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January 18, 2012

Martin James, Senior Assistant Chief Accountant  
United States Securities & Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, DC 20549-6010

RE: MKS Instruments, Inc.  
Form 10-K for the Fiscal Year Ended December 31, 2010  
Filed February 25, 2011  
File No. 000-23621

Dear Mr. James:

This letter is submitted to you on behalf of MKS Instruments, Inc. (the "Company") in response to your letter dated December 20, 2011. We have included each of your questions below in bold and italics. Beneath each question is our corresponding answer.

**Form 10-K for the Fiscal Year Ended December 31, 2010**

**Note 5. Cash and Cash Equivalents and Investments, page 46, and Note 6. Fair Value Measurements, page 47**

**1. Please respond to the following:**

**Please reconcile the tables on pages 46, 47 and 48 for money market funds and certificates of deposit, U.S. agency obligations and corporate obligations.**

**Company Response**

**Summary of Disclosures on pages 46, 47 and 48 of Form 10-K for fiscal year ended December 31, 2010:**

1. The Company has disclosed the following in Note 5. Cash and Cash Equivalents and Investments in its Form 10-K for the period ended December 31, 2010 (the "Form 10-K"):
  - a. In the table on page 46 (and continuing on the top of page 47), the Company disclosed all short-term investments and long-term marketable securities held by the Company at each reporting date by major security type.
  - b. In the second table on page 47, the Company disclosed all available-for-sale securities and securities classified as cash equivalents with unrealized gains and losses in accumulated other comprehensive income. In the Form 10-K for the period ended December 31, 2010, the

Company included only those available-for-sale securities and cash equivalents with an unrealized gain or loss in other comprehensive income. Beginning with its Form 10-Q for the quarter ended March 31, 2011, the Company has included all available-for-sale securities and securities classified as cash equivalents regardless of whether or not the security had an unrealized gain or loss to assist in the readability of the Company's financial statements.

2. The Company has disclosed the following in Note 6. Fair Value Measurements in its Form 10-K:
  - a. In accordance with ASC 820-10-50-2, the Company has disclosed in the table on page 48, the fair value measurements for all financial assets and liabilities (excluding cash) measured at fair value on a recurring basis held by the Company at each reporting date and the level within the fair value hierarchy for which the fair value of these financial instruments were measured.
3. For each of the tables on pages 46, 47 and 48 of its Form 10-K, the Company has included treasury securities (treasury notes and bonds) within the "U.S. agency obligations" line item. Beginning with its Form 10-Q for the quarter ended June 30, 2011, the Company has changed this line item to read, "U.S. treasury and agency obligations" in order to more fully describe the nature of the securities included within this line item.

Future Filings:

Going forward, the Company will include all available-for-sale securities regardless of whether or not the security had an unrealized gain or loss to assist in the readability of its financial statements. These disclosures will be made in accordance with ASC 320-10-50.

Reconciliations

As requested, a reconciliation of each of the tables on pages 46, 47 and 48 for money market funds and certificates of deposit, U.S. agency obligations and corporate obligations in its Form 10-K are set forth below:

(in thousands) Short-Term	2010		
	Cash and Cash Equivalents and Investments		
	Available-for-Sale Investment Securities (Page 46)	Gross Unrealized Gains/Losses (Page 47)	Fair Value (Page 48)
Money market funds and certificates of deposit	\$ 15,716	\$ —	\$ 22,748
Equity mutual funds	491	491	491
U.S. agency obligations	230,394	168,720	267,712
Corporate obligations	22,856	27,980	30,329
Derivatives	—	—	369
<b>Total as Reported</b>	<b>\$ 269,457</b>	<b>\$ 197,191</b>	<b>\$ 321,649</b>
<b>Reconciling Items:</b>			
1. Items classified as cash and cash equivalents not included in the available-for-sale investments table on page 46:			
a. -Money market funds and certificates of deposit		—	(7,032)
b. -U.S. agency obligations		(7,322)	—
c. -Corporate obligations		(7,473)	(7,473)
d. -U.S. agency obligations		—	(37,318)
2. Items classified as available-for-sale investments (page 46) with no unrealized gains or losses in accumulated other comprehensive income:			
a. -Money market funds and certificates of deposit		15,716	
b. -U.S. agency obligations		68,996	
c. -Corporate obligations		2,349	
3. Derivative instruments-currency forward contracts not included in investment tables			
			(369)
Reconciled Amounts:	<u>\$ 269,457</u>	<u>\$ 269,457</u>	<u>\$ 269,457</u>

