



November 4, 2009

VIA EDGAR

Division of Corporation Finance
Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Attention: Martin James
Jeff Jaramillo
Andri Boerman

**Re: KLA-Tencor Corporation
Form 10-K for the Year Ended June 30, 2009
Filed August 7, 2009
File No. 000-09992**

Dear Mr. James:

KLA-Tencor Corporation ("we" or the "Company") submits this letter in response to the comments from the Staff of the Division of Corporation Finance of the Securities and Exchange Commission (the "Staff"), which were set forth in your letter dated October 21, 2009 regarding the above referenced document.

The Staff's comments, indicated in bold, are followed by the Company's responses.

Form 10-K for the fiscal year ended June 30, 2009

Item 7. Management Discussion and Analysis of Financial Condition and Results of Operations, page 34

Critical Accounting Estimates and Policies, page 34

Goodwill and Intangible Assets, page 36

1. We note that you consider goodwill impairment to be a critical accounting estimate, which requires the use of assumptions and estimates that could be affected by uncertainties that could result in a material impact on the estimated fair values of your reporting units. In this regard, for reporting units that are at risk of failing step one of the impairment test (i.e. has a fair value that is not substantially in excess of carrying value), please provide us with and revise MD&A in your future filings to disclose the following:
 - Percentage by which fair value exceeded carrying value as of the date of the most recent test;

- **Amount of goodwill allocated to the reporting unit;**
- **Description of the methods and key assumptions used and how the key assumptions were determined;**
- **Discussion of the degree of uncertainty associated with the key assumptions. The discussion regarding uncertainty should provide specifics to the extent possible (e.g. the valuation model assumes recovery from a business downturn within a defined period of time); and**
- **Description of potential events and/or changes in circumstances that could reasonably be expected to negatively affect the key assumptions.**

Response #1

In response to the Staff's comment, we respectfully provide the following information. The Company is comprised of four reporting units: defect inspection, metrology, service and other. Prior to the Company's annual evaluation of goodwill by reporting unit that was performed as of November 30, 2008 during the quarter ended December 31, 2008, the Company's total goodwill balance was allocated between its defect inspection and metrology reporting units. There was no goodwill allocated to the Company's service and other reporting units. As a result of the annual evaluation of the goodwill performed as of November 30, 2008, the Company recorded an impairment charge of \$272.1 million, which represented the entire goodwill amount related to the Company's metrology reporting unit. Therefore, after giving effect to that impairment charge, the remaining goodwill amount related solely to the defect inspection reporting unit.

We respectfully advise the Staff that, at the time of the Company's annual evaluation of goodwill performed as of November 30, 2008, the fair value of the defect inspection reporting unit was substantially in excess of its carrying value, as the fair value of such reporting unit at that time was estimated to be \$1.65 billion, compared to its carrying value of \$1.30 billion. Because the fair value of the defect inspection reporting unit was substantially in excess of its carrying value, we have not addressed in this response the last four bullet points in the Staff's comment above.

We further advise the Staff that if, in connection with our annual evaluation of goodwill by reporting unit as of November 30, 2009, such analysis shows that the fair value of the defect inspection reporting unit is no longer substantially in excess of its carrying value, we will include, in the MD&A disclosure of our Form 10-Q filing for the three months ending December 31, 2009, information that is responsive to the points noted in the Staff's comment above, to the extent possible.

