advanced application sales are typically uneven from quarter to quarter.

Cost of sales and gross margin. Cost of sales increased by $48.0 million, or 41.7%, to $163.1 million for the three months ended June 30, 2017 from $115.1 million for the three months ended June 30, 2016. Our gross margin increased to 55.9% for the three months ended June 30, 2017 from 54.5% for the three months ended June 30, 2016. Gross margin increased due to a decrease in the cost of internally manufactured components, increased manufacturing efficiency and product mix which included increased sales of high-power, QCW and pulsed lasers with higher average powers. These increases in gross margin were partially offset by lower average selling prices.

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Sales and marketing expense. Sales and marketing expense increased by $2.5 million, or 25.3%, to $12.1 million for the three months ended June 30, 2017 from $9.7 million for the three months ended June 30, 2016. This change was primarily a result of increases in personnel, commissions, travel and depreciation expenses. As a percentage of sales, sales and marketing expense decreased to 3.3% for the three months ended June 30, 2017 from 3.8% for three months ended June 30, 2016.

Research and development expense. Research and development expense increased by $7.5 million, or 41.0%, to $26.0 million for the three months ended June 30, 2017, compared to $18.4 million for the three months ended June 30, 2016. This change was primarily a result of increases in personnel, contractors and consultants expense as well as materials used for research and development projects and depreciation. Research and development continues to focus on developing new products, enhancing the performance of existing components, improving production processes and developing manufacturing of new components such as crystals and refining production processes to improve manufacturing yields and productivity. New products include lasers that operate at different wavelengths such as ultra-violet, visible and mid-infrared; lasers with ultra-fast pulses; laser-based systems for material processing, projection, display and medical; new telecom products including pluggable transceivers; and laser accessories such as welding and cutting heads. In addition to new products, research and development is focused on enhancing the performance of our existing products by improving their electrical efficiency and increasing their average power. As a percentage of sales, research and development expense decreased to 7.0% for the three months ended June 30, 2017 from 7.3% for the three months ended June 30, 2016.

General and administrative expense. General and administrative expense increased by $3.7 million, or 23.1%, to $19.9 million for the three months ended June 30, 2017 from $16.2 million for the three months ended June 30, 2016. This change was primarily as a result of increases in personnel expense, stock-based compensation, travel, accounting, legal, information systems, recruitment, outside services, insurance and repairs and maintenance. As a percentage of sales, general and administrative expense decreased to 5.4% for the three months ended June 30, 2017 from 6.4% for the three months ended June 30, 2016.

Effect of exchange rates on net sales, gross profit and operating expenses. We estimate that, if exchange rates relative to the U.S. Dollar had been the same as one year ago, which were on average Euro 0.89, Russian Ruble 66, Japanese Yen 108 and Chinese Yuan 6.53, respectively, we would have expected net sales to be $11.4 million higher, gross profit to be $7.9 million higher and total operating expenses would have been $0.5 million lower.

Loss (gain) on foreign exchange. We incurred a foreign exchange loss of $7.2 million for the three months ended June 30, 2017 as compared to a $1.6 million gain for the three months ended June 30, 2016. Foreign exchange losses for the three months ended June 30, 2017 were primarily attributable to the appreciation of the Euro as compared to the U.S. Dollar. Foreign exchange gains for the three months ended June 30, 2016 were primarily attributable to the appreciation of U.S. Dollar compared to the Euro and the appreciation of the Japanese Yen compared to the U.S. Dollar partially offset by the appreciation of the U.S. Dollar compared to the Russian Ruble and Chinese Yuan.

Interest income, net. Interest income, net, increased to $0.5 million of income for the three months ended June 30, 2017 from $0.3 million for the three months ended June 30, 2016 as a result of higher interest yields.

Other income (expense), net. Other income (expense), net, decreased slightly to $23 thousand of income for the three months ended June 30, 2017 from $0.1 million for the three months ended June 30, 2016.

Provision for income taxes. Provision for income taxes was $37.5 million for the three months ended June 30, 2017 compared to $28.4 million for the three months ended June 30, 2016. The effective tax rates were 26.5% and 29.8% for the three months ended June 30, 2017 and 2016, respectively. The decrease in the effective rate was primarily due to the release of reserves related to uncertain tax positions of $2.2 million following the completion of a tax audit and $3.4 million of excess tax benefits related to exercise of stock options and release of restricted stock units which vested during the quarter. Effective as of the beginning of 2017, the accounting standard related to excess tax benefits and deficits changed, and these items are now recognized in the provision for income taxes whereas previously they were accounted for within additional paid-in capital..