(in thousands)	2009		
	Cash and Cash Equivalents and Investments		
	Available-for-Sale Investment Securities (Page 46)	Gross Unrealized Gains/Losses (Page 47)	Fair Value (Page 48)
<b>Short-Term</b>			
Money market funds and certificates of deposit	\$ 4,296	\$ —	\$ 8,071
Equity mutual funds	449	449	449
U.S. agency obligations	150,648	147,347	158,665
Corporate obligations	5,393	1,494	5,393
Derivatives	—	—	1,505
Subtotal as reported	<u>\$ 160,786</u>	<u>\$ 149,290</u>	<u>\$ 174,083</u>
<b>Long-Term</b>			
U.S. agency obligations	<u>\$ 4,853</u>	<u>\$ —</u>	<u>\$ —</u>
<b>Total as Reported</b>	<u><u>\$ 165,639</u></u>	<u><u>\$ 149,290</u></u>	<u><u>\$ 174,083</u></u>
<b>Reconciling Items:</b>			
1. Items classified as cash and cash equivalents not included in the available-for-sale investments table on page 46:			
a. -Money market funds and certificates of deposit			(3,775)
b. -U.S. agency obligations			(3,164)
2. Items classified as short-term available-for-sale investments with no unrealized gains or losses in accumulated other comprehensive income:			
a. -Money market funds and certificates of deposit		4,296	
b. -U.S. agency obligations		7,345	
c. -Corporate obligations		3,899	
3. Items classified as long-term available-for-sale investments with no unrealized gains or losses in accumulated other comprehensive income:			
a. -U.S. agency obligations		809	
4. Derivative instruments-currency forward contracts not included in investment tables			(1,505)
Reconciled Amounts:	<u><u>\$ 165,639</u></u>	<u><u>\$ 165,639</u></u>	<u><u>\$ 165,639</u></u>

**Further, please reconcile the disclosure in the tables on page 47 and 48 as of December 31, 2010 with your disclosures for this date on pages 8 and 9 of your September 30, 2011 Form 10-Q. This includes the level used to determine fair value measurements. Your response should include explanations for differences.**

Company Response

Summary of Disclosures:

1. In Note 5, Cash and Cash Equivalents and Investments of its Form 10-K, the Company includes equity mutual funds within the short-term available-for-sale securities tables. In the third quarter of 2011, the Company changed the classification of these equity mutual funds from available-for-sale securities to trading securities based on management's intent for the investment.
2. The Company has disclosed the following in Note 6, Fair Value Measurements in its Form 10-K:
  - a. Time deposits and drafts were included within the "Money market funds and certificates of deposit" line item within the fair value table. Beginning with its Form 10-Q for the quarter ended March 31, 2011, the Company delineated time deposits and drafts into separate line items to provide more informative data to the reader of the financial statements.
  - b. Time deposits and drafts were classified as "Level 1" in the fair value table. Beginning with its Form 10-Q for the quarter ended March 31, 2011, the Company classified time deposits and drafts as "Level 2" in the fair value table as the Company concluded that the time deposits and drafts were more appropriately included as Level 2 investments.
  - c. The Company did not include \$2,838,000 of banker's acceptance drafts in the fair value table. These bankers' acceptance drafts were appropriately classified on the Consolidated Balance Sheets as Cash and cash equivalents. Beginning with its Form 10-Q for the quarter ended March 31, 2011, the Company included these banker's acceptance drafts in the fair value table as it concluded based upon the Company's quarterly assessment that these are financial instruments subject to the fair value disclosures. These bankers' acceptance drafts have been classified as "Level 2" within the fair value hierarchy.
  - d. The Company included a liability for supplemental retirement benefits (similar to a defined contribution plan) in the fair value table. Beginning with its Form 10-Q for the quarter ended March 31, 2011, the Company removed this liability from the fair value table as it concluded that this liability is not a financial instrument that is subject to the disclosure requirements of ASC 820-10-50-2.
3. The Company holds certain corporate issued securities (GE, Goldman Sachs, State Street, Citibank, HSBC and JP Morgan Chase) in its portfolio that are guaranteed by the FDIC. In the Company's Form 10-K footnote disclosure, the Company classified these securities as "Corporate obligations." Beginning with its Form 10-Q for the quarter ended June 30, 2011, the Company included these securities within the U.S. Agency securities line item since these securities were issued under the government's Term Loan Guarantee Program (TLGP) which removes any credit risk associated with the corporate issuing entity because they become obligations of the U.S. government should the corporate issuer be unable to honor its obligations. The Company believes this change better reflects the nature and overall credit risk of these securities and assists in the readability of the Company's financial statements.