Product revenues, page 43

2. **We note that your fiscal year 2009 product revenue has decreased by approximately 47% as compared to the previous year and that the decrease in 2009 product revenue compared**

to 2008 product revenue was a result of a reduction in capital spending by your customers due to the recent weakness in the semiconductor industry and deteriorating macroeconomic environment...” In light of the significant declines in product revenue for fiscal year 2009 as compared to the prior year, your MD&A disclosure appears broad and does not provide a thorough analysis that provides readers a view of the company through the eyes of management. When individual line items, disclosed in your statements of operations, significantly fluctuate in comparison to the comparable prior period, please quantify, and disclose the nature of each item that caused the significant change. For example, please quantify each material factor (i.e. such as price changes and or volume changes by type of product), disclose separately the effect on operations attributable to each factor causing the aggregate change from year to year and disclose the nature of or reason for each factor causing the aggregate change. The analysis should reveal underlying material causes of the factors described and any future impact on operating results. Please consider the use of tables when quantifying changes, with narrative discussions following the tables to explain the underlying business reasons for the changes. Please consider the above comment for all your disclosures in your results of operations section with MD&A. As part of your response, please provide us with your proposed disclosure to include in future filings that addresses our concerns. See Item 303 of Regulation S-K and FR-72 for guidance.

Response #2

In response to the Staff’s comment, we respectfully provide the following information.

With respect to the Staff’s request for applicable additional disclosure, we propose the following language for inclusion in future filings to further explain the decrease in product revenues experienced by the Company during fiscal year 2009:

“Product revenues decreased by 47% in the fiscal year ended June 30, 2009 compared to the fiscal year ended June 30, 2008 as a result of a reduction in capital spending by our customers due to the weakness in the semiconductor industry and a deteriorating macroeconomic environment during fiscal year 2009. These factors contributed to a significant decline in the number of tools that we sold within each of our major product lines, as evidenced by the fact that, from the fiscal year ended June 30, 2008 to the fiscal year ended June 30, 2009, revenues from sales of defect inspection equipment declined by 45% while metrology equipment sales revenues fell by nearly 56%. The decrease in the quantity of tools sold that we experienced during fiscal year 2009, as compared to the prior fiscal year, was a function of a number of converging factors in our industry and in the macroeconomic environment. These factors included customers delaying capital investments (including purchases and installations of our products) and otherwise reducing capital spending in an effort to conserve cash in response to their business environment, even as their need for more precise diagnostics capabilities increases with technological advances, as well as customers having reduced access to the capital necessary to fund investments in new equipment due to the weak macroeconomic and credit environments during fiscal year 2009.”

We respectfully further advise the Staff that the experience during the fiscal year ended June 30, 2009, where a significant change in product revenues was clearly attributable to a difference in the quantity of tools sold across each of the Company's major product lines, is likely to be an anomaly given the scope of the Company's business and product portfolio. We have a large number of new product introductions and products discontinued each year, which means that the types of tools that we sell from period to period are frequently changing. We also sell a large portfolio of tools with significant variation in pricing levels among the different types of tools, which typically does not allow us to use number of units shipped as a meaningful way to analyze changes in our product revenues. In addition, our products are configured depending on customer specifications. As such, changes in price would not provide a meaningful way to analyze changes in our product revenues due to the significant variation in configurations of the same tool across our customer base. We respectfully advise the Staff that we will, however, ensure that our future filings are consistent with the provisions of Regulation S-K Item 303(a)(3) and commit to enhancing, in future filings, the explanation of material changes in product revenues and other results of operations, to the extent possible.

Consolidated Statements of Operations, page 59

3. **Please revise your statements of operations in future filings to state separately the costs of revenue for product and the cost of revenue for service, as required by Rule 5-03(b) of Regulation S-X.**

Response #3

In response to the Staff's comment, we respectfully provide the following information. The Company has a robust methodology for tracking the pool of costs for servicing tools, which are charged to cost of revenues in the aggregate. However, there is a lack of clear accounting guidance or rule or industry practice regarding the basis for allocating this pool of costs, including items such as warranty cost and inventory write-offs, between products and services. As a result, the methodology of allocating the pool of costs between cost of product and cost of service would vary widely from company to company. Further, we respectfully submit that separately reporting cost and expense for products and services will limit comparability among companies due to the absence of similar reporting in the semiconductor equipment industry. We respectfully submit that requiring separate reporting of cost and expense for products and services would result in a competitive disadvantage for the Company should we choose a theoretical methodology for allocating our pool of costs that has the effect of disclosing different margins from our competitors. We therefore respectfully request the Staff to consider waiving the requirement to separately disclose cost of products and cost of services and instead accept the Company's commitment to enhancing, in future filings, its disclosure and quantification of factors that impact cost of revenues, to the extent possible.