Net income attributable to IPG Photonics Corporation. Net income attributable to IPG Photonics Corporation increased by $37.1 million to $104.1 million for the three months ended June 30, 2017 compared to $67.1 million for the three months ended June 30, 2016. Net income attributable to IPG Photonics Corporation as a percentage of our

net sales increased by 1.7 percentage points to 28.2% for the three months ended June 30, 2017 from 26.5% for the three months ended June 30, 2016 due to the factors described above.

Results of Operations for the six months ended June 30, 2017 compared to the six months ended June 30, 2016

Net sales. Net sales increased by $195.2 million, or 42.4%, to $655.2 million for the six months ended June 30, 2017 from $460.0 million for the six months ended June 30, 2016.

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	Six Months Ended June 30,							
	2017			2016			Change	
		% of Total			% of Total			
Materials processing	$617,196	94.2	%	$437,263	95.0	%	$179,933	41.1%
Other applications	38,023	5.8	%	22,772	5.0	%	15,251	67.0%
Total	$655,219	100.0	%	$460,035	100.0	%	$195,184	42.4%

	Six Months Ended June 30,								
	2017			2016			Change		
		% of Total			% of Total				
High-Power CW Lasers	$390,148	59.5	%	$259,626	56.4	%	$130,522	50.3	%
Medium-Power CW Lasers	49,729	7.6	%	49,727	10.8	%	2	—	%
Low-Power CW Lasers	6,680	1.0	%	6,061	1.3	%	619	10.2	%
Pulsed Lasers	73,561	11.2	%	65,258	14.2	%	8,303	12.7	%
QCW Lasers	50,850	7.8	%	24,825	5.4	%	26,025	104.8	%
Other Revenue including Amplifiers, Laser Systems, Service, Parts, Accessories and Change in Deferred Revenue	84,251	12.9	%	54,538	11.9	%	29,713	54.5	%
Total	$655,219	100.0	%	$460,035	100.0	%	$195,184	42.4	%

Materials processing

Sales for materials processing applications increased due to higher sales of high-power lasers, pulsed lasers, QCW lasers and laser systems.

- The increase in high-power laser sales related to growth in cutting and welding applications partially offset by decreases in heat treating and annealing applications. High-power lasers continue to displace CO2 lasers. We believe this transition has also benefited from an accelerated replacement cycle for older CO2 based cutting systems and from displacement of non-laser technologies which has resulted in higher demand for the fiber based cutting and welding systems sold by our OEM customers. Within cutting applications, we continue to see a migration to lasers with higher output powers which improve processing speeds and enable processing of thicker materials. The shift towards lasers with higher output powers has also benefited sales due to their higher average selling prices. The growth in high power welding sales relates primarily to automotive applications.
- Medium-power sales were essentially flat. Within the medium-power category, increases in sales for fine welding and semiconductor inspection applications were offset by decreases in sales for fine cutting and laser sintering applications. Average selling prices for medium-power lasers also declined.
- Low-power laser sales increased slightly due to the increase in scientific and semiconductor applications which was partially offset by a decrease in low-power used in medical applications.
- Pulsed laser sales increased due to higher increased sales for marking and engraving applications and cleaning and stripping applications. Within the pulsed laser category, increased sales of high-power pulsed lasers and green pulsed lasers were partially offset by decreased sales of pulsed lasers with lower average power.
- QCW laser sales increased due to the demand for welding and percussion hole drilling applications. Welding applications for QCW lasers are primarily related to consumer electronics.
- Materials processing sales also increased as a result of higher laser systems and parts and service sales, which are included in Other Revenue in the Sales by Product chart above.

Other Applications

Sales for other applications increased due to higher sales for telecom and advanced applications. The increase in telecom sales was driven by sales from Menara and an increase in amplifier sales used for last mile fiber access to the home applications. Sales of telecom products are included in Other Revenue in the Sales by Product chart above. Advanced application sales are typically uneven from quarter to quarter. The increase in advanced applications sales was driven by

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increase in demand from defense, semiconductor and scientific applications. The increase in advanced application sales contributed to the increase in high-power laser sales and the increase in Other Revenue in the Sales by Product chart above.

Cost of sales and gross margin. Cost of sales increased by $83.7 million, or 40.3%, to $291.7 million for the six months ended June 30, 2017 from $207.9 million for the six months ended June 30, 2016. Our gross margin increased to 55.5% from 54.8% for the six months ended June 30, 2017 and 2016, respectively. Gross margin increased due to decreases in the cost of internally manufactured components and increased manufacturing efficiency which were partially offset by decreases in average selling prices. Gross margin also benefited from product mix, including increased sales of high-power and pulsed lasers with higher output power.

