UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(MARK ONE)

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

For the quarterly period ended September 30, 2004

or

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

For the transition period from _______________ to _______________

Commission file number 0-23621

MKS INSTRUMENTS, INC.

(Exact name of registrant as specified in its charter)

Massachusetts	04-2277512
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
90 Industrial Way, Wilmington, Massachusetts	01887
(Address of principal executive offices)	(Zip Code)
Registrant's telephone number, including area code	(978) 284-4000

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

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Exchange Act). Yes [X]   No [ ].

Number of shares outstanding of the issuer's common stock as of October 27, 2004: 53,606,134

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS.

MKS INSTRUMENTS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	September 30, 2004 (Unaudited)	December 31, 2003
ASSETS		
Current assets:		
Cash and cash equivalents	$123,560	$ 74,660
Short-term investments	83,023	54,518
Trade accounts receivable, net	85,333	65,454
Inventories	104,337	82,013
Other current assets	11,106	5,631
Total current assets	407,359	282,276
Long-term investments	10,469	13,625
Property, plant and equipment, net	79,903	76,121
Goodwill, net	259,784	259,924
Acquired intangible assets, net	45,085	56,192
Other assets	3,751	4,724
Total assets	$806,351	$692,862
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Short-term borrowings	$ 20,871	$ 17,736
Current portion of long-term debt	2,133	2,460
Accounts payable	25,673	25,302
Accrued compensation	15,837	7,711
Income taxes payable	14,686	--
Other accrued expenses	23,610	18,599
Total current liabilities	102,810	71,808
Long-term debt	7,111	8,924
Other liabilities	4,458	3,820
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred Stock, $0.01 par value, 2,000,000 shares authorized; none issued and outstanding	--	--
Common Stock, no par value, 200,000,000 shares authorized; 53,606,134 and 52,040,019 issued and outstanding at September 30, 2004 and December 31, 2003, respectively	113	113
Additional paid-in capital	624,411	587,910
Retained earnings	57,962	12,238
Accumulated other comprehensive income	9,486	8,049
Total stockholders' equity	691,972	608,310
Total liabilities and stockholders' equity	$806,351	$692,862

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

MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2004	2003	2004	2003
Net sales	$ 139,651	$ 81,568	$ 424,221	$ 235,513
Cost of sales	84,045	53,846	252,993	154,940
Gross profit	55,606	27,722	171,228	80,573
Research and development	14,201	12,034	43,157	34,719
Selling, general and administrative	22,971	17,090	65,784	52,368
Amortization of acquired intangible assets	3,689	3,612	11,073	11,007
Restructuring, asset impairment and other charges	--	330	437	634
Income (loss) from operations	14,745	(5,344)	50,777	(18,155)
Interest expense	100	173	384	720
Interest income	542	396	1,424	1,505
Other income	--	--	5,402	--
Income (loss) before income taxes	15,187	(5,121)	57,219	(17,370)
Provision for income taxes	3,037	500	11,495	1,151
Net income (loss)	$ 12,150	$ (5,621)	$ 45,724	$ (18,521)
Net income (loss) per share:				
Basic	$ 0.23	$ (0.11)	$ 0.86	$ (0.36)
Diluted	$ 0.22	$ (0.11)	$ 0.83	$ (0.36)
Weighted average common shares outstanding:				
Basic	53,602	51,625	53,466	51,475
Diluted	54,302	51,625	54,785	51,475

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

MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

	Nine Months Ended September 30, 2004	Nine Months Ended September 30, 2003
Cash flows from operating activities:		
Net income (loss)	$ 45,724	$ (18,521)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:		
Depreciation and amortization	20,460	22,165
Gain on collection of a note receivable	(5,042)	--
Gain on the sale of assets	(423)	--
Other	501	79
Changes in operating assets and liabilities:		
Trade accounts receivable	(20,399)	(6,683)
Inventories	(22,546)	(1,480)
Other current assets	(5,475)	(352)
Accrued expenses and other current liabilities	15,180	(2,761)
Accounts payable	384	3,727
Income taxes payable	14,720	--
Net cash provided by (used in) operating activities	43,084	(3,826)
Cash flows from investing activities:		
Purchases of short-term and long-term available for sale investments	(143,586)	(53,471)
Maturities and sales of short-term and long-term available for sale investments	118,627	41,504
Purchases of property, plant and equipment	(13,983)	(4,735)
Purchases of businesses, net of cash acquired	--	(2,150)
Proceeds from sale of property, plant and equipment	1,294	70
Proceeds from collection of a note receivable	5,042	--
Other	1,023	398
Net cash used in investing activities	(31,583)	(18,384)
Cash flows from financing activities:		
Proceeds from short-term borrowings	67,157	48,223
Payments on short-term borrowings	(63,478)	(48,628)
Principal payments on long-term debt	(2,139)	(4,690)
Proceeds from issuance of common stock, net of issuance costs	32,549	--
Proceeds from exercise of stock options and employee stock purchase plan	3,952	4,394
Net cash provided by (used in) financing activities	38,041	(701)
Effect of exchange rate changes on cash and cash equivalents	(642)	1,191
Increase (decrease) in cash and cash equivalents	48,900	(21,720)
Cash and cash equivalents at beginning of period	74,660	88,820
Cash and cash equivalents at end of period	$ 123,560	$ 67,100

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

MKS INSTRUMENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Tables in thousands, except per share data)

1) Basis of Presentation

The terms "MKS" and the "Company" refer to MKS Instruments, Inc. and its subsidiaries. The interim financial data as of September 30, 2004 and for the three and nine months ended September 30, 2004 and 2003 is unaudited; however, in the opinion of MKS, the interim data includes all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the results for the interim periods. The unaudited consolidated financial statements presented herein have been prepared in accordance with the instructions to Form 10-Q and do not include all of the information and note disclosures required by generally accepted accounting principles. The consolidated financial statements should be read in conjunction with the December 31, 2003 audited consolidated financial statements and notes thereto included in the MKS Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 11, 2004.

The preparation of these consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments, including those related to revenue recognition, accounts receivable, inventory, intangible assets, goodwill, other long-lived assets, income taxes, deferred tax valuation allowance and investments. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

Certain amounts in prior periods have been reclassified to be consistent with current period classifications.

2) Stock-Based Compensation

The Company has several stock-based employee compensation plans. The Company accounts for stock-based awards to employees using the intrinsic value method as prescribed by Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees," and related interpretations. Accordingly, no compensation expense is recorded for options issued to employees in fixed amounts with fixed exercise prices at least equal to the fair market value of the Company's common stock at the date of grant. The Company has adopted the provisions of Statement of Financial Accounting Standards ("SFAS") No. 123, "Accounting for Stock-Based Compensation," as amended by SFAS No. 148, "Accounting for Stock-Based Compensation-Transition and Disclosure," through disclosure only.

(Tables in thousands, except per share data)

The following table illustrates the effect on net income (loss) and net income (loss) per share if the Company had applied the fair value recognition provisions of SFAS No. 123 to stock-based employee awards.

	Three Months Ended September 30, 2004	Three Months Ended September 30, 2003	Nine Months Ended September 30, 2004	Nine Months Ended September 30, 2003
Net income (loss):				
Net income (loss) as reported	$ 12,150	$ (5,621)	$ 45,724	$ (18,521)
Deduct: Total stock-based employee compensation expense determined under the fair-value-based method for all awards, net of tax	(6,125)	(4,305)	(18,075)	(14,345)
Pro forma net income (loss)	$ 6,025	$ (9,926)	$ 27,649	$ (32,866)
Basic net income (loss) per share:				
Net income (loss) as reported	$ 0.23	$ (0.11)	$ 0.86	$ (0.36)
Pro forma net income (loss)	$ 0.11	$ (0.19)	$ 0.52	$ (0.64)
Diluted net income (loss) per share:				
Net income (loss) as reported	$ 0.22	$ (0.11)	$ 0.83	$ (0.36)
Pro forma net income (loss)	$ 0.11	$ (0.19)	$ 0.50	$ (0.64)

There was no tax benefit included in the stock-based employee compensation expense determined under the fair-value-based method for the three and nine months ended September 30, 2004 and 2003, as the Company established a full valuation allowance for its net deferred tax assets.

3) Goodwill and Intangible Assets

Intangible Assets

Acquired amortizable intangible assets consisted of the following as of September 30, 2004:

	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Completed technology	$ 72,528	$(36,891)	$ 35,637
Customer relationships	6,640	(3,351)	3,289
Patents, trademarks, tradenames and other	12,394	(6,235)	6,159
	$ 91,562	$(46,477)	$ 45,085

Acquired amortizable intangible assets consisted of the following as of December 31, 2003:

	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Completed technology	$ 72,563	$(27,654)	$ 44,909
Customer relationships	6,640	(2,663)	3,977
Patents, trademarks, tradenames and other	12,394	(5,088)	7,306
	$ 91,597	$(35,405)	$ 56,192

(Tables in thousands, except per share data)

Aggregate amortization expense related to acquired intangibles for the three and nine months ended September 30, 2004 was $3,689,000 and $11,073,000, respectively. Aggregate amortization expense related to acquired intangibles for the three and nine months ended September 30, 2003 was $3,612,000 and $11,007,000, respectively. Estimated amortization expense related to acquired intangibles for the remainder of 2004 will be approximately $3,689,000 and for each of the five succeeding fiscal years is as follows:

Year	Amount
2005	$13,864
2006	11,763
2007	11,129
2008	2,759
2009	1,205

Goodwill

The change in the carrying amount of goodwill during the three and nine months ended September 30, 2004 was not material.

4) Net Income (Loss) Per Share

The following table sets forth the computation of basic and diluted net income (loss) per share:

	Three Months Ended September 30, 2004	Three Months Ended September 30, 2003	Nine Months Ended September 30, 2004	Nine Months Ended September 30, 2003
Numerator				
Net income (loss)	$ 12,150	$ (5,621)	$ 45,724	$ (18,521)
Denominator				
Shares used in net income (loss) per common share - basic	53,602	51,625	53,466	51,475
Effect of dilutive securities:				
Stock options and employee stock purchase plan	700	--	1,319	--
Shares used in net income (loss) per common share - diluted	54,302	51,625	54,785	51,475
Net income (loss) per common share				
Basic	$ 0.23	$ (0.11)	$ 0.86	$ (0.36)
Diluted	$ 0.22	$ (0.11)	$ 0.83	$ (0.36)

For purposes of computing diluted earnings per share, weighted average common share equivalents do not include stock options with an exercise price greater than the average market price of the common shares, which totaled approximately 7,333,000 and 5,002,000 shares for the three and nine months ended September 30, 2004, respectively, as the effect would be anti-dilutive. All options outstanding during the three and nine months ended September 30, 2003 are excluded from the calculation of diluted net loss per common share because their inclusion would be anti-dilutive. There were options to purchase approximately 10,318,000 and 7,898,000 shares of the Company's common stock outstanding as of September 30, 2004 and 2003, respectively.

(Tables in thousands, except per share data)

5) Cash and Cash Equivalents and Investments

All highly liquid investments with an original maturity of three months or less at the date of purchase are considered to be cash equivalents.