Future Filings:

The Company previously concluded that the time deposits referred to in Section 2.b above were negotiable instruments that were not actively traded and classified them as "Level 2". During the fourth quarter of 2011, the Company concluded that the time deposits held are non-negotiable and not financial instruments subject to the ASC 820 disclosure. Going forward, these time deposits will be excluded from the fair value table.

In addition, to enhance the understanding of the Company's financial statements, the Company will add disclosure in future filings to describe the nature of the agency securities including the fact that certain of these agency securities were issued by corporations under the TLGP program.

Set forth in the tables below are reconciliations of the disclosures as of December 31, 2010 that appear in the tables on pages 47 and 48 of the Form 10-K with the disclosures as of December 31, 2010 that appear in the tables on pages 8 and 9 of the Company's Form 10-Q for the quarter ended September 30, 2011 including the level used to determine fair value measurements:

(in thousands)	Form 10-K (12/31/2010) 12/31/2010 Gross Unrealized Gains/Losses (Page 47) Estimated Fair Value	Form 10-Q (9/30/2011) 12/31/2010 Gross Unrealized Gains/Losses (Page 8) Estimated Fair Value
Money market funds and certificates of deposit	\$ —	\$ 7,032
Time deposits and drafts	—	18,554
Equity mutual funds	491	—
U.S. agency obligations	168,720	—
Corporate obligations	27,980	—
U.S. treasury and agency obligations	—	298,041
Subtotal as reported	<u>\$ 197,191</u>	<u>\$ 323,627</u>
<b>Reconciling Items:</b>		
1. Securities with no unrealized gains or losses in accumulated other comprehensive income.		
a. - Money market funds and certificates of deposit		(7,032)
b. - Time deposits and drafts		(18,554)
c. - U.S. treasury and agency obligations		(101,341)
2. Equity mutual funds classified as short-term available-for-sale investments as of December 31, 2010 in Form 10-K for the period ended December 31, 2010. Classification changed to short-term trading investments in the third quarter of 2011.		491
Reconciled Amounts:	<u>\$ 197,191</u>	<u>\$ 197,191</u>

(in thousands)	Form 10-K (12/31/2010) 12/31/2010 Fair Value Table (Page 48)	Form 10-Q (9/30/2011) 12/31/2010 Fair Value Table(Page 9)
<b>Assets:</b>		
Money market funds and certificates of deposit	\$ 22,748	\$ 7,032
Time deposits and drafts	—	18,554
Equity mutual funds	491	491
U.S. Agency obligations	267,712	298,041
Corporate Obligations	30,329	—
Derivatives - currency forward contracts	369	369
Total Assets	\$ 321,649	\$ 324,487
<b>Liabilities:</b>		
Supplemental retirement benefits	\$ 707	\$ —
Derivatives - currency forward contracts	3,463	3,463
Total Liabilities	\$ 4,170	\$ 3,463
<b>Reconciling Items:</b>		
1. Bankers acceptance drafts not included in Form 10-K for the period ended December 31, 2010. Added to fair value table in first quarter of 2011.		(2,838)
2. Liability for supplemental retirement benefits included in fair value table in Form 10-K for the period ended December 31, 2010. Removed from fair value table in first quarter of 2011.		707
Reconciled Amounts:	\$ 325,819	\$ 325,819

*Please tell us how you applied ASC 230-10-45-4 and the definition of cash equivalents in ASC 230-10-20 in determining your cash equivalents for your investments in U.S. treasury obligations and agency obligations. Please also refer to the disclosure in Note 3 in your September 30, 2011 Form 10-Q.*

Company Response

As described in the Form 10-K, the Company considers all highly liquid investments with a maturity date of three months or less at the date of purchase to be cash equivalents. The appropriate classification of investments in securities is determined at the time of purchase. U.S. treasury obligations and agency obligations that have a maturity date of three months or less at the date of purchase are disclosed as cash and cash equivalents in the financial statements.