Sales and marketing expense. Sales and marketing expense increased by $5.2 million, or 29.6%, to $23.0 million for the six months ended June 30, 2017 from $17.7 million for the six months ended June 30, 2016, primarily as a result of increased expenses for personnel, commissions, trade show and exhibitions, travel, premises and depreciation. As a percentage of sales, sales and marketing expense decreased to 3.5% for the six months ended June 30, 2017 from 3.9% for the six months ended June 30, 2016.

Research and development expense. Research and development expense increased by $12.8 million, or 35.8%, to $48.7 million for the six months ended June 30, 2017, compared to $35.9 million for the six months ended June 30, 2016, primarily as a result of an increase in expenses related to personnel, stock-based compensation, contractors, consultants, materials used for research and development projects and depreciation. Research and development continues to focus on developing new products, enhancing performance of existing components, improving production processes and developing manufacturing of new components such as crystals and refining production processes to improve manufacturing yields and productivity. New products include lasers that operate at different wavelengths such as ultra-violet, visible and mid-infrared; lasers with ultra-fast pulses; laser-based systems for material processing, projection, display and medical; new telecom products including pluggable transceivers; and laser accessories such as welding and cutting heads. In addition to new products research and development is focused on enhancing the performance of our existing products by improving their electrical efficiency and increasing their average power. As a percentage of sales, research and development expense decreased to 7.4% for the six months ended June 30, 2017 from 7.8% for the six months ended June 30, 2016.

General and administrative expense. General and administrative expense increased by $7.5 million, or 25.1%, to $37.6 million for the six months ended June 30, 2017 from $30.1 million for the six months ended June 30, 2016, primarily as a result of increased expenses for personnel, stock-based compensation, fees and subscriptions, information technology, insurance, travel, accounting, legal, and increased bad debt provisions. As a percentage of sales, general and administrative expense decreased to 5.7% for the six months ended June 30, 2017 from 6.5% for the six months ended June 30, 2016.

Effect of exchange rates on net sales, gross profit and operating expenses. We estimate that, if exchange rates relative to the U.S. Dollar had been the same as one year ago, which were on average Euro 0.90, Russian Ruble 70, Japanese Yen 112 and Chinese Yuan 6.54, respectively, we would have expected net sales for the six months ended June 30, 2017 to be $21.0 million higher, gross profit to be $15.0 million higher and total operating expenses would have been $1.4 million lower.

Loss (gain) on foreign exchange. We incurred a foreign exchange loss of $11.6 million for the six months ended June 30, 2017 as compared to $3.4 million for the six months ended June 30, 2016. The loss for the six months ended June 30, 2017 was primarily attributable to appreciation of the Euro as compared to the U.S. Dollar. The loss for the six months ended June 30, 2016 was primarily attributable to the appreciation of the Euro compared to the U.S. Dollar partially offset by the appreciation of the U.S. Dollar compared to the Russian Ruble and Chinese Yuan.

Interest income, net. Interest income, net, increased to $0.8 million of income for the six months ended June 30, 2017 from $0.5 million for the six months ended June 30, 2016 as a result of higher interest yields on investments.

Other income (expense), net. Other income (expense), net decreased to $0.5 million of expense for the six months ended June 30, 2017 compared to approximately $0.1 million of income for the six months ended June 30, 2016 as a result of the loss incurred upon sale of available-for-sale-securities being partially offset by net rental income from a building in the United States purchased in the second quarter of 2016 that is partially leased to third parties.

Provision for income taxes. Provision for income taxes was $63.9 million for the six months ended June 30, 2017 compared to $49.3 million for the six months ended June 30, 2016, representing an effective tax rate of 26.3% and 29.7% for the six months ended June 30, 2017 and 2016, respectively. The decrease in the effective rate was primarily due to the release of reserves related to uncertain tax positions of $2.2 million following the completion of a tax audit and $7.5 million of excess tax benefits related to exercise of stock options and release of restricted stock units which vested during the period. Effective as of the beginning of 2017, the accounting standard related to excess tax benefits and deficits changed, and these items are now recognized in the provision for income taxes whereas previously they were accounted for within additional paid-in capital. The

tax effects of the accounting for share-based compensation will increase or decrease our effective rate based upon the difference between our share-based compensation expense and the benefits taken on our tax return which depends on the share price at the time of employee award vesting. Additionally, we recognize excess tax benefits on a discrete basis and we anticipate that our effective rate will vary from quarter to quarter depending on our share price in each period. If our share price remains constant to the June 30, 2017 price, we anticipate that our effective rate will increase in the remaining quarters throughout the year and our full year rate will be higher than the rate in the first half of 2017.

