



November 18, 2008

VIA EDGAR

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

Attention: Angela Crane
Julie Sherman
Jay Webb

**Re: KLA-Tencor Corporation
Form 10-K for the Year Ended June 30, 2008
Filed August 7, 2008
File No. 000-09992**

Dear Ms. Crane:

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 November 5, 2008 regarding the above referenced document.

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

Form 10-K for the Year Ended June 30, 2008

Financial Statements, page 48

Note 3. Marketable Securities, page 62

1. We see your disclosure that in February 2008, auctions failed for approximately \$48.2 million of auction rate securities that you held and as a result you reclassified these securities to long-term assets. However, we also noted your disclosure that you may be forced to sell some of your auction rate securities portfolio under illiquid market conditions, which could result in the company recognizing a loss on such sales. Please respond to the following:
 - Please tell us about your intent and ability to hold these securities and why you believe your reclassification to long-term assets is appropriate if you believe you may, in fact, be forced to see *[sic]* some of these securities.
 - Please tell us how you calculated the temporary impairment charge of \$.8 million and why it was only considered temporary based upon your failed auctions and statement that you may be forced to sell some of these securities.

Response #1

In response to the Staff's comment in the first bullet point, we respectfully advise the Staff that we believed at the time of filing our Annual Report on Form 10-K for the fiscal year ended June 30, 2008 (the "Fiscal Year 2008 Form 10-K"), and we continue to believe, that there is only a remote possibility that we may be forced to sell some of our auction rate securities ("ARS") under illiquid market conditions within the twelve months following June 30, 2008. Our disclosure of that possibility in our footnote and in Item 1A, *Risk Factors*, of the Fiscal Year 2008 Form 10-K was driven by a heightened sense of caution in light of unusual market conditions and our desire to provide our investors with transparent disclosure. As of June 30, 2008, we had approximately \$1.6 billion of cash, cash equivalents, short-term and long-term marketable securities, of which our ARS portfolio only represented 2.7%. As such, we expect to be able to hold these securities, as is our current intent, until such time they are called by the issuer.

We further advise the Staff that as stated in our accounting policy in Item 7 *Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Estimates and Policies*, on page 32 of the Fiscal Year 2008 Form 10-K, we periodically review our investment portfolio to determine if any investment is other-than-temporarily impaired due to changes in credit risk or other potential valuation concerns, which would require us to record an impairment charge in the period during which any such determination is made. In making this judgment, we evaluate, among other things, the duration and extent to which the fair value of an investment is less than its cost, the credit rating and any changes in credit rating for the investment, and our ability and intent to hold the investment until the earlier of market price recovery or maturity.

In response to the Staff's comment in the second bullet point, we respectfully advise the Staff that the temporary impairment charge of \$0.8 million was calculated based on a five year discounted cash flow model using the following assumptions. Our ARS holdings received a maximum interest rate of 175% of the Securities Industry and Financial Markets Association index (2% as of March 31, 2008), which translated into a 3.5% tax-exempt interest rate. The tax-equivalent interest rate was 5.38%, based on a 35% marginal tax rate, which was higher than the comparable five year AAA rated student loan Variable Rate Demand Note, which carried an interest rate of 4.56% (LIBOR + 120 basis points). Also, we had assumed a liquidity premium of 153 basis points, which represented the hypothetical spread we might need to pay to obtain immediate liquidity.

Using the assumptions described in the paragraph above, the five year discounted cash flow model valued our ARS at 97% of par value, which was also consistent with valuations provided by a third-party securities firm. Although the failed auctions had existed for approximately six months at the time of filing our Fiscal Year 2008 Form 10-K,

in accordance with FSP SFAS No. 115-1 and 124-1 and SAB Topic 5M, we used the following factors to determine whether the unrealized loss was other-than-temporary or temporary: (i) the nature of the investment; (ii) the cause and duration of the impairment; (iii) the financial condition and near term prospects of the issuer; (iv) the ability to hold the security for a period of time sufficient to allow for any anticipated recovery in fair value; and (v) the extent to which fair value is less than cost. None of these factors led us to conclude that the impairment is other-than-temporary. Based on our assessment of cash flow projections and ability to access cash, cash equivalents and other short-term marketable securities, we did not and do not anticipate having to sell these securities below par value for a significant period of time in order to operate our business.

Note 4. Business Combinations, page 64

2. We see that you completed the acquisition of majority control of ICOS on May 30, 2008 for cash consideration of approximately \$618.1 million and note your disclosure that the company considers the acquisition of ICOS to be material to your results of operations. Please provide us with your significance tests as set forth under Rule 1-02 (w) of Regulation S-X for this acquisition along with the reason why you believe you were not required to file historical financial statements of ICOS. Refer to the guidance in Rule 3-05 and Rule 1-02(w) of Regulation S-X.

Response #2

In response to the Staff's comment, we respectfully provide the following significance tests performed in accordance with Rule 1-02(w) of Regulation S-X for the ICOS acquisition.

1. Investment Test (\$ in thousands):

	<u>Amount</u>	<u>% of Assets</u>
Total investments in and advances	\$ 618,050	13%
KLA-Tencor total assets as of 6/30/07	\$4,623,249	

2. Asset Test (\$ in thousands):

	<u>Amount</u>	<u>% of Assets</u>
Total assets acquired	\$ 219,098	5%
KLA-Tencor total assets as of 6/30/07	\$4,623,249	

3. Income Test (\$ in thousands):

	<u>FY07</u>	<u>% of Income</u>
ICOS pre-tax income	\$ 8,644	1%
KLA-Tencor pre-tax income	\$678,607	

In accordance with the guidance provided in Rule 3-05 and Rule 1-02(w) of Regulation S-X, as none of the conditions exceeded 20%, we concluded that the filing of historical financial statements of ICOS was not required.

Note 15. Segment Reporting and Geographical Information, page 90

3. **We note your disclosure that you report one reportable segment. Please tell us your consideration of the need to report revenues from external customers for each product and service or each group of similar products and services pursuant to paragraph 37 of SFAS 131. It appears from your disclosures elsewhere in the document that you categorize your products into four groups: defect inspection; metrology; product related services; and software, as discussed on page 3. In addition, it appears you may also review your revenues by market as discussed on page 35, including memory, foundry and logic markets. Please address our concerns in your response and revise future filings as necessary based on our comment.**

Response #3

We respectfully advise the Staff that we will include in our future filings revenues from external customers for each product and service or each group of similar products and services pursuant to paragraph 37 of SFAS 131.

With respect to the memory, foundry and logic markets referenced in the Staff's comment, reporting revenues from external customers based on these market segments would be impracticable and inherently imprecise, as such data would have to be based on our marketing department's characterization of our customers' production sites and not based on any internal accounting records.

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.

* * * * *

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