Cash and cash equivalents consists of the following:

	September 30, 2004	December 31, 2003
Cash and money market instruments	$ 49,905	$60,869
Commercial paper	43,748	12,645
Federal government and government agency obligations	6,482	876
Corporate obligations	23,425	270
	$123,560	$74,660

The fair value of short-term available-for-sale investments maturing within one year consists of the following:

	September 30, 2004	December 31, 2003
Certificates of deposit	$ 1,612	--
Federal government and government agency obligations	60,006	$41,566
Commercial paper	16,166	10,449
Corporate obligations	5,239	2,503
	$83,023	$54,518

The fair value of long-term available-for-sale investments with maturities greater than 1 year consists of the following:

	September 30, 2004	December 31, 2003
Corporate obligations	$ 9,219	$ 5,499
Federal government and government agency obligations	1,250	4,807
Commercial paper	--	3,319
	$10,469	$13,625

The appropriate classification of investments in securities is determined at the time of purchase. Debt securities that the Company does not have the intent and ability to hold to maturity are classified as "available-for-sale" and are carried at fair value. Unrealized gains and losses on securities classified as available-for-sale are included in accumulated other comprehensive income in consolidated stockholders' equity. Gross unrealized gains and gross unrealized losses on available-for-sale investments were not material at September 30, 2004 and December 31, 2003, respectively.

(Tables in thousands, except per share data)

6) Inventories

Inventories consist of the following:

	September 30, 2004	December 31, 2003
Raw material	$ 45,803	$ 36,834
Work in process	23,472	15,786
Finished goods	35,062	29,393
	$104,337	$ 82,013

7) Stockholders' Equity

	Three Months Ended September 30, 2004	Three Months Ended September 30, 2003	Nine Months Ended September 30, 2004	Nine Months Ended September 30, 2003
Net income (loss)	$ 12,150	$ (5,621)	$ 45,724	$ (18,521)
Other comprehensive income, net of taxes of $0:				
Changes in value of financial instruments designated as hedges of currency	460	(1,186)	2,368	(1,024)
Foreign currency translation adjustment	311	1,612	(1,041)	3,837
Unrealized gain (loss) on investments	83	(48)	110	(61)
Other comprehensive income, net of taxes	854	378	1,437	2,752
Total comprehensive income (loss)	$ 13,004	$ (5,243)	$ 47,161	$ (15,769)

Common Stock Offering

On January 21, 2004, the Company issued 1,142,857 shares of its common stock at $26.25 per share through a public offering. Proceeds of the offering, net of underwriters' discount and offering expenses, were approximately $28,251,000. On January 23, 2004, the underwriters exercised their over-allotment option and therefore, the Company issued an additional 171,429 shares of its common stock, which generated net proceeds of approximately $4,298,000.

8) Income Taxes

The Company records income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the consolidated financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, and operating loss and tax credit carryforwards. The Company evaluates the realizability of its net deferred tax assets and assesses the need for a valuation allowance on a quarterly basis. The future benefit to be derived from its deferred tax assets is dependent upon its ability to generate sufficient future taxable income to realize the assets. The Company records a valuation allowance to reduce its net deferred tax assets to the amount that may be more likely than not to be realized. To the extent the Company establishes a valuation allowance, an expense will be recorded within the provision for income taxes line on the consolidated statements of operations.

As a result of incurring significant operating losses from 2001 through 2003, the Company determined that it is more likely than not that its deferred tax assets may not be realized. During the fourth quarter of 2002, the Company established a full valuation allowance for its net deferred tax assets. At September 30, 2004 and December 31, 2003, the Company continued to believe that it is more likely than not that all of its deferred tax assets may not be realized. If the Company generates sustained future taxable income against which these tax attributes may be applied, some portion or all of the valuation allowance would be reversed. If the valuation allowance were reversed, a portion would be recorded as a reduction of goodwill, an additional amount would be recorded as an increase to additional paid in capital and the remainder would be recorded as a reduction to income tax expense.

(Tables in thousands, except per share data)

During the three and nine months ended September 30, 2004, the Company's estimated U.S. federal tax liability has been offset by the benefit from U.S. net operating loss carryforwards. The tax rate for the three and nine months ended September 30, 2004 differs from the U.S. statutory rate primarily due to the release of the valuation allowance associated with the utilization of the prior federal net operating loss. The provision for income taxes for the three and nine months ended September 30, 2003 was comprised of tax expense from foreign operations and state taxes.

9) Geographic, Product and Significant Customer Information

The Company operates in one segment for the development, manufacturing, sales and servicing of instruments, components, subsystems and process control solutions that measure, control, power and monitor critical parameters of semiconductor and other advanced manufacturing processes. The Company's chief decision-maker reviews operating results for the entire Company to make decisions about allocating resources and assessing performance.

Information about the Company's operations in different geographic regions is presented in the tables below. Net sales to unaffiliated customers are based on the location in which the sale originated. Transfers between geographic areas are at negotiated transfer prices and have been eliminated from consolidated net sales.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2004	2003	2004	2003
Geographic net sales				
United States ...	$ 93,052	$ 47,091	$280,971	$138,029
Japan	21,181	14,196	63,979	40,369
Europe	11,744	11,614	36,807	31,801
Asia	13,674	8,667	42,464	25,314
	$139,651	$ 81,568	$424,221	$235,513

	September 30, 2004	December 31, 2003
Long-lived assets:		
United States	$68,907	$65,977
Japan	5,814	5,978
Europe	5,026	5,541
Asia	3,907	3,349
	$83,654	$80,845

The Company groups its products into three product groups. Net sales for these product groups are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2004	2003	2004	2003
Instruments and Control Systems	$ 65,310	$ 40,950	$191,976	$115,721
Power and Reactive Gas Products	57,978	30,898	179,932	90,750
Vacuum Products	16,363	9,720	52,313	29,042
	$139,651	$ 81,568	$424,221	$235,513

The Company had one customer comprising 19% and 17% of net sales for the three months ended September 30, 2004 and 2003, respectively, and 20% and 17% for the nine months ended September 30, 2004 and 2003, respectively.

10) Commitments and Contingencies

On July 12, 2004, Advanced Energy Industries, Inc. ("Advanced Energy") filed suit against MKS in federal district court in Delaware, seeking injunctive relief and damages for alleged infringement of a patent held by Advanced Energy. On August 30, 2004, the Company filed its answer to the complaint, denying Advanced Energy's claims and stating a counterclaim seeking a declaratory judgment that the claims of the patent are invalid, unenforceable and not infringed by the Company or its products. Given that the litigation is in the early stages, the Company cannot be certain of the outcome of this litigation, but does plan to oppose the claims vigorously.

On January 12, 2004, Gas Research Institute ("GRI") brought suit in federal district court in Illinois against the Company, On-Line Technologies, Inc. ("On-Line") which we acquired in 2001, and another defendant, Advanced Fuel Research, Inc. ("AFR"), for breach of contract, misappropriation of trade secrets and related claims relating to certain infra-red gas analysis technology allegedly developed under a January 1995 Contract for Research between GRI and AFR. The technology was alleged to have been incorporated into certain of the Company's products. GRI made claims for damages, exemplary damages, attorney's fees and costs and injunctive relief. The Company filed an answer, denying liability and asserting various defenses to GRI's claims. The Company also asserted a cross-claim against co-defendant AFR, alleging misrepresentation, breach of contract and breach of various duties owed by AFR, and alleging that in the event the Company and On-Line are held liable to GRI, AFR would be required to reimburse, indemnify, and hold harmless On-Line and the Company for any such liability. On November 9, 2004, the parties entered into a settlement agreement and the court dismissed the case, including cross-claims, pursuant to the settlement.

On April 3, 2003, Advanced Energy filed suit against MKS in federal district court in Colorado ("Colorado Action"), seeking a declaratory judgment that Advanced Energy's Xstream product does not infringe three patents held by the Company's subsidiary Applied Science and Technology, Inc. ("ASTeX"). On May 14, 2003, MKS brought suit in federal district court in Delaware against Advanced Energy for infringement of five ASTeX patents, including the three patents at issue in the Colorado Action. The Company sought injunctive relief and damages for Advanced Energy's infringement. These lawsuits are unrelated to the Advanced Energy litigation described above. On December 24, 2003, the Colorado court granted the Company's motion to transfer Advanced Energy's Colorado Action to Delaware. In connection with the jury trial, the parties agreed to present the jury with representative claims from three of the five ASTeX patents. On July 23, 2004, the jury found that Advanced Energy infringed all three patents. The Company has filed a motion for a permanent injunction, which is pending before the court, and the parties are currently briefing post-trial motions. The parties are also awaiting a trial date with respect to damages and associated claims of the Company and certain remaining affirmative defenses and related claims of Advanced Energy. That trial date has not yet been scheduled.

On November 3, 1999, On-Line brought suit in federal district court in Connecticut against Perkin-Elmer, Inc. and certain other defendants for infringement of On-Line's patent related to its FTIR spectrometer product and related claims. The suit sought injunctive relief and damages for infringement. Perkin-Elmer, Inc. filed a counterclaim seeking invalidity of the patent, costs and attorneys' fees. In June 2002, the defendants filed a motion for summary judgment. In April 2003, the court granted the motion and dismissed the case. The Company appealed this decision to the federal circuit court of appeals. On October 13, 2004, the federal circuit court of appeals reversed the lower court's dismissal of certain claims in the case. Accordingly, the court is expected to reinstate the case in federal district court in Connecticut.

(Tables in thousands, except per share data)

The Company is subject to other legal proceedings and claims, which have arisen in the ordinary course of business.

In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on the Company's results of operations, financial condition or cash flows.

11) Restructuring, Asset Impairment and Other Charges

As a result of its various acquisitions from 2000 through 2002 and the downturn in the semiconductor capital equipment market which began in 2000, the Company had redundant activities and excess manufacturing capacity and office space. Therefore in 2002, and continuing through the first quarter of 2004, the Company implemented restructuring activities to rationalize manufacturing operations and reduce operating expenses. As a result, in 2002 the Company took a restructuring charge of $2,726,000, which consisted of $1,228,000 related to exiting leased facilities, $631,000 of severance cost related to 225 terminated employees and an asset impairment charge of $867,000.

In the second quarter of 2003, the Company recorded restructuring, asset impairment and other charges of $304,000 related to the consolidation of previous acquisitions. The charges consisted of $112,000 of severance costs related to workforce reductions, an asset impairment charge of $92,000 primarily for assets to be disposed and $100,000 of professional fees related to the consolidation.

In the third quarter of 2003, the Company recorded restructuring, asset impairment and other charges of $330,000. These charges consisted of $129,000 of severance costs related to workforce reductions and $201,000 of professional fees and other charges related to the consolidation.

During the first quarter of 2004, the Company completed its restructuring activities related to the consolidation of operations from acquired companies when it exited an additional leased facility and recorded a restructuring charge of $437,000.

The following table sets forth the activity in the restructuring accruals from December 31, 2003 to September 30, 2004:

	Workforce Reductions	Facility Consolidations	Total
Balance as of December 31, 2003	$ 199	$ 1,831	$ 2,030
Restructuring provision in first quarter	--	437	437
Charges utilized in first quarter	(15)	(226)	(241)
Balance as of March 31, 2004	184	2,042	2,226
Charges utilized in second quarter	(95)	(276)	(371)
Balance as of June 30, 2004	89	1,766	1,855
Charges utilized in third quarter	--	(121)	(121)
Balance as of September 30, 2004	$ 89	$ 1,645	$ 1,734

The remaining accruals for workforce reductions are expected to be paid by June of 2005. The facilities consolidation charges will be paid over the respective lease terms, the latest of which ends in 2008. The accruals for severance costs and lease payments are recorded in Other accrued expenses and Other liabilities in the consolidated balance sheets.

(Tables in thousands, except per share data)

12) Product Warranties

The Company provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. While the Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of its component suppliers, the Company's warranty obligation is affected by product failure rates, utilization levels, material usage, and supplier warranties on parts delivered to the Company. Should actual product failure rates, utilization levels, material usage, or supplier warranties on parts differ from the Company's estimates, revisions to the estimated warranty liability would be required.