Net income attributable to IPG Photonics Corporation. Net income attributable to IPG Photonics Corporation increased by $62.7 million to $179.1 million, or 53.9% for the six months ended June 30, 2017 compared to $116.4 million for the six months ended June 30, 2016. Net income attributable to IPG Photonics Corporation as a percentage of our net sales increased by 2.0 percentage points to 27.3% for the six months ended June 30, 2017 from 25.3% for the six months ended June 30, 2016 due to the factors described above.

Liquidity and Capital Resources

Our principal sources of liquidity as of June 30, 2017 consisted of cash and cash equivalents of $808.1 million, short-term investments of $122.3 million, unused credit lines and overdraft facilities of $75.3 million and other working capital (excluding cash and cash equivalents and short-term investments) of $423.6 million. This compares to cash and cash equivalents of $623.9 million, short-term investments of $206.8 million, unused credit lines and overdraft facilities of $71.5 million and other working capital (excluding cash and cash equivalents and short-term investments) of $312.1 million as of December 31, 2016. The increase in cash and cash equivalents of $184.3 million relates primarily to cash provided by operating activities in the six months ended June 30, 2017 of $133.1 million and cash provided by investing activities of $44.7 million. The increase was partially offset by cash used in financing activities of $25.4 million. In addition, the effect of exchange rates increased cash and cash equivalents by $31.9 million.

Short-term investments consist of liquid investments including U.S. government and government agency notes, corporate
notes, commercial paper and certificates of deposit with original maturities of greater than three months but less than one year.

Our long-term debt consists of one unsecured note with an outstanding balance at June 30, 2017 of $22.6 million of which $1.2 million is the current portion. The interest on this unsecured note is variable at 1.20% above LIBOR and is fixed using an interest rate swap at 2.85% per annum. The unsecured note matures in May 2023, at which time the outstanding debt balance will be $15.4 million. The long-term note secured by our corporate aircraft was paid off during the second quarter in connection with the sale of the aircraft. Subsequent to June 30, 2017, we closed on our purchase of a new corporate aircraft for $28.0 million. We financed the entire purchase with proceeds from a new long-term note that is secured by the aircraft with a fixed interest rate of 2.75% that matures in July 2022, at which time the outstanding debt balance will be $15.4 million.

We believe that our existing cash and cash equivalents, short-term investments, our cash flows from operations and our existing lines of credit provide us with the financial flexibility to meet our liquidity and capital needs, as well as to complete certain acquisitions of businesses and technologies. We intend to continue to pursue acquisition opportunities based upon market conditions and the strategic importance and valuation of the target company. We may consider issuing debt to finance acquisitions depending on the timing and size of the acquisition. Our future long-term capital requirements will depend on many factors including our level of sales, the impact of the economic environment on our sales growth, the timing and extent of spending to support development efforts, the expansion of the global sales and marketing activities, government regulation including trade sanctions, the timing and introductions of new products, the need to ensure access to adequate manufacturing capacity and the continuing market acceptance of our products.

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The following table details our line-of-credit facilities as of June 30, 2017:

Description	Total Facility	Interest Rate	Maturity	Security
U.S. Revolving Line of Credit (1)	Up to $50.0 million	LIBOR plus 0.80% to 1.20%, depending on our performance	April 2020	Unsecured
Euro Credit Facility (Germany) (2)	Euro 30.0 million ($34.3 million)	Euribor plus 1.00% or EONIA 1.25%	July 2017	Unsecured, guaranteed by parent company and German subsidiary
Euro Overdraft Facilities (3)	Euro 2.0 million ($2.3 million)	1.0%-6.5%	October 2017	Common pool of assets of Italian subsidiary

(1) This facility is available to certain foreign subsidiaries in their respective local currencies. At June 30, 2017, there were no drawings on this facility, however, there were $0.1 million of guarantees issued against the facility which reduces the amount of the facility available to draw.

(2) This facility is also available to certain foreign subsidiaries in their respective local currencies. At June 30, 2017, there were no drawings on this facility, however, there were $11.1 million of guarantees issued against the facility which reduces the amount of the facility available to draw. Subsequent to June 30, 2017, we entered into a new Euro credit facility, which replaced this facility and increased the available line-of-credit to Euro 50 million from Euro 30 million.

(3) At June 30, 2017, there were no drawings on these facilities.

Our largest committed credit lines are with Bank of America N.A. and Deutsche Bank AG in the amounts of $50.0 million and $34.3 million (or 30 million Euro as described above), respectively, and neither of them is syndicated.