Each quarter, corporate finance and accounting personnel review the classification of securities held by the Company to determine if the classification between cash and cash equivalents and investments is appropriate and assess the level within the fair value hierarchy that these securities fall. The Company considers the guidance in ASC 230 and ASC 820 in making these assessments. The assessments are based



upon the specific facts and circumstances of the individual securities. In certain instances discussed above, the Company has changed its classifications within the fair value hierarchy as disclosed in its 2010 Form 10-K based upon subsequent assessments to reflect what the Company believes is a more appropriate classification. For example, the Company has changed the classification of the time deposits and drafts discussed above based upon subsequent assessments.

The Company also considered the guidance in ASC 230-10-45-4 related to the terminology used for cash and cash equivalents in the cash flow statement. In the Company's statement of cash flows, cash and cash equivalents includes only highly liquid investments with a maturity date of three months or less at the date of purchase.

Future Filings:

The Company will revise its disclosure in future quarterly filings on Form 10-Q to specifically state its policy with respect to the Company's definition of cash and cash equivalents in accordance with ASC 230-10-20.

***Please explain in more detail the components of your U.S. treasury and agency obligations. It appears that you combined your categories for U.S. agency obligations and corporate obligations as shown in your December 31, 2010 Form 10-K in your September 30, 2011 Form 10-Q. Please explain why you combined these categories.***

Company Response

The components of the Company's short-term investments and long-term marketable securities as of September 30, 2011, consisted of the following:

- U.S. treasury securities, including treasury notes and bonds.
- Debt securities issued by U.S. government agencies, Fannie Mae, Freddie Mac, the Federal Home Loan Bank and the Federal Home Loan Mortgage Corporation which are sponsored by the U.S. Government.
- Debt securities issued by corporate entities (GE, Goldman Sachs, State Street, Citibank, HSBC, and JP Morgan Chase) that are guaranteed by the FDIC.

In the Company's Form 10-K footnote disclosures on pages 46, 47 and 48, the Company classified these securities as "Corporate obligations". As described in 3 above, the Company will add disclosures in future filings to describe the nature of the agency securities including the fact that certain of these agency securities were issued by corporations under the TLGP program.

**Note 22. Geographic, Product and Significant Customer Information, page 67**

2. ***Please tell us about the company's analysis in determining that it has one reportable segment under ASC 280-10-50. Your response should address the following:***
  - ***Explain whether any operating segments were aggregated under ASC 280-10-50-11.***
  - ***Explain the contents of the information you provide to your chief operating decision maker.***
  - ***We note that the company includes revenue information for three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum and Other Products. Include a discussion of the types of information about these product groups that is included in the information provided to your chief operating decision maker.***
  - ***We note that the organization of the company includes a vice president for each of the following groups: ENI Products, Controls and PFMC Products, Astex Products, Analytical Solutions Group, and Vacuum Products. Include a discussion of the types of information about these groups that is included in the information provided to your chief operating decision maker.***

Company Response

Summary and Conclusions

The Company performs a segment analysis at least annually and where events and circumstances warrant a reassessment, for example, if the Company had a significant acquisition, disposition or change in the way the Company was managed, a current segment analysis would be performed. In performing its segment analysis, the Company considers the guidance in ASC 280 and the specific facts and circumstances related to the Company. Based upon the Company's most recent analysis, management has concluded that the Company has one operating segment.

Based on the guidance in ASC 280, the significant factors the Company considered in its analysis were how the Chief Operating Decision Maker ("CODM") function analyzes and manages the Company and how the CODM makes critical resource allocation decisions. The Company believes that due to the nature of its business, the commonality of its products and the significant reliance on a few key customers in the semiconductor market, the Company should be viewed as a single operating segment.

In accordance with ASC 280-10-50-40, the Company has also provided in Note 22, Geographic, Product and Significant Customer Information on page 67, the following additional Company-wide disclosures:

1. Net sales for each group of similar products and services (described in more detail below).
2. Net sales attributed to the United States, to all foreign countries in total and for all countries for which the Company individually has material sales.
3. Long-lived assets in the United States, located in all foreign countries in total and in countries in which the Company holds material assets.

### Products, Customers and Markets

The Company operates in one segment for the development, manufacturing, sales and servicing of products that measure, control, power and monitor critical parameters of advanced manufacturing processes. The Company has either internally developed or acquired technologies that have expanded the product portfolio; however, substantially all of its products have a common profile in that they are used primarily in the measurement and controlling of advanced manufacturing processes.