We respectfully advise the Staff that our response above is consistent with the response that we provided to the Staff in our correspondence dated February 19, 2008, in response to the Staff's comment letter to the Company dated January 31, 2008 related to our Form 10-K for the year ended June 30, 2007.

Note 1 – Summary of Significant Accounting Policies

Reclassifications, page 68

4. We note from your disclosure that cash flows from trading securities were reclassified from operating to investing activities in the consolidated statements of cash flows, and purchases and proceeds from the sale of trading securities are presented separately (previously reported on a net basis) based on your analysis of the provisions of SFAS No. 159. It is unclear why your adoption and analysis of the provisions of SFAS No. 159 would cause a change in classifying cash flows receipts and payments from trading securities in your statement of cash flows from operating to investing in your current period. In this regard, please cite the provisions in SFAS No. 159, which requires this classification change for cash flows from trading securities, and explain to us how it differs from the guidance outlined in paragraphs 14 through 24 of SFAS No. 95, which was applicable for your prior years financial statements. Also, please tell us the trading securities balance carried on your balance sheets for all years presented and provide us with a description of the types of trading securities held by you for each year presented in your financial statements. We may have further comment upon receipt of your response.

Response #4

In response to the Staff's comment, we respectfully provide the following information. Total trading securities balances carried on the Company's balance sheets at June 30, 2009 and 2008 were as follows:

<u>(In thousands)</u>	<u>June 30, 2009</u>	<u>June 30, 2008</u>
Nonqualified deferred compensation plan	\$ 107,224	\$ 144,866
Auction rate securities	38,168	—
Total	<u>\$ 145,392</u>	<u>\$ 144,866</u>

The nonqualified deferred compensation plan includes insurance and mutual fund securities.

We respectfully advise the Staff that the classification change for cash flows from trading securities from operating activities to investing activities is in accordance with paragraph 16 of SFAS No. 159, which states:

“Entities shall classify cash receipts and cash payments related to items measured at fair value according to their nature and purpose as required by FASB Statement No. 95, Statement of Cash Flows (as amended).”

and paragraph A42 of SFAS No. 159, which states:

“The Board decided that the required classification as operating activities for trading securities is inappropriate because Statement 115 permits securities to be classified as trading even though they are not being held for sale in the near term. The Board concluded that the cash receipts and cash payments related to trading securities as well as to financial assets and financial liabilities for which the fair value option has been elected should be classified pursuant to Statement 95 (as amended) based on the nature and purpose for which the related financial assets and financial liabilities were acquired or incurred.”

We further advise the Staff that paragraphs C3(a) through C3(c) of SFAS No. 159 amended paragraphs 15 through 17 of SFAS No. 95 to no longer exclude securities that are classified as trading securities from being included as cash flows from investing activities. Since the nature and purpose of our investment strategy related to the trading securities is not to actively buy and sell securities with the objective of generating profits on short-term differences in market prices, we changed the classification for cash flows from our trading securities from operating activities to investing activities.

In connection with responding to your comments, the Company acknowledges that:

- The Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- Staff comments or changes to disclosure 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 Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

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Should you require further clarification of any of the issues raised in this letter, please contact the undersigned at (408) 875-3000 (or by fax at (408) 875-6485). We respectfully request that the Staff let us know at its earliest convenience if we can be of any further assistance.

Sincerely,

/s/ MARK P. DENTINGER

Mark P. Dentinger
Executive Vice President and Chief Financial Officer

cc: Richard Wallace, President and Chief Executive Officer, KLA-Tencor Corporation
Brian Martin, Senior Vice President and General Counsel, KLA-Tencor Corporation