Product warranty activity for the nine months ended September 30, 2004 and 2003 was as follows:

	2004	2003
Balance at beginning of year	$ 5,804	$ 6,921
Provisions for product warranties during the period	6,473	2,099
Direct charges to the warranty liability during the period	(4,429)	(3,279)
Balance as of September 30	$ 7,848	$ 5,741

13) Other Income

During the second quarter of 2004, the Company received $5,042,000 related to the collection of a note receivable that had been written off in the third quarter of 2002. This amount was recorded as a gain and included in Other income in the consolidated statements of operations for the nine months ended September 30, 2004.

14) Short-term Borrowings

On August 3, 2004, the Company entered into an unsecured short-term LIBOR based loan agreement with a bank to be utilized primarily by its Japanese subsidiary for short-term liquidity purposes. The credit line, which expires on August 1, 2005, provides for the Company to borrow in multiple currencies of up to an equivalent of $35,000,000 U.S. dollars. At September 30, 2004, the Company had outstanding borrowings of 1.1 billion Yen or $9,982,000 U.S. dollars, payable on demand, at an interest rate of 1.3%.

Additionally, the Company's Japanese subsidiary has lines of credit and short-term borrowing arrangements with various financial institutions which provided for aggregate borrowings as of September 30, 2004 and December 31, 2003 of up to $28,131,000 and $28,003,000, respectively, which generally expire and are renewed at one to six month intervals. At September 30, 2004 and December 31, 2003, total borrowings outstanding under these arrangements were $10,889,000 and $17,736,000, respectively, at interest rates ranging from 1.24% to 1.29% and 1.23% to 1.50%, respectively.

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

We believe that this Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. When used herein, the words "believes," "anticipates," "plans," "expects," "estimates" and similar expressions are intended to identify forward-looking statements. These forward-looking statements reflect management's current opinions and are subject to certain risks and uncertainties that could cause results to differ materially from those stated or implied. We assume no obligation to update this information. Risks and uncertainties include, but are not limited to, those discussed in the section in this Report entitled "Factors That May Affect Future Results."

OVERVIEW

We are a leading worldwide provider of instruments, components, subsystems and process control solutions that measure, control, power and monitor critical parameters of semiconductor and other advanced manufacturing processes.

We are managed as one operating segment which is organized around three product groups: Instruments and Control Systems, Power and Reactive Gas Products, and Vacuum Products. Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas and thin-film composition analysis, control and information management, power and reactive gas generation and vacuum technology. Our products are used to manufacture semiconductors and thin film coatings for diverse markets such as flat panel displays, optical and magnetic storage media, architectural glass, and electro-optical products. We also provide technologies for medical imaging equipment.

Our customers include semiconductor capital equipment manufacturers, semiconductor device manufacturers, industrial manufacturing companies, medical equipment manufacturers and university, government and industrial research laboratories. For the nine months ended September 30, 2004 and the full year ended December 31, 2003, we estimate that approximately 77% and 69% of our net sales, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers.

During the latter half of 2003 and continuing into the first half of 2004, the semiconductor capital equipment market experienced a market upturn after almost a three-year downturn. Starting in the fourth quarter of 2003, we experienced an increase in orders and shipments and as a result have returned to profitability. In the third quarter of 2004 our orders and sales declined from the second quarter of 2004. We currently expect our fourth quarter 2004 sales to be lower than the third quarter of 2004. The semiconductor capital equipment industry has been very cyclical, and we cannot determine how long this trend will last.

A portion of our sales is to operations in international markets. International sales include sales by our foreign subsidiaries, but exclude direct export sales. For the nine months ended September 30, 2004 and full year ended December 31, 2003, international sales accounted for approximately 34% and 41% of net sales, respectively.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of our consolidated financial statements and related disclosures in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, assumptions and estimates that affect the amounts reported. There have been no material changes in our critical accounting policies since December 31, 2003. See the discussion of critical accounting policies in our Annual Report on Form 10-K for the year ended December 31, 2003.

RESULTS OF OPERATIONS

The following table sets forth for the periods indicated the percentage of total net sales of certain line items included in MKS' consolidated statements of operations data.

	Three Months Ended September 30, 2004	Three Months Ended September 30, 2003	Nine Months Ended September 30, 2004	Nine Months Ended September 30, 2003
Net sales	100.0%	100.0%	100.0%	100.0%
Cost of sales	60.2	66.0	59.6	65.8
Gross profit	39.8	34.0	40.4	34.2
Research and development	10.2	14.8	10.2	14.7
Selling, general and administrative	16.4	21.0	15.5	22.2
Amortization of acquired intangible assets	2.6	4.4	2.6	4.7
Restructuring, asset impairment and other charges	--	0.4	0.1	0.3
Income (loss) from operations	10.6	(6.6)	12.0	(7.7)
Interest income, net	0.3	0.3	0.2	0.3
Other income	--	--	1.3	--
Income (loss) before income taxes	10.9	(6.3)	13.5	(7.4)
Provision for income taxes	2.2	0.6	2.7	0.5
Net income (loss)	8.7%	(6.9)%	10.8%	(7.9)%

Net Sales. Net sales for the three months ended September 30, 2004 increased $58.1 million or 71% to $139.7 million from $81.6 million for the three months ended September 30, 2003. The increase was due mainly to stronger worldwide demand from our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers, which increased $50.6 million or 92% compared to the same period in the prior year. International net sales were $46.6 million for the three months ended September 30, 2004 or 33.4% of net sales compared to $34.5 million for the same period of 2003 or 42.3% of net sales.

Net sales for the nine months ended September 30, 2004 increased $188.7 million or 80% to $424.2 million from $235.5 million for the nine months ended September 30, 2003. The increase was due mainly to stronger worldwide demand from our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers, which increased $172.3 million or 110% compared to the same period in the prior year. International net sales were $143.3 million for the nine months ended September 30, 2004 or 33.8% of net sales compared to $97.5 million for the same period of 2003 or 41.4% of net sales.

Gross Profit. Gross profit as a percentage of net sales increased to 39.8% for the three months ended September 30, 2004 from 34.0% for the three months ended September 30, 2003. The increase was mainly due to our overhead costs increasing at a lesser rate than the increase in our net sales, resulting in 3.9 percentage points of margin improvement. The additional favorable change in gross margin of approximately 1.9 percentage points is mostly related to the gradual transition to lower cost material and manufacturing sources, partially offset by unfavorable product mix.

For the nine months ended September 30, 2004 gross profit increased to 40.4% from 34.2% for the nine months ended September 30, 2003. The increase was mainly due to our overhead costs increasing at a lesser rate than the increase in our net sales, resulting in 5.0 percentage points of margin improvement. The additional favorable change in gross margin of approximately 1.2 percentage points is mostly related to the gradual transition to lower cost material and manufacturing sources, partially offset by unfavorable product mix.

Research and Development. Our research and development is primarily focused on developing and improving our instruments, components, subsystems and process control solutions that measure, control, power and monitor critical parameters of semiconductor and other advanced manufacturing processes.

We have hundreds of products and our research and development efforts primarily consist of a large number of projects related to these products, none of which is in and of itself material to us. Current projects typically have a duration of 12 to 30 months depending upon whether the product is an enhancement of existing technology or a new product. Our current initiatives include projects to enhance the performance characteristics of older products, to develop new products and to integrate various technologies into subsystems. These projects support in large part the transition in the semiconductor industry to larger wafer sizes and smaller integrated circuit geometries, which require more advanced process control technology. Research and development expenses consist primarily of salaries and related expense for personnel engaged in research and development, fees paid to consultants, material costs for prototypes and other expenses related to the design, development, testing and enhancement of our products.

Research and development expense for the three months ended September 30, 2004 increased $2.2 million or 18% to $14.2 million or 10.2% of net sales from $12.0 million or 14.8% of net sales for the three months ended September 30, 2003. The increase was primarily due to increased compensation expense of $1.4 million as a result of higher staffing levels, restored compensation levels, salary increases and incentive compensation, $0.4 million of higher project material expenses and $0.4 million of higher consulting expenses.

Research and development expense for the nine months ended September 30, 2004 increased $8.4 million or 24% to $43.2 million or 10.2% of net sales from $34.7 million or 14.7% of net sales for the nine months ended September 30, 2003. The increase was primarily due to increased compensation expense of $4.6 million as a result of higher staffing levels, restored compensation levels, salary increases and incentive compensation, $2.6 million of higher project material expenses, mainly related to our power and reactive gas products, and $1.0 million of increased consulting costs.

We believe that the continued investment in research and development and ongoing development of new products are essential to the expansion of our markets, and expect to continue to make significant investment in research and development activities. We are subject to risks if products are not developed in a timely manner, due to rapidly changing customer requirements and competitive threats from other companies and technologies. Our success primarily depends on our products being designed into new generations of equipment for the semiconductor industry. We develop products that are technologically current so that they are positioned to be chosen for use in each successive generation of semiconductor capital equipment. If our products are not chosen to be designed into our customers' products, our net sales may be reduced during the lifespan of those products.

Selling, General and Administrative. Selling, general and administrative expenses for the three months ended September 30, 2004 increased $5.9 million or 34% to $23.0 million or 16.4% of net sales from $17.1 million or 21.0% of net sales for the three months ended September 30, 2003. The increase was primarily due to higher compensation expense of $2.3 million as a result of restored compensation levels, salary increases, incentive compensation and higher sales commissions, $1.3 million in higher legal fees related mainly to our patent infringement litigation against Advanced Energy, $0.9 million increase in consulting fees primarily for information technology ("IT") related services, and $0.7 million increase in professional fees primarily related to compliance with the Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley").

Selling, general and administrative expenses for the nine months ended September 30, 2004 increased $13.4 million or 26% to $65.8 million or 15.5% of net sales from $52.4 million or 22.2% of net sales for the nine months ended September 30, 2003. The increase was primarily due to higher compensation expense of $7.4 million as a result of restored compensation levels, salary increases, incentive compensation and higher sales commissions, $2.7 million in higher legal fees related mainly to our patent infringement litigation against Advanced Energy, $1.0 million increase in consulting fees primarily for IT related services, and $1.0 million increase in professional fees primarily related to compliance with Sarbanes-Oxley.

Amortization of Acquired Intangible Assets. Amortization expense of $3.7 million and $11.1 million for the three and nine months ended September 30, 2004, respectively, represents the amortization of the identifiable intangibles resulting from our completed acquisitions. Amortization of identifiable intangibles was $3.6 million and $11.0 million for the three and nine months ended September 30, 2003, respectively.

Restructuring, Asset Impairment and Other Charges. As a result of our various acquisitions from 2000 through 2002 and the downturn in the semiconductor capital equipment market which began in 2000, we had redundant activities and excess manufacturing capacity and office space. Therefore in 2002, and continuing through the first quarter of 2004, we implemented restructuring activities to rationalize manufacturing operations and reduce operating expenses. As a result, in 2002 we took a restructuring charge of $2.7 million which consisted of $1.2 million related to exiting leased facilities, $0.6 million of severance cost related to 225 terminated employees and an asset impairment charge of $0.9 million.

During the three months ended June 30, 2003, we recorded restructuring, asset impairment and other charges of $0.3 million related to our restructuring activities. The charges consisted of $0.1 million of severance costs related to workforce reductions, an asset impairment charge of $0.1 million, primarily for assets to be disposed and $0.1 million of professional fees related to the consolidation.

During the three months ended September 30, 2003, we recorded restructuring, asset impairment and other charges of $0.3 million related to our restructuring activities. The charges consisted of $0.1 million of severance costs related to workforce reductions and $0.2 million of professional fees and other costs related to the consolidation.