Due to the similar characteristics of the Company's products, customers and markets, all products are marketed and sold through a shared sales force and/or distributors which are organized by geographic location. The Company's products are generally either integrated and complementary and therefore, many of the Company's customers purchase a cross section of its products in order to provide advanced process control of their manufacturing processes. This is particularly prevalent in the semiconductor market in which the Company is a leading global provider of critical subsystems. Furthermore, the Company has completed a number of acquisitions in the last 25 years in which the acquired product technologies were then integrated into the existing sales force due to commonality of the products, customers and markets.

The largest market the Company serves is the semiconductor equipment market which comprised approximately 64% of the Company's net sales for the year ended December 31, 2010 and historically comprises more than 60% of net sales. Other advanced markets typically comprise the remaining 30-35% of total net sales and include, for example, solar cell and light emitting diode development and manufacturing, as well as a number of other markets, all of which exhibit similar process control requirements as the semiconductor equipment market. In 2010, sales to the Company's top 10 customers represented 45% of total revenue and sales to the Company's top 30 customers represented 60% of net sales. The majority of the Company's top customers purchase a cross section of the Company's products across all product lines and the Company has executed global sales agreements that cover all products sold to these customers. Due to the similar nature of the Company's products, and the relative concentration of its customer base and markets, the CODM management function determines resource allocations across the Company using consolidated financial information.

The consolidated results are significantly impacted by the Company's reliance on a limited customer base within the semiconductor industry. The semiconductor industry is highly cyclical with large fluctuations within any fiscal year or quarterly period. For example, net sales to this market were \$532 million, \$515 million, \$357 million, \$203 million and \$544 million in calendar years, 2006, 2007, 2008, 2009 and 2010, respectively. The quarterly volatility is significantly more pronounced. This volatility affects all Product Groups and therefore the CODM function must rely on overall consolidated results to assess Company resource allocations in order to ensure adequate expense and cash management goals are met.

### Company Management, Reporting and Resource Allocation

The CODM function of the Company is comprised of three individuals: The Chief Executive Officer ("CEO"), Chief Operating Officer ("COO") and Chief Financial Officer ("CFO"). All significant resource allocation decisions including headcount levels, procurement initiatives to obtain production material, choice of location for manufacturing production and related capacity, and capital expenditure decisions are made by the CODM based upon consolidated financial and non-financial information. Due to the commonality of the Company's products across customers, markets and geographies coupled with the inherent volatility of the markets the Company serves which requires the Company to react quickly to industry changes, the CODM function makes resource allocation decisions based on consolidated results.

For example, the Company's procurement process requires that all non-inventory purchases and capital expenditures over \$10,000 are approved by the CODM. These approvals are based upon consolidated results, consolidated forecasts, what the Company is forecasting for its major customers and, in general, how the overall semiconductor industry is performing (and where the industry is in its business cycle). The majority of inventory purchases are managed by a central purchasing group and approved by the Vice President of Global Operations for all products. All inventory purchases greater than \$500,000 are approved by the COO (part of the CODM).

All headcount increase or decrease decisions are made by the CODM, and all new hire requisitions are approved by the CODM on a worldwide basis based upon the Company's overall expected business levels and expected business levels within the semiconductor industry (due to the significant cyclicality of the industry). Specifically, manufacturing and service headcount decisions are made by the CODM based upon the overall forecasted Company and industry business levels. Research and development headcount decisions are made by the CODM, and are based upon the overall forecasted Company and industry expected business levels, as well as specific project or technology based assessments. Selling, general and administrative function headcount decisions are made by the CODM, and are based upon specific needs on a worldwide basis, as well as overall expected business levels.

In addition, all management incentive compensation decisions, including the Management Incentive Plan, which includes approximately 230 senior employees and all of executive management are made by the CODM and approved by the Compensation Committee of the board of directors based on consolidated financial results. The Company's variable compensation philosophy is driven by the need to address similar customer requirements and related product development efforts on a global basis. In specific cases, certain international senior management members have variable incentive compensation based upon their respective regions customer orders and local operating expense management. No management incentive compensation is based on any portion of Product Group results.

Product research and development activities are organized into "Product Groups," which are managed by individual vice presidents ("Vice President and General Manager" or collectively known as "Product Group Vice Presidents"). Each Product Group Vice President is responsible for developing products that measure, control, power and monitor critical parameters of advanced manufacturing processes to all markets and all geographic locations. Each Product Group Vice President is a technical expert in their products and/or a specific technical area that may include several product lines. These individuals interact with the customers to develop applications specific to their products (or in some cases across products on their area of expertise). Often time, meetings with customers include multiple Product Group Vice Presidents and other members of senior management concurrently in order to address customer needs. Product Group Vice Presidents all possess engineering degrees and, in some instances, hold PhD level degrees in their field of expertise.