We are required to meet certain financial covenants associated with our U.S. revolving line of credit and long-term debt facility. These covenants, tested quarterly, include a debt service coverage ratio and a funded debt to earnings before interest, taxes, depreciation and amortization ("EBITDA") ratio. The debt service coverage covenant requires that we maintain a trailing twelve month ratio of cash flow to debt service that is at least 1.5:1. Debt service is defined as required principal and interest payments during the period. Debt service in the calculation is decreased by our cash held in the U.S.A. in excess of $50 million up to a maximum of $250 million. Cash flow is defined as EBITDA less unfunded capital expenditures. The funded debt to EBITDA covenant requires that the sum of all indebtedness for borrowed money on a consolidated basis be less than three times our trailing twelve months EBITDA. We were in compliance with all such financial covenants as of and for the three months ended June 30, 2017.

Operating activities. Net cash provided by operating activities increased by $24.8 million to $133.1 million for the six months ended June 30, 2017 from $108.3 million for the six months ended June 30, 2016. As the business and net income has grown, cash provided by net income after adding back non-cash charges has increased. For the six months ended June 30, 2017, this increase was partially offset by continued growth in working capital to support the growth of the business. Our largest working capital items are inventory and accounts receivable. Items such as accounts payable to third parties, prepaid expenses and other current assets and accrued expenses and other liabilities are not as significant as our working capital investment in accounts receivable and inventory because of the amount of value added within IPG due to our vertically integrated structure. Accruals and payables for personnel costs including bonuses and income and other taxes payable are largely dependent on the timing of payments for those items. The increase in cash flow from operating activities for the six months ended June 30, 2017 primarily resulted from:

- An increase of $89.1 million in cash provided by net income after adding back non-cash charges to $253.3 million for the six months ended June 30, 2017 as compared to $164.2 million for the same period in 2016;
- A decrease in the cash used for inventory. Cash used for inventory was $25.8 million for the six months ended June 30, 2017 as compared to $34.7 million for the same period in 2016; partially offset by
- An increase in cash used by accounts receivable of $73.6 million for the six months ended June 30, 2017 as compared to a decrease of $2.9 million for the same period in 2016 due to an increase in sales and the timing of sales in the quarter; and

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- An increase in cash used for income taxes. Cash used for income and other taxes payable was $22.0 million for the six months ended June 30, 2017 as compared to cash used for income and other taxes payable of $10.7 million for the same period in 2016.

Given our vertical integration, rigorous and time-consuming testing procedures for both internally manufactured and externally purchased components and the lead time required to manufacture components used in our finished products, the rate at which we turn inventory has historically been comparatively low when compared to our cost of sales. Also, our historic growth rates required investment in inventories to support future sales and enable us to quote short delivery times to our customers, providing what we believe is a competitive advantage. Furthermore, if there was a disruption to the manufacturing capacity of any of our key technologies, our inventories of components should enable us to continue to build finished products for a period of time. We believe that we will continue to maintain a relatively high level of inventory compared to our cost of sales. As a result, we expect to have a significant amount of working capital invested in inventory. A reduction in our level of net sales or the rate of growth of our net sales from their current levels would mean that the rate at which we are able to convert our inventory into cash would decrease.

Investing activities. Net cash provided by investing activities was $44.7 million for the six months ended June 30, 2017 as compared to cash used in investing activities of $137.6 million in 2016. The cash provided by investing activities in 2017 related to $84.9 million of net proceeds from sales of short-term investments and $15.3 million of proceeds from sales of property, plant and equipment, which primarily relates to our corporate aircraft, partially offset by $43.6 million of capital expenditures and $11.3 million, net of cash acquired for the acquisition of OptiGrate. The cash used in investing activities in 2016 related to $70.9 million of capital expenditures, $46.5 million for the acquisition of Menara and $20.5 million of net purchases of short-term investments.

We expect to incur between $90 million and $100 million in net capital expenditures, excluding acquisitions. Capital expenditures include investments in facilities and equipment to add capacity worldwide to support anticipated revenue growth and the incremental cost to upgrade of our corporate aircraft. The timing and extent of any capital expenditures in and between periods can have a significant effect on our cash flow. If we obtain financing for certain projects, our cash expenditures would be reduced in the year of expenditure. Many of the capital expenditure projects that we undertake have long lead times and are difficult to cancel or defer to a later period.