During the three months ended March 31, 2004, we completed our restructuring activities related to the consolidation of operations from acquired companies when we exited an additional leased facility and recorded a restructuring charge of $0.4 million.

The combined restructuring initiatives are expected to generate annual savings of approximately $12.6 million mainly through reduced payroll and facility related costs. We began to realize savings related to the restructuring initiatives in the fourth quarter of 2002. For the year ending December 31, 2004, we expect to realize approximately $11.8 million of annualized savings. The remaining expected annualized savings should be realized in 2005.

The following table sets forth the activity in the restructuring accruals from December 31, 2003 to September 30, 2004:

	Workforce Reductions	Facility Consolidations	Total
		(in thousands)	
Balance as of December 31, 2003	$ 199	$ 1,831	$ 2,030
Restructuring provision in first quarter	--	437	437
Charges utilized in first quarter	(15)	(226)	(241)
Balance as of March 31, 2004	184	2,042	2,226
Charges utilized in second quarter	(95)	(276)	(371)
Balance as of June 30, 2004	89	1,766	1,855
Charges utilized in third quarter	--	(121)	(121)
Balance as of September 30, 2004	$ 89	$ 1,645	$ 1,734

The remaining cash outlays at September 30, 2004 of $1.7 million consist primarily of terminated lease obligations, the latest term of which expires in 2008. These payments will be made out of current working capital.

Interest Income, Net. During the three and nine months ended September 30, 2004, we generated net interest income of $0.4 million and $1.0 million, respectively, which are comparable to the $0.2 million and $0.8 million for the three and nine months ended September 30, 2003, respectively. The increase in the three and nine months ended September 30, 2004 is mainly related to higher investment balances in 2004.

Other Income. Other income of $5.4 million for the nine months ended September 30, 2004 consisted primarily of a gain of $5.0 million related to the collection of a note receivable in the second quarter of 2004 that was written off in 2002.

Provision for Income Taxes. As a result of incurring significant operating losses from 2001 through 2003, we determined that it is more likely than not that our deferred tax assets may not be realized, and since the fourth quarter of 2002 have established a full valuation allowance for our net deferred tax assets. If we generate sustained future taxable income against which these tax attributes may be applied, some portion or all of the valuation allowance would be reversed. If the valuation allowance were reversed, a portion would be recorded as a reduction of goodwill, an additional amount would be recorded as an increase to additional paid-in capital, and the remainder would be recorded as a reduction to income tax expense.

We recorded a provision for income taxes of $3.0 million and $11.5 million for the three and nine months ended September 30, 2004, respectively, as compared to a provision of $0.5 million and $1.2 million for the three and nine months ended September 30, 2003, respectively. During the three and nine months ended September 30, 2004, our estimated U.S. federal tax liability has been offset by the benefit from U.S. net operating loss carryforwards. The tax rate for the three and nine months ended September 30, 2004 differs from the U.S. statutory rate primarily due to the release of the valuation allowance associated with the utilization of the prior federal net operating loss. The provision for income tax for the three and nine months ended September 30, 2003 was comprised of tax expense from foreign operations and state taxes.

LIQUIDITY AND CAPITAL RESOURCES

Cash, cash equivalents and short-term marketable securities totaled $206.6 million at September 30, 2004 compared to $129.2 million at December 31, 2003. This increase is mainly due to net proceeds of approximately $32.5 million from our public offering of common stock in the first quarter of 2004 and $43.1 million of cash generated from operations during the nine months ended September 30, 2004. The primary driver in our current and anticipated future cash flows is and will continue to be cash generated from operations, consisting mainly of our net income and changes in operating assets and liabilities. In periods when our sales are growing, higher sales to customers will result in increased trade receivables and inventories will generally increase as we build products for future sales. This may result in lower cash generated from operations. Conversely, in periods when our sales are declining our trade accounts receivable and inventory balances will generally decrease, resulting in increased cash from operations.

Net cash provided by operating activities of $43.1 million for the nine months ended September 30, 2004 resulted mainly from net income of $45.7 million, non-cash depreciation and amortization expenses of $20.5 million and an increase in operating liabilities of $30.3 million, partially offset by an increase in operating assets of $48.4 million and a $5.0 million gain related to the collection of a previously written off note receivable. The increase in operating assets consisted mainly of an increase in accounts receivable of $20.4 million due to the higher shipments in the third quarter of 2004 of $139.7 million as compared to the fourth quarter of 2003 of $101.8 million, partially offset by a decrease in our days sales outstanding from 63 days for the nine months ended September 30, 2003 to 55 days for the nine months ended September 30, 2004 as a result of improved cash collections, and an increase in inventory of $22.5 million as a result of higher production volumes in 2004 to support the higher revenues. The increase in operating liabilities consisted primarily of an increase in accrued expenses and other current liabilities of $15.2 million resulting mainly from increased accrued compensation, warranty reserves and non-income related tax accruals, as well as a $14.7 million increase in income tax payable. Net cash used in operating activities of $3.8 million for the nine months ended September 30, 2003 resulted mainly from a net loss of $18.5 million and an increase in operating assets of $8.5 million, offset by non-cash charges included in the net loss for depreciation and amortization of $22.2 million and an increase in operating liabilities of $1.0 million. The increase in operating assets consisted mainly of an increase in accounts receivable of $6.7 million due to the timing of shipments during the quarter.

Net cash used in investing activities of $31.6 million for the nine months ended September 30, 2004 resulted from the net purchases of $25.0 million of available for sale investments mainly from the net proceeds received from our stock offering in the first quarter, and the purchase of property, plant and equipment of $14.0 million for investments in manufacturing equipment and for consolidation of our IT infrastructure, partially offset by proceeds of $5.0 million received from the collection of a note receivable that was previously written off. Net cash used in investing activities of $18.4 million for the nine months ended September 30, 2003 consisted mainly of net purchases of short-term and long-term available for sale investments of $12.0 million, purchases of property, plant and equipment of $4.7 million and $2.2 million for the purchase of a business.

Net cash provided by financing activities of $38.0 million for the nine months ended September 30, 2004 consisted primarily of $32.5 million in net proceeds received from our common stock offering in the first quarter, $4.0 million in proceeds from the exercise of stock options and purchases under the employee stock purchase plan, and net proceeds of $3.7 million from short-term borrowings, partially offset by $2.1 million of principal payments on long-term debt. Net cash used in financing activities of $0.7 million for the nine months ended September 30, 2003 consisted of principal payments of $4.7 million on long-term debt and capital lease obligations offset by proceeds from the exercise of stock options of $4.4 million.

On August 3, 2004, we entered into an unsecured short-term LIBOR based loan agreement with a bank to be utilized primarily by our Japanese subsidiary for short-term liquidity purposes. The credit line, which expires on August 1, 2005, provides for us to borrow in multiple currencies of up to an equivalent $35.0 million. At September 30, 2004, we had outstanding borrowings of $10.0 million, payable on demand, at an interest rate of 1.3%.

We believe that our current working capital, together with the cash anticipated to be generated from operations and funds available from existing credit facilities, will be sufficient to satisfy our estimated working capital and planned capital expenditure requirements through at least the next twelve months.

As of September 30, 2004, we had $59.4 million of purchase obligations compared to $50.2 million at December 31, 2004. The increase is mainly due to inventory purchase commitments as a result of increased production volumes in 2004. The majority of the outstanding inventory purchase commitments of approximately $54.9 million at September 30, 2004 are to be purchased within the next 12 months.

OFF-BALANCE SHEET ARRANGEMENTS

We do not have any financial partnerships with unconsolidated entities, such as entities often referred to as structured finance, special purpose entities or variable interest entities which are often established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. Accordingly, we are not exposed to any financing, liquidity, market or credit risk that could arise if we had such relationships.

FACTORS THAT MAY AFFECT FUTURE RESULTS

OUR BUSINESS DEPENDS SUBSTANTIALLY ON CAPITAL SPENDING IN THE SEMICONDUCTOR INDUSTRY WHICH IS CHARACTERIZED BY PERIODIC FLUCTUATIONS THAT MAY CAUSE A REDUCTION IN DEMAND FOR OUR PRODUCTS.

We estimate that approximately 77% of our net sales for the nine months ended September 30, 2004 and 69%, 70% and 64% of our net sales for the years ended December 31, 2003, 2002 and 2001, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers, and we expect that sales to such customers will continue to account for a substantial majority of our sales. Our business depends upon the capital expenditures of semiconductor device manufacturers, which in turn depend upon the demand for semiconductors. Periodic reductions in demand for the products manufactured by semiconductor capital equipment manufacturers and semiconductor device manufacturers may adversely affect our business, financial condition and results of operations.

Historically, the semiconductor market has been highly cyclical and has experienced periods of overcapacity, resulting in significantly reduced demand for capital equipment. In 2001, 2002 and the first half of 2003, we experienced a significant reduction in demand from OEM customers, and lower gross margins due to reduced absorption of manufacturing overhead. In addition, many semiconductor manufacturers have operations and customers in Asia, a region that in recent years has experienced serious economic problems including currency devaluations, debt defaults, lack of liquidity and recessions. We cannot be certain that semiconductor downturns will not continue or recur. A decline in the level of orders as a result of any future downturn or slowdown in the semiconductor capital equipment industry could have a material adverse effect on our business, financial condition and results of operations.

OUR QUARTERLY OPERATING RESULTS HAVE VARIED, AND ARE LIKELY TO CONTINUE TO VARY SIGNIFICANTLY. THIS MAY RESULT IN VOLATILITY IN THE MARKET PRICE OF OUR COMMON STOCK.

A substantial portion of our shipments occurs shortly after an order is received and therefore we operate with a low level of backlog. As a result, a decrease in demand for our products from one or more customers could occur with limited advance notice and could have a material adverse effect on our results of operations in any particular period. A significant percentage of our expenses are relatively fixed and based in part on expectations of future net sales. The inability to adjust spending quickly enough to compensate for any shortfall would magnify the adverse impact of a shortfall in net sales on our results of operations. Factors that could cause fluctuations in our net sales include:

- the timing of the receipt of orders from major customers;
- shipment delays;
- disruption in sources of supply;
- seasonal variations of capital spending by customers;
- production capacity constraints; and
- specific features requested by customers.

In addition, our quarterly operating results may be adversely affected due to charges incurred in a particular quarter, for example, relating to inventory obsolescence, bad debt or asset impairments.

As a result of the factors discussed above, it is likely that we may in the future experience quarterly or annual fluctuations and that, in one or more future quarters, our operating results may fall below the expectations of public market analysts or investors. In any such event, the price of our common stock could decline significantly.

THE LOSS OF NET SALES TO ANY ONE OF OUR MAJOR CUSTOMERS WOULD LIKELY HAVE A MATERIAL ADVERSE EFFECT ON US.

Our top ten customers accounted for approximately 50% of our net sales for the nine months ended September 30, 2004, and 42%, 49% and 39% of our net sales for the years ended December 31, 2003, 2002 and 2001, respectively. The loss of a major customer or any reduction in orders by these customers, including reductions due to market or competitive conditions, would likely have a material adverse effect on our business, financial condition and results of operations. During the nine months ended September 30, 2004 and years ended December 31, 2003, 2002 and 2001, one customer, Applied Materials, accounted for approximately 20%, 18%, 23% and 18%, respectively, of our net sales. None of our significant customers, including Applied Materials, has entered into an agreement requiring it to purchase any minimum quantity of our products. The demand for our products from our semiconductor capital equipment customers depends in part on orders received by them from their semiconductor device manufacturer customers.