In addition, the Company has foreign sales subsidiaries in specific countries that sell and service products of all the product groups.

Product Group Vice Presidents do not have responsibility for manufacturing, service, sales, or shared service functions such as information technology, order entry, payroll, customer collections, finance, accounting, human resources or facilities. These other functions are the responsibility of Functional Vice Presidents (for example, Vice President of Global Operations, Vice President of Global Human Resources, and the Chief Financial Officer), who manage their functions on a worldwide and consolidated basis.

For internal management purposes, financial information is produced for each legal entity. Within the U.S. legal entity, non-GAAP limited income statements for each Product Group are also produced on a monthly basis ("Product Group Partial Income Statements"). These Product Group Partial Income Statements include intercompany sales to international subsidiaries, which reflect intercompany transfer pricing (tax-based) and not end-market pricing. These Product Group Partial Income Statements do not include sales to end customers through our foreign sales subsidiaries, which in 2010 represented approximately 43% of the Company's total net sales. Furthermore, this information does not include all costs incurred to operate these Product Groups, and, consequently, excludes most corporate expenses, variable management compensation, stock based compensation, certain information technology projects and certain other expenses. These Partial Product Group Income Statements are not sufficient for the CODM to make resource decisions because they only represent a portion of the Product Group's results. The Company does not produce full Product Group financial statements and would have to piece together information from different legal entities and financial systems by product, which it does not do. The Company consolidates by legal entity with no disaggregating by product outside of the U.S.

These Product Group Partial Income Statements are used to monitor product line bookings, direct costs such as research and development costs and certain manufacturing and operating expenses, which are reviewed against forecasts and budgets and discussed with the CODM in conjunction with all of the product lines focusing primarily on overall Company and customer trends. For example, the CODM reviews total orders information for our largest customers (a trend graph of sales to the Company's largest customers is included in the "Flash" reports described below) in conjunction with these Product Group Partial Income Statements to determine if the Company needs to take any actions such as increase in manufacturing labor requirements or, during an industry downturn, reductions in work force.

Each month, consolidated GAAP financial statements are produced by the corporate finance group for review by the CODM and used to analyze the Company's results, make key management decisions and allocate resources. Important additional information the CODM uses to make decisions are consolidated bookings, expected bookings for key customers, key customer financial guidance and industry overall financial performance. Other specific financial information used by the CODM in making decisions includes consolidated shipments (net sales), gross margins, operating profit (which is also the basis for all executive and the majority of senior management incentive compensation) and earnings per share (EPS) compared to guidance provided to investors.

The Company has elaborated below on some of the factors considered in its segment analysis.

***Explain whether any operating segments were aggregated under ASC 280-10-50-11.***

Company Response

The Company has not aggregated operating segments into reporting segments. Management has documented and concluded that the Company has only one operating segment, which is also the same as the Company's single reporting segment. Management considered the guidance in ASC 280-10-50 in its assessment and conclusion. A summary of the significant factors the Company considered in its assessment and conclusion are described above. The Company has detailed below the information provided to the CODM on a regular basis with a description of how that information is used by the CODM.

***Explain the contents of the information you provide to your chief operating decision maker.***

Company Response

The CODM, as a group, receives the following information that it uses to allocate resources and assess the performance of the organization:

