

SCHEDULE 13G

Amendment No. 9
KLA-Tencor Corporation
Common Stock
Cusip #482480100

Cusip #482480100
Item 1: Reporting Person - FMR Corp.
Item 4: Delaware
Item 5: 146,842
Item 6: 0
Item 7: 2,560,132
Item 8: 0
Item 9: 2,560,132
Item 11: 1.336%
Item 12: HC

Cusip #482480100
Item 1: Reporting Person - Edward C. Johnson 3d
Item 4: United States of America
Item 5: 0
Item 6: 0
Item 7: 2,560,132
Item 8: 0
Item 9: 2,560,132
Item 11: 1.336%
Item 12: IN

SCHEDULE 13G - TO BE INCLUDED IN
STATEMENTS
FILED PURSUANT TO RULE 13d-1(b) or 13d-2(b)

Item 1(a). Name of Issuer:

KLA-Tencor Corporation

Item 1(b). Name of Issuer's Principal Executive Offices:

160 Rio Robles
San Jose, CA 95134

Item 2(a). Name of Person Filing:

FMR Corp.

Item 2(b). Address or Principal Business Office or, if None,
Residence:

82 Devonshire Street, Boston,
Massachusetts 02109

Item 2(c). Citizenship:

Not applicable

Item 2(d). Title of Class of Securities:

Common Stock

Item 2(e). CUSIP Number:

482480100

Item 3. This statement is filed pursuant to Rule 13d-1(b) or 13d-2(b)
and the person filing, FMR Corp., is a parent holding company
in accordance with Section 240.13d-1(b)(ii)(G). (Note: See
Item 7).

Item 4. Ownership

(a) Amount Beneficially Owned: 2,560,132

(b) Percent of Class: 1.336%

(c) Number of shares as to which such person has:

(i) sole power to vote or to direct the vote: 146,842

(ii) shared power to vote or to direct the vote: 0

(iii) sole power to dispose or to direct the disposition of: 2,560,132

(iv) shared power to dispose or to direct the disposition of: 0

Item 5. Ownership of Five Percent or Less of a Class.

If this statement is being filed to report the fact that as of the date hereof, the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following (X).

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

Not applicable

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company.

See attached Exhibit A.

Item 8. Identification and Classification of Members of the Group.

Not applicable. See attached Exhibit A.

Item 9. Notice of Dissolution of Group.

Not applicable.

Item 10. Certification.

Inasmuch as the reporting persons are no longer the beneficial owners of more than five percent of the number of shares outstanding, the reporting persons have no further reporting obligation under Section 13(d) of the Securities and Exchange Commission thereunder, and the reporting persons have no obligation to amend this Statement if any material change occurs in the facts set forth herein.

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

August 09, 2007
Date

/s/Eric D. Roiter
Signature

Eric D. Roiter
Duly authorized under Power of Attorney
dated December 30, 1997 by and on behalf of FMR Corp. and
its direct and indirect subsidiaries

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Pursuant to the instructions in Item 7 of Schedule 13G, Fidelity Management & Research Company ("Fidelity"), 82 Devonshire Street, Boston, Massachusetts 02109, a wholly-owned subsidiary of FMR Corp. and an investment adviser registered under Section 203 of the Investment Advisers Act

of 1940, is the beneficial owner of 2,413,290 shares or 1.259% of the Common Stock outstanding of KLA-Tencor Corporation ("the Company") as a result of acting as investment adviser to various investment companies registered under Section 8 of the Investment Company Act of 1940.

Edward C. Johnson 3d and FMR Corp., through its control of Fidelity, and the funds each has sole power to dispose of the 2,413,290 shares owned by the Funds.

Members of the family of Edward C. Johnson 3d, Chairman of FMR Corp., are the predominant owners, directly or through trusts, of Series B shares of common stock of FMR Corp., representing 49% of the voting power of FMR Corp. The Johnson family group and all other Series B shareholders have entered into a shareholders' voting agreement under which all Series B shares will be voted in accordance with the majority vote of Series B shares. Accordingly, through their ownership of voting common stock and the execution of the shareholders' voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR Corp.

Neither FMR Corp. nor Edward C. Johnson 3d, Chairman of FMR Corp., has the sole power to vote or direct the voting of the shares owned directly by the Fidelity Funds, which power resides with the Funds' Boards of Trustees. Fidelity carries out the voting of the shares under written guidelines established by the Funds' Boards of Trustees.

Strategic Advisers, Inc., 82 Devonshire Street, Boston, MA 02109, a wholly-owned subsidiary of FMR Corp. and an investment adviser registered under Section 203 of the Investment Advisers Act of 1940, provides investment advisory services to individuals. As such, FMR Corp.'s beneficial ownership includes 562 shares, or 0.000%, of the Common Stock outstanding of KLA-Tencor Corporation, beneficially owned through Strategic Advisers, Inc.

Pyramis Global Advisors Trust Company ("PGATC"), 53 State Street, Boston, Massachusetts, 02109, an indirect wholly-owned subsidiary of FMR Corp. and a bank as defined in Section 3(a)(6) of the Securities Exchange Act of 1934, is the beneficial owner of 146,280 shares or 0.076% of the outstanding Common Stock of the KLA-Tencor Corporation as a result of its serving as investment manager of institutional accounts owning such shares.

Edward C. Johnson 3d and FMR Corp., through its control of Pyramis Global Advisors Trust Company, each has sole dispositive power over 146,280 shares and sole power to vote or to direct the voting of 146,280 shares of Common Stock owned by the institutional accounts managed by PGATC as reported above.

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STATEMENTS
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RULE 13d-1(f)(1) AGREEMENT

The undersigned persons, on August 09, 2007, agree and consent to the joint filing on their behalf of this Schedule 13G in connection with their beneficial ownership of the Common Stock of KLA-Tencor Corporation at July 31, 2007.

FMR Corp.

By /s/ Eric D. Roiter
Eric D. Roiter
Duly authorized under Power of Attorney dated
December 30, 1997, by and on behalf of FMR Corp. and its
direct and indirect subsidiaries

Edward C. Johnson 3d

By /s/ Eric D. Roiter
Eric D. Roiter
Duly authorized under Power of Attorney dated
December 30, 1997, by and on behalf of Edward C. Johnson
3d

Fidelity Management & Research Company

By /s/ Eric D. Roiter
Eric D. Roiter
Senior V.P. and General Counsel