Attempts to lessen the adverse effect of any loss or reduction of net sales through the rapid addition of new customers could be difficult because prospective customers typically require lengthy qualification periods prior to placing volume orders with a new supplier. Our future success will continue to depend upon:

- our ability to maintain relationships with existing key customers;

- our ability to attract new customers;

- our ability to introduce new products in a timely manner for existing and new customers; and

- the success of our customers in creating demand for their capital equipment products which incorporate our products.

AS PART OF OUR BUSINESS STRATEGY, WE HAVE ENTERED INTO AND MAY ENTER INTO OR SEEK TO ENTER INTO BUSINESS COMBINATIONS AND ACQUISITIONS THAT MAY BE DIFFICULT AND COSTLY TO INTEGRATE, DISRUPT OUR BUSINESS, DILUTE STOCKHOLDER VALUE OR DIVERT MANAGEMENT ATTENTION.

We made several acquisitions in the years 2000 through 2002. As a part of our business strategy, we may enter into additional business combinations and acquisitions. Acquisitions are typically accompanied by a number of risks, including the difficulty of integrating the operations and personnel of the acquired companies, the potential disruption of our ongoing business and distraction of management, expenses related to the acquisition and potential unknown liabilities associated with acquired businesses. If we are not successful in completing acquisitions that we may pursue in the future, we may be required to reevaluate our growth strategy, and we may incur substantial expenses and devote significant management time and resources in seeking to complete proposed acquisitions that will not generate benefits for us.

In addition, with future acquisitions, we could use substantial portions of our available cash as all or a portion of the purchase price. We could also issue additional securities as consideration for these acquisitions, which could cause significant stockholder dilution. Our prior acquisitions and any future acquisitions may not ultimately help us achieve our strategic goals and may pose other risks to us.

As a result of our previous acquisitions, we have added several different decentralized operating and accounting systems, resulting in a complex reporting environment. We expect that we will need to continue to modify our accounting policies, internal controls, procedures and compliance programs to provide consistency across all our operations. In order to increase efficiency and operating effectiveness and improve corporate visibility into our decentralized operations, we are currently in the planning and design phase of implementing a new worldwide ERP system. We expect to implement the ERP system by converting our operations in phases over the next few years, beginning in the first half of 2005. Although we have a detailed plan to accomplish the ERP implementation, we may risk potential disruption of our operations during the conversion periods, the implementation could require significantly more management time than currently estimated and we could incur significantly higher implementation costs than currently estimated.

AN INABILITY TO CONVINCE SEMICONDUCTOR DEVICE MANUFACTURERS TO SPECIFY THE USE OF OUR PRODUCTS TO OUR CUSTOMERS, THAT ARE SEMICONDUCTOR CAPITAL EQUIPMENT MANUFACTURERS, WOULD WEAKEN OUR COMPETITIVE POSITION.

The markets for our products are highly competitive. Our competitive success often depends upon factors outside of our control. For example, in some cases, particularly with respect to mass flow controllers, semiconductor device manufacturers may direct semiconductor capital equipment manufacturers to use a specified supplier's product in their equipment. Accordingly, for such products, our success will depend in part on our ability to have semiconductor device manufacturers specify that our products be used at their semiconductor fabrication facilities. In addition, we may encounter difficulties in changing established relationships of competitors that already have a large installed base of products within such semiconductor fabrication facilities.

IF OUR PRODUCTS ARE NOT DESIGNED INTO SUCCESSIVE GENERATIONS OF OUR CUSTOMERS' PRODUCTS, WE WILL LOSE SIGNIFICANT NET SALES DURING THE LIFESPAN OF THOSE PRODUCTS.

New products designed by semiconductor capital equipment manufacturers typically have a lifespan of five to ten years. Our success depends on our products being designed into new generations of equipment for the semiconductor industry. We must develop products that are technologically current so that they are positioned to be chosen for use in each successive generation of semiconductor capital equipment. If customers do not choose our products, our net sales may be reduced during the lifespan of our customers' products. In addition, we must make a significant capital investment to develop products for our customers well before our products are introduced and before we can be sure that we will recover our capital investment through sales to the customers in significant volume. We are thus also at risk during the development phase that our products may fail to meet our customers' technical or cost requirements and may be replaced by a competitive product or alternative technology solution. If that happens, we may be unable to recover our development costs.

THE SEMICONDUCTOR INDUSTRY IS SUBJECT TO RAPID DEMAND SHIFTS WHICH ARE DIFFICULT TO PREDICT. AS A RESULT, OUR INABILITY TO EXPAND OUR MANUFACTURING CAPACITY IN RESPONSE TO THESE RAPID SHIFTS MAY CAUSE A REDUCTION IN OUR MARKET SHARE.

Our ability to increase sales of certain products depends in part upon our ability to expand our manufacturing capacity for such products in a timely manner. If we are unable to expand our manufacturing capacity on a timely basis or to manage such expansion effectively, our customers could implement our competitors' products and, as a result, our market share could be reduced. Because the semiconductor industry is subject to rapid demand shifts which are difficult to foresee, we may not be able to increase capacity quickly enough to respond to a rapid increase in demand. Additionally, capacity expansion could increase our fixed operating expenses and if sales levels do not increase to offset the additional expense levels associated with any such expansion, our business, financial condition and results of operations could be materially adversely affected.

WE OPERATE IN A HIGHLY COMPETITIVE INDUSTRY.

The market for our products is highly competitive. Principal competitive factors include:

- historical customer relationships;
- product quality, performance and price;
- breadth of product line;
- manufacturing capabilities; and
- customer service and support.

Although we believe that we compete favorably with respect to these factors, there can be no assurance that we will continue to do so. We encounter substantial competition in most of our product lines. Certain of our competitors may have greater financial and other resources than we have. In some cases, competitors are smaller than we are, but well established in specific product niches. We may encounter difficulties in changing established relationships of competitors with a large installed base of products at such customers' fabrication facilities. In addition, our competitors can be expected to continue to improve the design and performance of their products. There can be no assurance that competitors will not develop products that offer price or performance features superior to those of our products.

SALES TO FOREIGN MARKETS CONSTITUTE A SUBSTANTIAL PORTION OF OUR NET SALES; THEREFORE, OUR NET SALES AND RESULTS OF OPERATIONS COULD BE ADVERSELY AFFECTED BY DOWNTURNS IN ECONOMIC CONDITIONS IN COUNTRIES OUTSIDE OF THE UNITED STATES.

International sales include sales by our foreign subsidiaries, but exclude direct export sales, which were less than 10% of our total net sales for the nine months ended September 30, 2004 and each of the years ended December 31, 2003, 2002 and 2001. International sales accounted for approximately 34% of our net sales for the nine months ended September 30, 2004 and 41%, 36% and 31% of net sales for the years ended December 31, 2003, 2002 and 2001, respectively, a significant portion of which were sales to Japan.

We anticipate that international sales will continue to account for a significant portion of our net sales. In addition, certain of our key domestic customers derive a significant portion of their revenues from sales in international markets. Therefore, our sales and results of operations could be adversely affected by economic slowdowns and other risks associated with international sales.

RISKS RELATING TO OUR INTERNATIONAL OPERATIONS COULD ADVERSELY AFFECT OUR OPERATING RESULTS.

We have substantial international sales, service and manufacturing operations in Europe and Asia, which exposes us to foreign operational and political risks that may harm our business. Our international operations are subject to inherent risks, which may adversely affect us, including:

- political and economic instability in countries where we have sales, service and manufacturing operations, particularly in Asia;

- fluctuations in the value of currencies and high levels of inflation, particularly in Asia and Europe;

- changes in labor conditions and difficulties in staffing and managing foreign operations, including, but not limited to, labor unions;

- greater difficulty in collecting accounts receivable and longer payment cycles;

- burdens and costs of compliance with a variety of foreign laws;

- increases in duties and taxation;

- imposition of restrictions on currency conversion or the transfer of funds;

- changes in export duties and limitations on imports or exports;

- expropriation of private enterprises; and

- unexpected changes in foreign regulations.

If any of these risks materialize, our operating results may be adversely affected.

UNFAVORABLE CURRENCY EXCHANGE RATE FLUCTUATIONS MAY LEAD TO LOWER OPERATING MARGINS, OR MAY CAUSE US TO RAISE PRICES WHICH COULD RESULT IN REDUCED SALES.

Currency exchange rate fluctuations could have an adverse effect on our net sales and results of operations and we could experience losses with respect to our hedging activities. Unfavorable currency fluctuations could require us to increase prices to foreign customers which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, our results of operations could be adversely affected. In addition, most sales made by our foreign subsidiaries are denominated in the currency of the country in which these products are sold and the currency they receive in payment for such sales could be less valuable at the time of receipt as a result of exchange rate fluctuations. We enter into forward exchange contracts and local currency purchased options to reduce currency exposure arising from intercompany sales of inventory. However, we cannot be certain that our efforts will be adequate to protect us against significant currency fluctuations or that such efforts will not expose us to additional exchange rate risks.

KEY PERSONNEL MAY BE DIFFICULT TO ATTRACT AND RETAIN.

Our success depends to a large extent upon the efforts and abilities of a number of key employees and officers, particularly those with expertise in the semiconductor manufacturing and similar industrial manufacturing industries. The loss of key employees or officers could have a material adverse effect on our business, financial condition and results of operations. We believe that our future success will depend in part on our ability to attract and retain highly skilled technical, financial, managerial and marketing personnel. We cannot be certain that we will be successful in attracting and retaining such personnel.

OUR PROPRIETARY TECHNOLOGY IS IMPORTANT TO THE CONTINUED SUCCESS OF OUR BUSINESS. OUR FAILURE TO PROTECT THIS PROPRIETARY TECHNOLOGY MAY SIGNIFICANTLY IMPAIR OUR COMPETITIVE POSITION.

As of December 31, 2003, we owned 194 U.S. patents, 123 foreign patents and had 84 pending U.S. patent applications. Although we seek to protect our intellectual property rights through patents, copyrights, trade secrets and other measures, we cannot be certain that:

- we will be able to protect our technology adequately;

- competitors will not be able to develop similar technology independently;

- any of our pending patent applications will be issued;

- intellectual property laws will protect our intellectual property rights; or

- third parties will not assert that our products infringe patent, copyright or trade secrets of such parties.

PROTECTION OF OUR INTELLECTUAL PROPERTY RIGHTS MAY RESULT IN COSTLY LITIGATION.

Litigation may be necessary in order to enforce our patents, copyrights or other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement. We have been in the past, and currently are, involved in lawsuits enforcing and defending our intellectual property rights and may be involved in such litigation in the future. Such litigation could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition and results of operations.

We may need to expend significant time and expense to protect our intellectual property regardless of the validity or successful outcome of such intellectual property claims. If we lose any litigation, we may be required to seek licenses from others or change, stop manufacturing or stop selling some of our products.

THE MARKET PRICE OF OUR COMMON STOCK HAS FLUCTUATED AND MAY CONTINUE TO FLUCTUATE FOR REASONS OVER WHICH WE HAVE NO CONTROL.

The stock market has from time to time experienced, and is likely to continue to experience, extreme price and volume fluctuations. Prices of securities of technology companies have been especially volatile and have often fluctuated for reasons that are unrelated to the operating performance of the companies. The market price of shares of our common stock has fluctuated greatly since our initial public offering and could continue to fluctuate due to a variety of factors. In the past, companies that have experienced volatility in the market price of their stock have been the objects of securities class action litigation. If we were the object of securities class action litigation, it could result in substantial costs and a diversion of our management's attention and resources.

OUR DEPENDENCE ON SOLE, LIMITED SOURCE SUPPLIERS, AND INTERNATIONAL SUPPLIERS, COULD AFFECT OUR ABILITY TO MANUFACTURE PRODUCTS AND SYSTEMS.

