

SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to Section 240.14a-11(c) or Section 240.14a-12

KLA-TENCOR CORPORATION

(Name of Registrant as Specified in its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

PAYMENT OF FILING FEE (CHECK THE APPROPRIATE BOX):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

Fee paid previously with preliminary materials.

Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:

Amendment to 2004 Equity Incentive Plan

On October 8, 2009, the Board of Directors of KLA-Tencor Corporation (the “Company”) approved an amendment to Section 3 of the Company’s 2004 Equity Incentive Plan (the “Plan”) so that such section now provides that (a) shares of the Company’s common stock (“Shares”) that are withheld by the Company in satisfaction of applicable withholding taxes upon the issuance, vesting or settlement of equity awards under the Plan will, going forward, no longer be available for future issuance under the Plan and (b) upon the exercise of a stock appreciation right settled in Shares, the gross number of Shares covered by the portion of the stock appreciation right award so exercised (and not merely the net number of Shares actually issued upon such exercise) will cease to be available under the Plan.

At the Company’s Annual Meeting of Stockholders to be held on November 4, 2009, the Company’s stockholders will have the opportunity to vote whether to approve the amended and restated Plan, as amended as described above, and its material terms. A copy of the Plan, reflecting the amendments described above, has been filed with the Securities and Exchange Commission as Exhibit 10.46 to the Current Report on Form 8-K filed by the Company on October 8, 2009.