Financing activities. Net cash used in financing activities was $25.4 million for the six months ended June 30, 2017 as compared to net cash provided by financing activities of $30.4 million in 2016. The cash used in financing activities in 2017 was primarily related to the purchase of treasury stock of $24.1 million and $18.3 million payments on our long-term borrowings, the majority of which related to repayment of the long-term note secured by our corporate aircraft. These uses of cash were partially offset by proceeds from the exercise of stock options and shares issued under our employee stock purchase plan net of amounts disbursed in relation to shares withheld to cover employee income taxes due upon the vesting and release of restricted stock units. The cash provided by financing activities in 2016 was primarily related to the cash provided by debt issued to finance the purchase of a building, the exercise of stock options, issuances under employee stock purchase plan and shares withheld to cover employee restricted stock taxes partially offset by the payments on our long-term borrowings and net payments of line-of-credit facilities.

Cautionary Statement Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, and we intend that such forward-looking statements be subject to the safe harbors created thereby. For this purpose, any statements contained in this Quarterly Report on Form 10-Q except for historical information are forward-looking statements. Without limiting the generality of the foregoing, words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "estimate," or "continue" or the negative or other variations thereof or comparable terminology are intended to identify forward-looking statements. In addition, any statements that refer to projections of our future financial performance, trends in our businesses, or other characterizations of future events or circumstances are forward-looking statements.

The forward-looking statements included herein are based on current expectations of our management based on available information and involve a number of risks and uncertainties, all of which are difficult or impossible to accurately predict and many of which are beyond our control. As such, our actual results may differ significantly from

those expressed in any forward-looking statements. Factors that may cause or contribute to such differences include, but are not limited to, those discussed in more detail in Item 1, "Business" and Item 1A, "Risk Factors" of Part I of our Annual Report on Form 10-K for the year ended December 31, 2016. Readers should carefully review these risks, as well as the additional risks described in other documents we file from time to time with the Securities and Exchange Commission. In light of the significant risks and uncertainties inherent in the forward-looking information included herein, the inclusion of such information should not be regarded as a

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representation by us or any other person that such results will be achieved, and readers are cautioned not to rely on such forward-looking information. We undertake no obligation to revise the forward-looking statements contained herein to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

Recent Accounting Pronouncements

Adoption of New Accounting Pronouncement

In January 2017, the FASB issued ASU No. 2017-01, "Business Combinations (Topic 805)" ("ASU 2017-01"). ASU 2017-01 revises the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. ASU 2017-01 is effective for public companies for annual reporting periods beginning after December 15, 2017, and interim reporting periods within such period. The amendments should be applied prospectively on or after the effective date. No disclosures are required at transition. Early application generally is allowed for transactions that have not been reported in financial statements which have been issued or made available for issuance. We have elected to early adopt this standard, and it did not have an effect on our consolidated financial statements upon adoption.

Recently Issued Accounting Pronouncements

In May 2017, the FASB issued ASU No. 2017-09, "Scope of Modification Accounting" ("ASU 2017-09"). ASU 2017-09 amends ASC Topic 718 to better define what constitutes a modification of a share-based payment award by defining criteria that must be met for change to a share-based payment award to not qualify as a modification. Changes to a share-based payment award must be accounted for as a modification under ASC Topic 718 unless all the newly defined criteria are met. ASU 2017-09 is effective for fiscal years beginning after December 15, 2017, which would be our fiscal year ending December 31, 2018. We are currently evaluating the potential impact that the standard will have on our consolidated financial statements upon adoption.

In February 2017, the FASB issued ASU No. 2017-05, "Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets (Subtopic 610-20)" ("ASU 2017-05"). ASU 2017-05 was issued in conjunction with ASU No. 2014-09, "Revenue from Contracts with Customers" ("ASU 2014-09"), to clarify guidance for recognizing gains and losses from the transfer of nonfinancial assets in contracts with non-customers. The new guidance clarifies what constitutes an "in substance nonfinancial asset" and changes the accounting for partial sales of nonfinancial assets to be more consistent with the accounting for a sale of a business. The amendments should be applied at the same time as those in ASU 2014-09 with interim and annual reporting periods beginning after December 15, 2017, which would be our fiscal year ending December 31, 2018. We are currently evaluating the potential impact that the standard will have on our consolidated financial statements upon adoption.

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles—Goodwill and Other (Topic 350)" ("ASU 2017-04"). ASU 2017-04 simplifies the accounting for goodwill impairments by eliminating step 2 from the goodwill impairment test. ASU 2017-04 is effective for public companies for annual reporting periods beginning after December 15, 2020, and interim reporting periods within such period. The amendments should be applied prospectively on or after the effective date and require a disclosure as to the nature of and reason for the change in accounting principle upon transition. Early adoption is allowed for all entities as of January 1, 2017, for annual and any interim impairment tests occurring after January 1, 2017. We are currently evaluating the potential impact that the standard will have on our consolidated financial statements upon adoption.