We rely on sole, limited source suppliers, and international suppliers, for a few of our components and subassemblies that are critical to the manufacturing of our products. This reliance involves several risks, including the following:

- the potential inability to obtain an adequate supply of required components;

- reduced control over pricing and timing of delivery of components; and

- the potential inability of our suppliers to develop technologically advanced products to support our growth and development of new systems.

We believe that in time we could obtain and qualify alternative sources for most sole, limited source and international supplier parts. Seeking alternative sources of the parts could require us to redesign our systems, resulting in increased costs and likely shipping delays. We may be unable to redesign our systems, which could result in further costs and shipping delays. These increased costs would decrease our profit margins if we could not pass the costs to our customers. Further, shipping delays could damage our relationships with current and potential customers and have a material adverse effect on our business and results of operations.

WE ARE SUBJECT TO GOVERNMENTAL REGULATIONS. IF WE FAIL TO COMPLY WITH THESE REGULATIONS, OUR BUSINESS COULD BE HARMED.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products. We must ensure that the affected products meet a variety of standards, many of which vary across the countries in which our systems are used. For example, the European Union has published directives specifically relating to power supplies. In addition, the European Union has issued directives relating to future regulation of recycling and hazardous substances, which may be applicable to our products. We must comply with these directives in order to ship affected products into countries that are members of the European Union. We believe we are in compliance with current applicable regulations, directives and standards and have obtained all necessary permits, approvals, and authorizations to conduct our business. However, compliance with future regulations, directives and standards could require us to modify or redesign certain systems, make capital expenditures or incur substantial costs. If we do not comply with current or future regulations, directives and standards:

- we could be subject to fines;

- our production could be suspended; or

- we could be prohibited from offering particular systems in specified markets.

CERTAIN STOCKHOLDERS HAVE A SUBSTANTIAL INTEREST IN US AND MAY BE ABLE TO EXERT SUBSTANTIAL INFLUENCE OVER OUR ACTIONS.

As of September 30, 2004, John R. Bertucci, our Chairman and Chief Executive Officer and certain members of his family, in the aggregate, beneficially owned approximately 18% of our outstanding common stock. As a result, these stockholders, acting together, are able to exert substantial influence over our actions. Pursuant to the acquisition of the ENI Business of Emerson Electric Co. ("Emerson"), we issued approximately 12,000,000 shares of common stock to Emerson and its wholly owned subsidiary, Astec America, Inc. Emerson owned approximately 19% of our outstanding common stock as of September 30, 2004, and James G. Berges, the President and a director of Emerson, is a member of our board of directors. Accordingly, Emerson is able to exert substantial influence over our actions.

SOME PROVISIONS OF OUR RESTATED ARTICLES OF ORGANIZATION, AS AMENDED, OUR AMENDED AND RESTATED BY-LAWS AND MASSACHUSETTS LAW COULD DISCOURAGE POTENTIAL ACQUISITION PROPOSALS AND COULD DELAY OR PREVENT A CHANGE IN CONTROL OF US.

Anti-takeover provisions could diminish the opportunities for stockholders to participate in tender offers, including tender offers at a price above the then current market price of the common stock. Such provisions may also inhibit increases in the market price of the common stock that could result from takeover attempts. For example, while we have no present plans to issue any preferred stock, our board of directors, without further stockholder approval, may issue preferred stock that could have the effect of delaying, deterring or preventing a change in control of us. The issuance of preferred stock could adversely affect the voting power of the holders of our common stock, including the loss of voting control to others. In addition, our amended and restated by-laws provide for a classified board of directors consisting of three classes. The classified board could also have the effect of delaying, deterring or preventing a change in control of us.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Information concerning market risk is contained in the Management's Discussion and Analysis of Financial Condition and Results of Operations contained in our Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 11, 2004. We enter into forward exchange contracts to reduce currency exposure arising from intercompany sales of inventory. There were no material changes in our exposure to market risk from December 31, 2003.

We have performed an analysis to assess the potential financial effect of reasonably possible near-term changes in interest and foreign currency exchange rates. Based upon our analysis, the effect of such rate changes in not expected to be material to our financial condition, results of operations or cash flows.

ITEM 4. CONTROLS AND PROCEDURES.

a) Evaluation of disclosure controls and procedures.

Our management, with the participation of our principal executive officer and principal financial officer, 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) under the Securities Exchange Act of 1934, as amended) as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on this evaluation, our principal executive officer and principal financial officer concluded that these disclosure controls and procedures are effective and designed to ensure that the information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the requisite time periods.

While our disclosure controls and procedures provide reasonable assurance that the appropriate information will be available on a timely basis, this assurance is subject to limitations inherent in any control system, no matter how well designed and administered.

b) Changes in internal control over financial reporting.

There were no changes in our internal control over financial reporting identified in connection with the evaluation of our internal control performed during our last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

As a result of various acquisitions, we have added several different decentralized accounting systems, resulting in a complex reporting environment. We expect that we will need to continue to modify our accounting policies, internal controls, procedures and compliance programs to provide consistency across all of our operations.

PART II OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.

On July 12, 2004, Advanced Energy Industries, Inc. ("Advanced Energy") filed suit against us in federal district court in Delaware, seeking injunctive relief and damages for alleged infringement of a patent held by Advanced Energy. On August 30, 2004, we filed our answer to the complaint, denying Advanced Energy's claims and stating a counterclaim seeking a declaratory judgment that the claims of the patent are invalid, unenforceable and not infringed by us or our products. Given that the litigation is in the early stages, we cannot be certain of the outcome of this litigation, but plan to oppose the claims vigorously.

On January 12, 2004, Gas Research Institute ("GRI") brought suit in federal district court in Illinois against us, On-Line Technologies, Inc. ("On-Line") which we acquired in 2001, and another defendant, Advanced Fuel Research, Inc. ("AFR"), for breach of contract, misappropriation of trade secrets and related claims relating to certain infra-red gas analysis technology allegedly developed under a January 1995 Contract for Research between GRI and AFR. The technology was alleged to have been incorporated into certain of our products. GRI made claims for damages, exemplary damages, attorney's fees and costs and injunctive relief. We filed an answer, denying liability and asserting various defenses to GRI's claims. We also asserted a cross-claim against co-defendant AFR, alleging misrepresentation, breach of contract and breach of various duties owed by AFR, and alleging that in the event we and On-Line are held liable to GRI, AFR would be required to reimburse, indemnify, and hold harmless On-Line and us for any such liability. AFR filed a motion to dismiss the action for lack of personal jurisdiction or, in the alternative, to transfer the case to another federal court, which motion was denied in August 2004. On November 9, 2004, the parties entered into a settlement agreement and the court dismissed the case, including cross-claims, pursuant to the settlement.

On April 3, 2003, Advanced Energy filed suit against us in federal district court in Colorado ("Colorado Action"), seeking a declaratory judgment that Advanced Energy's Xstream product does not infringe three patents held by our subsidiary Applied Science and Technology, Inc. ("ASTeX"). On May 14, 2003, we brought suit in federal district court in Delaware against Advanced Energy for infringement of five ASTeX patents, including the three patents at issue in the Colorado Action. We sought injunctive relief and damages for Advanced Energy's infringement. These lawsuits are unrelated to the Advanced Energy litigation described above. On December 24, 2003, the Colorado court granted our motion to transfer Advanced Energy's Colorado Action to Delaware. In connection with the jury trial, the parties agreed to present the jury with representative claims from three of the five ASTeX patents. On July 23, 2004, the jury found that Advanced Energy infringed all three patents. We have filed a motion for a permanent injunction, which is pending before the court and the parties are currently briefing post-trial motions in that case. The parties are also awaiting a trial with respect to damages and associated claims of MKS and certain remaining affirmative defenses and related claims of Advanced Energy. That trial date has not yet been scheduled.

On November 3, 1999, On-Line brought suit in federal district court in Connecticut against Perkin-Elmer, Inc. and certain other defendants for infringement of On-Line's patent related to its FTIR spectrometer product and related claims. The suit sought injunctive relief and damages for infringement. Perkin-Elmer, Inc. filed a counterclaim seeking invalidity of the patent, costs and attorneys' fees. In June 2002, the defendants filed a motion for summary judgment. In April 2003, the court granted the motion and dismissed the case. We appealed this decision to the federal circuit court of appeals. On October 13, 2004, the federal circuit court of appeals reversed the lower court's dismissal of certain claims in the case. Accordingly, the court is expected to reinstate the case in federal district court in Connecticut.

We are subject to other legal proceedings and claims, which have arisen in the ordinary course of business.

In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on our results of operations, financial condition or cash flows.

ITEM 6. EXHIBITS.

Exhibit No.	Exhibit Description
10.1*	Form of Nonstatutory Stock Option Agreement to be granted under the 2004 Stock Incentive Plan.
10.2+ *	Form of 2004 Management Incentive Bonus Program
10.3	Optional Advanced Demand Grid Note dated August 3, 2004 in favor of HSBC Bank USA.
31.1	Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
31.2	Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

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* Management contract or compensatory plan arrangement.

\+ Confidential treatment requested as to certain portions which portions have been separately filed with the Securities and Exchange Commission.

SIGNATURE

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.

MKS INSTRUMENTS, INC.

November 9, 2004 By: /s/ Ronald C. Weigner

Ronald C. Weigner
Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 10.1

MKS INSTRUMENTS, INC.

Nonstatutory Stock Option Agreement
Granted Under 2004 Stock Incentive Plan

1. Grant of Option.

This agreement evidences the grant by MKS Instruments, Inc., a Massachusetts corporation (the "Company"), on _______, 200[ ] (the "Grant Date") to [________], an [employee], [consultant], [director] of the Company (the "Participant"), of an option to purchase, in whole or in part, on the terms provided herein and in the Company's 2004 Stock Incentive Plan (the "Plan"), a total of [______] shares (the "Shares") of common stock, no par value per share, of the Company ("Common Stock") at $[______] per Share. Unless earlier terminated, this option shall expire at 5:00 p.m., Eastern time, on [_______] (the "Final Exercise Date").

It is intended that the option evidenced by this agreement shall not be an incentive stock option as defined in Section 422 of the Internal Revenue Code of 1986, as amended, and any regulations promulgated thereunder (the "Code"). Except as otherwise indicated by the context, the term "Participant", as used in this option, shall be deemed to include any person who acquires the right to exercise this option validly under its terms.

2. Vesting Schedule.

This option will become exercisable ("vest") as to _____% of the original number of Shares on the [first] anniversary of the Grant Date and as to an additional ____% of the original number of Shares at the end of each successive _______ period following the first anniversary of the Grant Date until the [_______] anniversary of the Grant Date.

The right of exercise shall be cumulative so that to the extent the option is not exercised in any period to the maximum extent permissible it shall continue to be exercisable, in whole or in part, with respect to all Shares for which it is vested until the earlier of the Final Exercise Date or the termination of this option under Section 3 hereof or the Plan.

3. Exercise of Option.

(a) Form of Exercise. Each election to exercise this option shall be in writing, signed by the Participant, and received by the Company at its principal office, accompanied by this agreement, and payment in full in the manner provided in the Plan. The Participant may purchase less than the number of shares covered hereby, provided that no partial exercise of this option may be for any fractional share.

(b) Continuous Relationship with the Company Required. Except as otherwise provided in this Section 3, this option may not be exercised unless the Participant, at the time he or she exercises this option, is, and has been at all times since the Grant Date, an employee, officer or director of, or consultant or advisor to, the Company or any other entity the employees, officers, directors, consultants, or advisors of which are eligible to receive option grants under the Plan (an "Eligible Participant").