1. Weekly Flash Report - The Weekly Flash Report contains the Company's consolidated bookings and shipments for quarter to date, previous four quarters, current quarter forecast, current quarter outlook (most recent forecast) and also includes various scenarios of quarterly extrapolations for the current quarter based upon extrapolations of weekly run rates for bookings and shipments. This bookings and shipments information is provided for each international legal entity, domestic product groups and for each major customer in total to assist in analyzing any deviations from consolidated quarterly orders and shipments projections. Historical graphs of bookings and shipments on a consolidated basis, by region (U.S., Asia and Europe) and total bookings for each of the Company's top three customers are also provided to assist in the analysis of the information. The CODM relies on consolidated results, as well as worldwide results by major customer to make significant business decisions including whether to adjust, increase or decrease overtime, implement workforce (permanent or temporary), implement reductions in force, make capital additions and adjust inventory levels.
2. Monthly Flash Report - The Monthly Flash Report is a monthly report that contains for each month beginning in the current month and for the previous 3 years, the consolidated bookings, shipments, total customer backlog, 90 day backlog, book to bill ratio, regular headcount, contractor headcount, total actual headcount, direct labor equivalent headcount (overtime converted into full time headcount equivalents), open headcount requisitions and total headcount including open requisitions. Year to date bookings, shipments, total backlog, backlog delinquency, current 90 day backlog and backlog to be shipped after 90 days are provided for each domestic Product Group, each international legal entity (across all products) and for our top customers in total. These reports are essentially a monthly compilation of the Weekly Flash Report with supplemental information.
3. Weekly Open Job Requisition Report - This report lists all approved open headcount on a worldwide basis listed by domestic and international location. Manufacturing and service headcount decisions are made by the CODM based upon the overall forecasted Company and industry business levels. Research and development headcount decisions are made by the CODM and are based upon the overall forecasted Company's and industry business levels, as well as specific project or technology based assessments. Selling, general and administrative function headcount decisions are made by the CODM and are based upon specific needs on a worldwide basis, as well as overall expected business levels.
4. Capital Expenditure Authorization Form - Annually, the CODM approves a consolidated capital budget based upon the overall expected Company and industry business levels. Each functional area and group is then allocated a portion of the overall plan. The plan is divided up by legal entity, functional area and product group. The product group projects are research and development related. Manufacturing related projects are owned by the Vice President of Global Operations and may benefit many product groups (for example manufacturing expansion in Mexico). Specific business cases that benefit all or a significant portion of the Company (for IT and quality systems) are owned and managed by functional Vice Presidents. All capital additions greater than \$10,000 are required to be approved by the CODM.

5. Monthly Business Review Meeting - On a monthly basis, the CODM holds business review meetings with the Company's senior management team. Approximately 30 people representing all product lines, geographies and functional areas attend these meetings (either in person or by phone). During these meetings, the overall direction of the industry, trends or issues at major customers and product line performance are discussed. Each Product Group Vice President and functional Vice President can present for approximately 1/2 hour. Each presentation is attended by the full (30 person) group who can comment and ask questions to understand how the issue impacts their products or function. The majority of time scheduled for these meetings is focused on the status of product line research and development projects, major customer issues and quality issues. The product lines' operating performance measures such as delivery, product reliability, warranty trends and issues, as well as major customer risks, opportunities and competitive threats are also discussed. Financial information included in the presentations include the Partial Product Group Income Statements, backlog and bookings information, headcount data, capital expenditures and inventory analytics.
6. CEO Direct Reports Staff Meeting - On a monthly basis, the CEO conducts a staff meeting of his direct reports that is attended by the COO, CFO, Vice President of Global Human Resources, Vice President and General Counsel and Senior Director of Corporate Business Development. At these meetings the CFO informs the group, which includes the CODM, of the Company's consolidated financial performance against its current quarter plan, including shipment expectations, gross margin and operating expense trends, including consolidated cash flow, DSO and inventory turns measurements. Also, once a quarter at this meeting, the Vice President of Asia Operations and the General Manager of the Continental Europe Operations present the regional financial results to the CODM and related comparisons to plan and discuss business related matters including customer trends, resource requirements and outlooks in the business. These regional financial statements are legal entity-based and do not contain all costs incurred by the Company to support these operations. The focus and incentive compensation for the foreign sales subsidiaries is on local bookings and operating expense management at their site since these sites are solely for local sales and service.
7. Business Planning Process - The Company's regular business planning process is done quarterly. At the end of each calendar quarter the Company creates a worldwide bookings forecast by product line (and in some cases individual product) for the next four quarters developed by its worldwide sales force and based on key customer input, input from product line managers, and data available regarding the semiconductor, thin-film, solar and other industries. A "Consensus Review" meeting is held each quarter where the CODM reviews the consolidated global bookings forecast in light of industry and key customer trends. This meeting is generally attended by the same group of approximately 30 senior management personnel that attend the monthly business reviews. A consolidated bookings forecast is approved by the CODM and each of the foreign sales subsidiaries creates a rolling four quarter income statement (Forecasted Income Statements) and also forecasted Product Group Partial Income Statements within the U.S. legal entity. These individual income statements and corporate expenses are combined into a Consolidated Forecasted Income Statement. The CFO reviews the consolidated forecast to analyze trends in gross margin and operating expenses compared to prior forecasts, prior actual results and expected future results based upon business trends and/or internal initiatives. The final consolidated forecasted income statement is based on the information provided from the Consensus forecast with adjustments for any overall industry or customer trends (for example if the Company has provided a global discount to a customer that would be adjusted in the overall consolidated forecast).