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"). ASU 2016-16 eliminates the current exception that prohibits the recognition of current and deferred income tax consequences for intra-entity asset transfers (other than inventory) until the asset has been sold to an outside party. The amendments will be applied on a modified retrospective basis through a cumulative effect adjustment to retained earnings. Deferred tax assets should be assessed to determine if realizable. Disclosures will be required for the (i) reason for and notice of change, (ii) effect of change on income from continuing operations and (iii) cumulative effect of change on retained earnings. Public entities will apply these changes in annual reporting periods beginning after December 15, 2017, and interim reporting periods within such period. Early adoption is permitted. We are continuing to evaluate the standard but do not expect that it will have a material effect on our consolidated financial statements upon adoption.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)" ("ASU 2016-02"). ASU 2016-02 requires a lessee to recognize assets and liabilities on the balance sheet for leases with lease terms greater than 12 months. ASU 2016-02 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018, and early adoption is permitted. We are continuing to evaluate the standard but do not expect that it will have a material effect on our consolidated financial statements upon adoption.

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In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities" ("ASU 2016-01"). ASU 2016-01 addresses certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. ASU 2016-01 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017, and early adoption is not permitted. We are currently evaluating the impact that the standard will have but do not expect it to have a material effect on our consolidated financial statements upon adoption.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" ("ASU 2014-09"). ASU 2014-09 supersedes the revenue recognition requirements in "Revenue Recognition (Topic 605)" and requires entities to recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. In August 2015, the FASB issued ASU No. 2015-14 "Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date," which defers the effective date of ASU 2014-09 one year to interim and annual reporting periods beginning after December 15, 2017, which would be the Company's fiscal year ending December 31, 2018. In May 2016, the FASB also issued ASU 2016-12, "Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients," to provide additional clarification of accounting for collections of sales taxes as well as recognition of revenue (i) associated with contract modifications, (ii) for noncash consideration, and (iii) based on the collectability of the consideration from the customer. The guidance also specifies when a contract should be considered "completed" for purposes of applying the transition guidance.We have completed an initial assessment of the new guidance and are in the process of completing documentation of this assessment. We do not expect the standard will have a material impact on the amount and timing of revenue recognized in our consolidated financial statements. We have elected to use the modified retrospective application approach for transition to the new standard.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risk in the ordinary course of business, which consists primarily of interest rate risk associated with our cash and cash equivalents and our debt and foreign exchange rate risk.

Interest rate risk. Our investments have limited exposure to market risk. We maintain a portfolio of cash, cash equivalents and short-term investments, consisting primarily of bank deposits, money market funds, certificates of deposit, corporate notes and government and agency securities. None of these investments have a maturity date in excess of one year. The interest rates are variable and fluctuate with current market conditions. Because of the short-term nature of these instruments, a sudden change in market interest rates would not be expected to have a material impact on our financial condition or results of operations.

We are also exposed to market risk as a result of increases or decreases in the amount of interest expense we must pay on our bank debt and borrowings on our bank credit facilities. Our interest obligations on our long-term debt are fixed either by the underlying agreement or by means of an interest rate swap agreement. Although our U.S. revolving line of credit and our Euro credit facility have variable rates, we do not believe that a 10% change in market interest rates would have a material impact on our financial position or results of operations.

Exchange rates. Due to our international operations, a significant portion of our net sales, cost of sales and operating expenses are denominated in currencies other than the U.S. Dollar, principally the Euro, the Russian Ruble, the Chinese Yuan and the Japanese Yen. As a result, our international operations give rise to transactional market risk associated with exchange rate movements of the U.S. Dollar, the Euro, the Russian Ruble, the Chinese Yuan and the Japanese Yen. The loss on foreign exchange transactions totaled $7.2 million for the three months ended June 30, 2017 and the gain totaled $1.6 million for the three months ended June 30, 2016. Management attempts to minimize these exposures by partially or fully off-setting foreign currency denominated assets and liabilities at our subsidiaries that operate in different functional currencies. The effectiveness of this strategy can be limited by the volume of underlying transactions at various subsidiaries and by our ability to accelerate or delay inter-company cash settlements. As a result, we are unable to create a perfect offset of the foreign currency denominated assets and liabilities. At June 30, 2017, our material foreign currency exposure is net U.S. Dollar denominated assets at subsidiaries where the Euro or the Russian Ruble is the functional currency and U.S. Dollar denominated liabilities where the Chinese Yuan is the functional currency. The net U.S. Dollar denominated assets are comprised of cash, third party receivables and inter-company receivables offset by third party and inter-company U.S. Dollar

denominated payables. The U.S. Dollar denominated liabilities are comprised of inter-company payables. A 5% change in the relative exchange rate of the U.S. Dollar to the Euro as of June 30, 2017 applied to the net U.S. Dollar asset balances, would result in a foreign exchange gain of $5.1 million if the U.S. Dollar appreciated and a $5.1 million foreign exchange loss if the U.S. Dollar depreciated.