(c) Termination of Relationship with the Company. If the Participant ceases to be an Eligible Participant for any reason, then, except as provided in paragraphs (d) and (e) below, the right to exercise this option shall terminate three months after such cessation (but in no event after the Final Exercise Date), provided that this option shall be exercisable only to the extent that the Participant was entitled to exercise this option on the date of such cessation. Notwithstanding the foregoing, if the Participant, prior to the Final Exercise Date, violates any provision of any employment contract, confidentiality and nondisclosure agreement or other agreement between the Participant and the Company, the right to exercise this option shall terminate immediately upon such violation.

(d) Exercise Period Upon Death or Disability. If the Participant dies or becomes disabled (within the meaning of Section 22(e)(3) of the Code) prior to the Final Exercise Date while he or she is an Eligible Participant and the Company has not terminated such relationship for "cause" as specified in paragraph (e) below, this option shall be exercisable, within the period of one year following the date of death or disability of the Participant, by the Participant (or in the case of death by an authorized transferee), provided that this option shall be exercisable only to the extent that this option was exercisable by the Participant on the date of his or her death or disability, and further provided that this option shall not be exercisable after the Final Exercise Date.

(e) Discharge for Cause. If the Participant, prior to the Final Exercise Date, is discharged by the Company for "cause" (as defined below), the right to exercise this option shall terminate immediately upon the effective date of such discharge. "Cause" shall mean willful misconduct by the Participant or willful failure by the Participant to perform his or her responsibilities to the Company (including, without limitation, breach by the Participant of any provision of any employment, consulting, advisory, nondisclosure, non-competition or other similar agreement between the Participant and the Company), as determined by the Company, which determination shall be conclusive. The Participant shall be considered to have been discharged for "Cause" if the Company determines, within 30 days after the Participant's resignation, that discharge for cause was warranted.

4. Withholding.

No Shares will be issued pursuant to the exercise of this option unless and until the Participant pays to the Company, or makes provision satisfactory to the Company for payment of, any federal, state or local withholding taxes required by law to be withheld in respect of this option.

5. Nontransferability of Option.

This option may not be sold, assigned, transferred, pledged or otherwise encumbered by the Participant, either voluntarily or by operation of law, except by will or the laws of descent and distribution, and, during the lifetime of the Participant, this option shall be exercisable only by the Participant.

6. Provisions of the Plan.

This option is subject to the provisions of the Plan, a copy of which is furnished to the Participant with this option.

IN WITNESS WHEREOF, the Company has caused this option to be executed under its corporate seal by its duly authorized officer. This option shall take effect as a sealed instrument.

MKS INSTRUMENTS, INC.

Dated: _________

By: ----------------------------

Name: ------------------

Title: ------------------

PARTICIPANT'S ACCEPTANCE

The undersigned hereby accepts the foregoing option and agrees to the terms and conditions thereof. The undersigned hereby acknowledges receipt of a copy of the Company's 2004 Stock Incentive Plan.

PARTICIPANT:

Address: -----------------

If the Participant is a resident of Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington or Wisconsin, then Participant's spouse should also sign this Acceptance page.

Exhibit 10.2

Confidential Materials omitted and filed separately with the Securities and Exchange Commission. Asterisks denote omissions.

PERSONAL AND CONFIDENTIAL

2004 MKS MANAGEMENT INCENTIVE PROGRAM
[FORM OF]
PRO FORMA PRE-TAX EARNINGS PER SHARE (EPS) TABLE
(JANUARY 1 - DECEMBER 31)

YOUR TARGET BONUS UNDER THE 2004 MKS MANAGEMENT INCENTIVE PLAN IS ___%(1) OF YOUR BASE EARNINGS. THE PAYOUT OF YOUR BONUS WILL BE ACHIEVED ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW. FOR EXAMPLE, YOU WILL RECEIVE 50% OF YOUR TARGET BONUS IF OUR PRO FORMA PRE-TAX EPS REACHES $**, AND 100% OF YOUR TARGET BONUS IF OUR PRO FORMA PRE-TAX EPS REACHES $**. AT A PRO FORMA PRE-TAX EPS OF $** OR MORE, YOU WOULD RECEIVE 200% OF YOUR TARGET BONUS, WHICH WOULD RESULT IN THE PAYMENT OF A BONUS EQUAL TO ___%(2) OF YOUR 2004 BASE MKS EARNINGS.

Pro forma Pre-Tax EPS	% of Target Bonus Earned
< =$**	0.0%
$**	5.0%
$**	10.0%
$**	25.0%
$**	35.0%
$**	50.0%
$**	60.0%
$**	75.0%
$**	85.0%
$**	100.0%
$**	125.0%
$**	150.0%
$**	175.0%
>=$**	200%

THIS INFORMATION IS EXTREMELY CONFIDENTIAL AND SHOULD BE TREATED AS SUCH. YOU SHOULD NOT DIVULGE THIS INFORMATION INSIDE OR OUTSIDE OF MKS INSTRUMENTS, INC.

[MKS LOGO]

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(1) TARGET BONUS FOR JOHN BERTUCCI IS 75% OF BASE EARNINGS; FOR LEO BERLINGHIERI IT IS 60% OF BASE EARNINGS; FOR JERRY COLLELLA AND JOHN SMITH IT IS 50% OF BASE EARNINGS; FOR ROBERT KLIMM, RONALD WEIGNER, WILLIAM STEWART IT IS 40% OF BASE EARNINGS.

(2) THIS NUMBER IS DOUBLE THE NUMBER SET FORTH IN THE PARAGRAPH ABOVE WITH RESPECT TO EACH OF THE EXECUTIVE OFFICERS.

Exhibit 10.3

OPTIONAL ADVANCE DEMAND GRID NOTE

$35,000,000 Nyack, New York
August 3, 2004

FOR VALUE RECEIVED, MKS INSTRUMENTS, INC., a Massachusetts corporation, with an office at 90 Industrial Way, Wilmington, Massachusetts, and MKS JAPAN, INC., a Japanese corporation, with an office at Harmonize Bldg., 5-17-13, Narita-Higashi, Suginami-Ku, Tokyo, Japan (collectively, the "Borrower"), jointly and severally promise to pay to HSBC BANK USA, NATIONAL ASSOCIATION ("Bank"), or order, on demand, at its 17 South Broadway office in Nyack, New York, United States of America, the aggregate unpaid principal amount of all advances made by the Bank to the Borrower from time to time (each an "Advance" and collectively the "Advances") as evidenced by the inscriptions made on the Schedule attached hereto ("Schedule"), together with interest thereon at a per annum rate as provided herein. The aggregate amount of all advances outstanding hereunder shall not at any time exceed $35,000,000.

As used in this Note, the following terms shall have the meanings set forth below:

ADJUSTED LIBOR RATE: the LIBOR Rate plus 1.25%

BUSINESS DAY: any day other than a Saturday, Sunday or other day on which commercial banks in London and/or New York, New York are authorized or required by law to close.

LIBOR PERIOD: a period, if available to the Bank, of at least 1 day but not more than 180 days.

LIBOR RATE REQUEST: the written request by the Borrower to the Bank for the LIBOR Rate Advance, and including a LIBOR Period, the date of the LIBOR Rate Advance, currency and amount.

LIBOR RATE: means the per annum interest rate equal to the London Interbank Offered Rate as shown on the Telerate Screen, Page 3750 or on the Bloomberg BBAM Screen (or, if the foregoing are both not available, such alternative source as the Borrower and the Bank may mutually determine), at approximately 11:00 a.m. (London time) two Business Days prior to the proposed borrowing date for deposits of United States dollars, Japanese Yen or Euros, depending on the currency chosen for the LIBOR Rate Advance being requested, in an amount and for a period of time comparable to the principal amount of the proposed LIBOR Rate Advance.

LIBOR RATE ADVANCE: any Advance bearing interest at the Adjusted LIBOR Rate.

PRIME RATE: the rate of interest publicly announced by the Bank from time to time as its prime rate and is a base rate for calculating interest on certain loans.

PRIME RATE ADVANCE: any Advance bearing interest at the Prime Rate.

REGULATORY CHANGE: after the date hereof, the introduction of any new, or any change in existing, applicable laws, rules or regulations or in the interpretation or administration thereof by any court or governmental authority charged with the interpretation or administration thereof, or compliance by Bank with any new request or directive by any such court or authority (whether or not having the force of law.)

All Advances, interest rates and all payments of principal made on this Note may be inscribed by the Bank on the Schedule. Each Advance shall be payable on demand.

Borrower may request a LIBOR Rate Advance and LIBOR Period by calling in a LIBOR Rate Request on any Business Day to the Bank not later than 1:00 p.m. (New York, New York time) two Business Days prior to the date of the proposed LIBOR Rate Advance. Borrower may not select a LIBOR Period having an expiration date later than July 31, 2005. Notwithstanding any provision herein to the contrary, any LIBOR Rate Advance shall be made in a minimum amount of $500,000. LIBOR Rate Advances may be denominated in United States dollars, Japanese Yen or Euros. If at any time any LIBOR Rate Advances are outstanding in Japanese Yen or Euros, the Bank will determine, from time to time, based on the Bank's currency exchange rates then in effect, the United States dollar equivalent for such LIBOR Rate Advances and if the sum of such dollar equivalent amounts plus the amount of then-outstanding United States dollar LIBOR Rate Advances exceeds $35,000,000 the Borrower will, upon Bank's request, immediately pay such excess amount to the Bank, to be applied to this Note.

If Borrower fails to timely select an applicable LIBOR Period for calculation of a LIBOR Rate Advance, then the Advance shall bear interest at the Prime Rate and shall be deemed a Prime Rate Advance.

If by reason of any Regulatory Change, the Bank determines that, (i) by reason of circumstances affecting the London interbank market generally, adequate and fair means do not or will not exist for determining the LIBOR Rate, (ii) by reason of any Regulatory Change, the Bank becomes restricted in the amount which it may hold of a category of liabilities which includes deposits by reference to the LIBOR Rate or a category of assets which includes loans which bear interest at a rate determined in part by reference to the LIBOR Rate, (iii) by reason of any Regulatory Change, it shall be unlawful for the Bank to maintain a LIBOR Rate Advance, or any portion thereof, bearing interest at the Adjusted LIBOR Rate, (iv) in the exclusive judgment of the Bank, deposits are not available to the Bank in the international interbank market in the requisite amounts and for the requisite durations, (v) in the exclusive judgment of the Bank, the Adjusted LIBOR Rate does not adequately reflect the cost to the bank of making or maintaining a LIBOR Rate Advance then, in any such case, after 30 days written notice to Borrower any LIBOR Rate Advance shall bear interest at the Prime Rate, unless the Borrower decides to prepay in full the LIBOR Rate Advance in accordance with the terms of this Note. If the Bank determines that because of a change in circumstances the Adjusted LIBOR Rate is again available to the Borrower hereunder, the Bank will so advise the Borrower, and the Borrower may convert the rate of interest payable hereunder to the Adjusted LIBOR Rate at any time (provided the Adjusted LIBOR Rate is otherwise available hereunder) by making such election in accordance with, and subject to the conditions of, this Note.