If unexpected trends or changes are identified, the CFO discusses them with the CODM and responsible Vice President as appropriate. The CFO then reviews the Company's consolidated forecast for the current quarter with the CEO and COO to assess if any actions are needed to adjust resources to achieve the forecasted consolidated results.

***We note that the company includes revenue information for three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum and Other Products. Include a discussion of the types of information about these product groups that is included in the information provided to your chief operating decision maker.***

Company Response

Following the guidance in ASC 280-10-50-40 the Company provides the net sales amounts for each group of similar products. The Product Groups are primarily based on legacy acquisition product lines. The Company has combined similar product groups into Reported Product Groups (Instruments and Control Systems, Power and Reactive Gas Products and Vacuum and Other Products). The Company determined that the products sold by the sub products groups are similar based upon the similarity of the product function, type of product and manufacturing processes, and in many cases now has integrated research and development and product offerings across these product lines.

The three Reported Product Groups are comprised of the following sub groups/product lines:

1. Instruments and Control Systems Products, which consists of the following

<u>Product Groups</u>	<u>Vice- President</u>
PFMC Product Group	John T.C. Lee
Controls Product Group	John T.C. Lee
Analytical Systems Group	John A. Smith

2. Power and Reactive Gas Products, which consists of the following:

<u>Product Groups</u>	<u>Vice- President</u>
ENI Product Group	Paul M. Eyerman
ASTeX Product Group	Paul A. Loomis

3. Vacuum Products and Other Products, which consists of the following:

<u>Product Groups</u>	<u>Vice- President</u>
HPS Products Group	William D. Stewart

In order to present the sales information for each of the reported product groups, the Company compiles only the net sales information across all of its legal entities. This information is not utilized by the CODM to make decisions about the business.



In addition to the information discussed above, the information provided to the CODM for the three Reported Product Groups is as follows:

1. For the Instruments and Control Systems Reported Product Group and the Power and Reactive Gas Reported Product Group, only consolidated sales information is compiled each quarter for reporting purposes. No other financial information is compiled or presented to the CODM on either the Instruments and Control Systems Product Group or the Power and Reactive Gas Product Group. As noted below, Partial Product Group Income Statements are provided to the CODM for the sub product group/lines of each of these reported product groups.
2. For the Vacuum and Other Products group, the CODM receives the aforementioned Product Group Partial Income Statement since this Reported Product Group consists of a single product group. Therefore this Product Group is included in the Monthly Business Review Meetings discussed above.

***We note that the organization of the company includes a vice president for each of the following groups: ENI Products, Controls and PFMC Products, ASTeX Products, Analytical Solutions Group, and Vacuum Products. Include a discussion of the types of information about these groups that is included in the information provided to your chief operating decision maker.***

#### Company Response

As discussed above, product research and development activities are organized into "Product Groups," which are managed by individual vice presidents ("Vice President and General Manager" or collectively known as "Product Group Vice Presidents"). Each Product Group Vice President is responsible for developing products that measure, control, power and monitor critical parameters of advanced manufacturing processes to all markets and all geographic locations. Each of these Product Group Vice Presidents are technical experts in their products and/or a specific technical area that may include several product lines, some hold PhD's and all work with the Company's customers to develop applications specific to their products (or in some cases across products in their area of expertise). During 2011, the Group Vice President title that was held by two of our Product Group Vice Presidents was changed to Senior Vice President to reflect the further integration of the business. Often times, meetings with customers include multiple Product Group Vice Presidents and other members of senior management concurrently in order to address all customer needs related to the Company as a whole.

The primary forum for providing financial and non-financial information to the CODM about these Product Groups is the Monthly Business Review Meeting discussed above.

The information provided to the CODM specific to these Product Groups is discussed in more detail above and includes the following:

1. Weekly Flash Report
2. Monthly Flash Report
3. Product Group Partial Income Statement

As per your request, the Company hereby acknowledges the following:

- the Company is responsible for the adequacy and accuracy of the disclosures in the filing;
- staff comments or changes to disclosures in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Company may not assert comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please do not hesitate to contact me at (978) 645-5578 or Kathleen F. Burke, Vice President and General Counsel at (978) 645-5574 should you have any further questions or comments.

Sincerely,

/s/ Seth H. Bagshaw

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Seth H. Bagshaw

Vice President, Chief Financial Officer & Treasurer