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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

**FORM 8-K**

**CURRENT REPORT  
Pursuant To Section 13 or 15(d) of  
The Securities Exchange Act of 1934**

**Date of report (Date of earliest event reported): August 28, 2006 (August 23, 2006)**

**KLA-TENCOR CORPORATION**

(Exact Name of Registrant as Specified in Charter)

Delaware  
(State or Other Jurisdiction of  
Incorporation)

000-09992  
(Commission File Number)

04-2564110  
(IRS Employer Identification No.)

160 Rio Robles  
San Jose, California 95134  
(Address of Principal Executive Offices)

Registrant's telephone number, including area code: (408) 875-3000

N/A  
(Former Name or Former Address, if Changed Since Last Report)

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 8.01. Other Events.**

On August 23, 2006, ADE Corporation extended from August 28, 2006 to November 10, 2006 the “end date” under the Amended and Restated Merger Agreement between KLA-Tencor and ADE. Unless the merger has been completed by such date or such date is further extended by mutual agreement of KLA-Tencor and ADE, either party may thereafter terminate the Merger Agreement. ADE extended this date to allow KLA-Tencor additional time to obtain regulatory clearance from German antitrust authorities, who as previously reported, notified KLA-Tencor on Monday, July 10, 2006 of the commencement of a Phase II investigation of the proposed merger.

A closing date will be established once the parties have cleared or waived all conditions to close, including regulatory clearance from the German antitrust authorities. Both ADE and KLA-Tencor continue to be confident that the merger will be completed once German antitrust clearance is obtained.

**Warning Concerning Forward-Looking Statements**

This Current Report on Form 8-K contains certain forward-looking statements within the meaning of the “safe harbor” provisions of the United States Private Securities Litigation Reform Act of 1995 and federal securities law. Such forward-looking statements are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Those statements that make reference to expectations, predictions, beliefs and assumptions should be considered forward-looking statements. These statements include, but are not limited to, those associated with the expected closing time for the proposed merger and the obtaining of clearance from German antitrust authorities. These statements involve risks and uncertainties including those associated with delays in obtaining, or adverse conditions contained in, the German antitrust authorities’ regulatory approvals; failure to consummate or delays in consummating the proposed merger for other reasons; changes in laws or regulations; and other similar factors. Further information on potential factors that could affect KLA-Tencor’s or ADE’s respective businesses is contained in their reports on file with the Securities and Exchange Commission, including their respective Form 10-K’s. KLA-Tencor and ADE are under no obligation to (and expressly disclaim any such obligation to) update or alter their respective forward-looking statements whether as a result of new information, future events or otherwise.

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

**KLA-TENCOR CORPORATION**

Date: August 28, 2006

By: /s/ Jeffrey Hall \_\_\_\_\_

Name: Jeffrey Hall

Title: Senior Vice President and Chief Financial Officer