If, at any time, any Regulatory Change: (i) shall subject the Bank to any tax, duty or other charge with respect to this Note, except an income tax, based upon the charging and collecting of interest hereunder at the Adjusted LIBOR Rate, shall change the basis of taxation or payments to the Bank of the principal of or interest on this Note; (ii) shall result in the imposition, modification or deemed applicability of any reserve, special deposit or similar requirements against assets of, deposits with or for the account of, or credit extended by, the Bank; (iii) shall, because of the existence of this Note, affect the amount of capital required or expected to be maintained by the Bank, or any corporation controlling the Bank; or (iv) shall impose on the Bank or the London interbank market any other condition affecting this Note or the charging and collecting of interest hereunder at the Adjusted LIBOR Rate and the result of any of the foregoing is, in the Bank's reasonable judgment, (a) to increase the cost to the Bank of charging and collecting interest hereunder at the Adjusted LIBOR Rate, or (b) to reduce the return on the Bank's capital or the amount of any sum received or receivable by the Bank under this Note by an amount deemed by the Bank to be material, after 30 days written notice to Borrower by the Bank, the Borrower agrees to pay to the Bank such additional amount or amounts as will compensate the Bank for such increased cost or reduction. Such payments shall be made on the first date for payment of interest hereunder following the 30 day notice of the demand by the Bank and on each such payment date thereafter or shall be paid promptly on demand if the Borrower is not advised of the amount of such payment prior to any such payment date. Determinations by the Bank for purposes of this paragraph of the effect of any Regulatory Change on its costs of making or maintaining Advances bearing interest at the Adjusted LIBOR Rate and of the additional amounts required to compensate the Bank in respect thereof, shall be conclusive absent manifest error in calculation, provided that such determinations are made in good faith.

The Bank must receive written notice of any prepayment not less than three (3) Business Days prior to such prepayment, and any prepayment in part must be made in multiples of $100,000.

The Borrower understands and acknowledges that in connection with LIBOR Rate Advances the Bank may enter into funding arrangements on terms and conditions which could result in substantial losses, costs and expenses to the Bank if LIBOR Rate Advances are prepaid on a date other than the expiration of the selected LIBOR Period. Therefore, if there is a prepayment of any LIBOR Rate Advance on a date other than the expiration of the selected LIBOR Period for any reason whatsoever including, but not limited to, any payments made by the Borrower because the holder of this Note has demanded payment in accordance with the terms hereof or any other document relating to the indebtedness hereunder, then the Borrower shall pay to the Bank, as liquidated damages and not as a penalty, a fee (the "Liquidation Fee") equal to the losses (including but not limited to, lost profits of the Bank), costs and expenses of the Bank in connection with such prepayment as determined by the Bank, which payment shall be made by the Borrower to the Bank on the date on which such prepayment is made. The calculations made by the Bank to ascertain such Liquidation Fee shall be conclusive absent manifest error in calculation by the Bank, provided that such calculations are made in good faith. The Bank, upon the written request of the Borrower, shall advise the Borrower in writing of the amount of the Liquidation Fee applicable to any such prepayment.

Each entry set forth on the Schedule shall be prima facie evidence of the facts so set forth, except for any such facts as to which the Bank has sent to the Borrower a written confirmation and the borrower has timely objected as provided herein. No failure by the Bank to make, and no error by the Bank in making any inscription on the Schedule shall affect the Borrower's obligation to repay the full principal amount advanced by the Bank to or for the account of the Borrower, or the Borrower's obligation to pay interest thereon at the agreed upon rate.

Before maturity, LIBOR Rate Advances shall bear interest at the Adjusted LIBOR Rate.

Any LIBOR Rate Advance not paid when due shall bear interest thereafter until paid in full, payable on demand, at the rate otherwise applicable thereto plus 3% from the time of default in payment of principal until the end of the then current LIBOR Period therefor, and thereafter at a rate equal to the Prime Rate plus 3%.

If any payment to be made under this Note shall be stated to be due on a Saturday, Sunday or banking holiday the Borrower will pay interest thereon at the applicable rate until the date of actual receipt of such payment by the holder of this Note.

In no event shall the interest rate on this Note exceed the maximum rate authorized by applicable law. Any change in interest rate on this Note resulting from a change in the Bank's Prime Rate shall be effective on the date of such change. Interest on Advances will be calculated for each day at 1/360th of the applicable per annum rate, which will result in a higher effective annual rate. Accrued interest on Prime Rate Advances shall be payable monthly on the first day of each month and on the date any Prime Rate Advance is paid in full. Accrued interest on LIBOR Rate Advances shall be payable on the last day of each LIBOR Period, as applicable, and on the date any LIBOR Rate Advance is paid in full. If any payment due under this Note is received by the holder of this Note more than 10 days after it is due, the undersigned shall pay to the holder a late charge in the amount of the greater of 5% of the amount of the late payment or $15.00.

NOTHING CONTAINED IN THIS NOTE OR OTHERWISE IS INTENDED, NOR SHALL CONSTITUTE, ANY OBLIGATION OF THE BANK TO MAKE ANY ADVANCE.

No failure by the holder hereof to exercise, and no delay in exercising, any right or remedy hereunder shall operate as a waiver thereof, nor shall any single or partial exercise by such holder of any right or remedy hereunder preclude any other or further exercise thereof or the exercise of any other right or remedy. The rights and remedies of the holder hereof as herein specified are cumulative and not exclusive of any other rights or remedies, which such holder may otherwise have.

The Borrower will furnish the Bank with the following information: (i) within 120 days of each fiscal year end, audited consolidated financial statements prepared by an accounting firm acceptable to the Bank; (ii) within 45 days of the end of each fiscal quarter, management prepared quarterly financial statements prepared in accordance with GAAP; (iii) management prepared financial forecasts for each fiscal year; and (iv) all filings made by Borrower with the Securities and Exchange Commission.

Any and all payments made to the Bank pursuant to this Note shall be made free and clear of, and without deductions or withholdings for, or on account of, any present or future taxes, duties, levies, imposts, charges, compulsory loans, assessments, or other deductions or withholdings whatsoever, and all liabilities with respect thereto, imposed at any time by any authority having power to tax in any jurisdiction worldwide (such deductions or withholdings being hereinafter referred to as "Taxes"), unless the deduction or withholding of such Taxes is required by any applicable law. If any Taxes are required by applicable law to be deducted or withheld from any payment hereunder, the Borrower shall (i) increase the amount payable as is necessary so that, after making all required deductions or withholdings (including deductions or withholdings applicable to additional amounts payable under this paragraph), the Bank shall receive an amount equal to the amount it would have received had no deductions or withholdings been made, (ii) the Borrower shall make such deductions or withholdings, and (iii) the Borrower shall pay the full amount deducted or withheld to the relevant taxation authority or other authority in accordance with applicable law. Within 30 days after the date of payment of any taxes or other amounts deducted or withheld, the Borrower shall furnish the Bank with an official receipt (or certified copy thereof) or other documentation reasonably acceptable to the Bank evidencing such payment. The Borrower shall indemnify the Bank from and against any and all Taxes (irrespective of when imposed) and any liability, including, without limitation, any related interest, penalties and expenses, that may become payable by the Bank as a consequence of Borrower's failure to perform any of its obligations under this paragraph, whether or not such Taxes or liability were correctly or legally asserted. Payment pursuant to this indemnification shall be made upon written demand therefor. The Borrower shall pay (or if appropriate, reimburse the Bank for) any stamp, documentary or similar taxes or any other excise, intangible or property taxes, charges or similar levies (and any interest or penalty relating thereto) imposed at any time which arise from, or otherwise with respect to, any payment made hereunder or from execution, delivery or registration of this instrument.) The Borrower's obligation under this paragraph shall survive the termination of this Note.

THE BORROWER AGREES TO PAY ALL COSTS AND EXPENSES INCURRED BY THE HOLDER HEREOF IN ENFORCING THIS NOTE, INCLUDING, WITHOUT LIMITATION, REASONABLE ATTORNEY'S FEES AND LEGAL EXPENSES. THE BORROWER HEREBY WAIVES (I) DEMAND, PRESENTMENT FOR PAYMENT, NOTICE OF DISHONOR, PROTEST AND NOTICE OF PROTEST OF THIS NOTE AND (II) THE RIGHT OF A JURY TRIAL. ANY NOTICE, DEMAND OR REQUEST RELATING TO ANY MATTER SET FORTH HEREIN, OTHER THAN A REQUEST FOR BORROWING, SHALL BE IN WRITING AND SHALL BE DEEMED EFFECTIVE WHEN MAILED, POSTAGE PREPAID, BY REGISTERED OR CERTIFIED MAIL, RETURN RECEIPT REQUESTED, TO ANY PARTY HERETO AT ITS ADDRESS HEREIN OR AT SUCH OTHER ADDRESS OF WHICH IT SHALL HAVE NOTIFIED THE PARTY GIVING SUCH NOTICE IN WRITING AS AFORESAID. COPIES OF ALL SUCH NOTICES, DEMANDS AND REQUESTS TO BANK SHALL BE SENT TO BANK AT ITS ADDRESS ABOVE STATED. IN THE CASE OF THE BORROWER, ALL SUCH COPIES SHALL BE SENT TO THE BORROWER AT THE ADDRESS OF THE BORROWER AS STATED HEREIN.

THIS NOTE, BEING DRAWN, EXECUTED AND DELIVERED IN THE STATE OF NEW YORK, WHERE ALL ADVANCES AND REPAYMENTS SHALL BE MADE, SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK. THE UNDERSIGNED AGREES THAT ANY ACTION OR PROCEEDING TO

ENFORCE OR ARISING OUT OF THIS NOTE MAY BE COMMENCED IN THE SUPREME COURT OF NEW YORK OR IN THE DISTRICT COURT OF THE UNITED STATES IN ANY COUNTY OR DISTRICT WHERE THE BANK HAS A BRANCH. THE UNDERSIGNED WAIVES PERSONAL SERVICE OF PROCESS AND AGREES THAT A SUMMONS AND COMPLAINT COMMENCING AN ACTION OR PROCEEDING IN ANY SUCH COURT SHALL BE PROPERLY SERVED AND SHALL CONFER PERSONAL JURISIDICTION IF SERVED BY REGISTERED MAIL TO THE ADDRESS SPECIFIED ABOVE OR AS OTHERWISE PROVIDED BY THE LAWS OF THE STATE OF NEW YORK OR THE UNITED STATES.

MKS INSTRUMENTS, INC.

By: /s/ Joseph M. Tocci

Joseph M. Tocci
Treasurer

MKS JAPAN, INC.

By: /s/ Ronald Weigner

Ronald Weigner
Director, MKS Japan

SCHEDULE OF ADVANCES AND PAYMENTS

DATE OF ADVANCE OR PAYMENT	AMOUNT OF ADVANCE	INTEREST RATE		AMOUNT OF PRINCIPAL PAID OR PREPAID	AGGREGATE OUTSTANDING PRINCIPAL BALANCE	APPROVING OFFICER

EXHIBIT 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, John R. Bertucci, certify that:

1. I have reviewed this report on Form 10-Q of MKS Instruments, Inc.;

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

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

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

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

    b) [Not Applicable];

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

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

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

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

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

Dated: November 9, 2004

/s/ John R. Bertucci

John R. Bertucci
Chairman and Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Ronald C. Weigner, certify that:

1. I have reviewed this report on Form 10-Q of MKS Instruments, Inc.;

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

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

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

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

    b) [Not Applicable];

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

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

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

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

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

Dated: November 9, 2004

/s/ Ronald C. Weigner

Ronald C. Weigner
Vice President and Chief Financial Officer
(Principal Financial Officer)

EXHIBIT 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of MKS Instruments, Inc. (the "Company") for the period ended September 30, 2004 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, John R. Bertucci, Chairman and Chief Executive Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

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

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

Dated: November 9, 2004

/s/ John R. Bertucci

John R. Bertucci
Chairman and Chief Executive Officer

EXHIBIT 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER

PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of MKS Instruments, Inc. (the "Company") for the period ended September 30, 2004 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Ronald C. Weigner, Vice President and Chief Financial Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

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

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

Dated: November 9, 2004

/s/ Ronald C. Weigner

Ronald C. Weigner
Vice President and Chief Financial Officer