In addition we are exposed to foreign currency translation risk for those subsidiaries whose functional currency is not the U.S. Dollar as changes in the value of their functional currency relative to the U.S. Dollar can adversely affect the translated

amounts of our revenue, expenses, net income, assets and liabilities. This can, in turn, affect the reported value and relative growth of sales and net income from one period to the next. In addition changes in the translated value of assets and liabilities due to changes in functional currency exchange rates relative to the U.S. Dollar result in foreign currency translation adjustments that are a component of other comprehensive income or loss.

Foreign currency derivative instruments can also be used to hedge exposures and reduce the risks of certain foreign currency transactions; however, these instruments provide only limited protection and can carry significant cost. We have no foreign currency derivative instrument hedges as of June 30, 2017. We will continue to analyze our exposure to currency exchange rate fluctuations and may engage in financial hedging techniques in the future to attempt to minimize the effect of these potential fluctuations. Exchange rate fluctuations may adversely affect our financial results in the future.

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ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Under the supervision of our chief executive officer and our chief financial officer, our management has evaluated the effectiveness of the design and operation of our "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of the end of the period covered by this Quarterly Report on Form 10-Q (the "Evaluation Date"). Based upon that evaluation, our chief executive officer and our chief financial officer have concluded that, as of the Evaluation Date, our disclosure controls and procedures are effective.

Changes in Internal Controls

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act) that occurred during the last fiscal quarter 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

From time to time, we are party to various legal proceedings and other disputes incidental to our business. There have been no material developments to those proceedings reported in our Annual Report on Form 10-K for the year ended December 31, 2016.

ITEM 1A. RISK FACTORS

In addition to the other information set forth in this report, you should carefully consider the factors discussed in Part I, "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2016, which could materially affect our business, financial condition or future results. The risks described in our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q are not the only risks facing our Company. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

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

Issuer Purchases of Equity Securities

Date	Total Number of Shares (or Units) Purchased		Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs
January 1, 2017 — January 31, 2017	15,300	(2)	$ 99.69	—	$ 89,529
February 1, 2017 — February 28, 2017	12,013	(1),(2)	119.60	—	88,094
March 1, 2017 — March 31, 2017	96,583	(1),(2)	119.40	—	78,516
April 1, 2017 — April 30, 2017	56,232	(1),(2)	120.29	—	71,752
May 1, 2017 — May 31, 2017	20,388	(1),(2)	135.67	—	69,092
June 1, 2017 — June 30, 2017	15,000	(1),(2)	143.28	—	66,942
Total	215,516		$ 121.45	—	$ 66,942

(1) In 2012, our Board of Directors approved "withhold to cover" as a tax payment method for vesting of restricted stock awards for certain employees. Pursuant to the "withhold to cover" method, we withheld from such employees the shares noted in the table above to cover tax withholding related to the vesting of their awards. For the three months ended June 30, 2017 a total of 788 shares were withheld at an average price of $134.82

(2) In July 2016, the Board of Directors authorized a share repurchase program (the "Program"). Under the Program, the Company's management is authorized to repurchase shares of common stock in an amount not to exceed the number of shares issued to employees and directors under its various employee and director equity compensation and employee stock purchase plans from January 1, 2016 through December 31, 2017. The Program limits aggregate share repurchases to no more than $100 million over a period ending June 30, 2018. For the three months ended June 30, 2017, the Company repurchased 90,832 shares of its common stock with an average price of $127.41 per share in the open market.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

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ITEM 6. EXHIBITS
(a) Exhibits

Exhibit No.	Description
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)
32	Certification of Chief Executive Officer and Chief Financial Officer pursuant to Section 1350
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase

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SIGNATURES

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

	IPG PHOTONICS CORPORATION
Date: August 8, 2017	By: /s/ Valentin P. Gapontsev Valentin P. Gapontsev Chairman and Chief Executive Officer (Principal Executive Officer)
Date: August 8, 2017	By: /s/ Timothy P.V. Mammen Timothy P.V. Mammen Senior Vice President and Chief Financial Officer (Principal Financial Officer)