UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE TO

(Rule 13e-4)

TENDER OFFER STATEMENT UNDER SECTION 14(d)(1) OR 13(e)(1)

OF THE SECURITIES EXCHANGE ACT OF 1934

(AMENDMENT NO. 2)

KLA-TENCOR CORPORATION

(Name of Subject Company (Issuer) and Filing Person (Offeror))

Options to Purchase Shares of Common Stock, Par Value \$0.001 Per Share

(Title of Class of Securities)

482480100

(CUSIP Number of Class of Securities)

(Underlying Common Stock)

Jeffrey L. Hall

Senior Vice President and Chief Financial Officer

KLA-Tencor Corporation

160 Rio Robles

San Jose, California 95134

(408) 875-3000

(Name, address and telephone number of person authorized to receive notices and communications on behalf of filing person)

Copy to:

S. James DiBernardo, Esq.

Jill Mather Bartow, Esq.

Morgan, Lewis, & Bockius LLP

Two Palo Alto Square

Palo Alto, California 94306

(650) 843-4000

CALCULATION OF FILING FEE

Transaction valuation* \$141,307,107.00

Amount of filing fee** \$4,338.13***

- * The transaction valuation set forth above is based on the Black-Scholes option valuation model, and assumes that all outstanding options eligible for tender covering an aggregate of 5,139,344 shares of common stock of KLA-Tencor Corporation will be amended pursuant to this offer, which may not occur.
- ** The amount of the filing fee, calculated in accordance with Rule 0-11 under the Securities Exchange Act of 1934, as amended, as modified by Fee Advisory No. 5 for fiscal year 2007, equals \$30.70 per \$1,000,000 of transaction valuation. The transaction valuation set forth above was calculated for the sole purpose of determining the filing fee, and should not be used or relied upon for any other purpose.
- *** Previously paid.
- Check box if any part of the fee is offset as provided by Rule 0-11(a)(2) and identify the filing with which the offsetting fee was previously paid. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

Amount Previously Paid:

Form or Registration No.:

Filing party:

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

" Check the box if the filing relates solely to preliminary communications made before the commencement of a tender offer.

Check the appropriate boxes below to designate any transactions to which the statement relates:

- " third party tender offer subject to Rule 14d-1.
- x issuer tender offer subject to Rule 13e-4.
- " going-private transaction subject to Rule 13e-3.
- " amendment to Schedule 13D under Rule 13d-2.

Check the following box if the filing is a final amendment reporting the results of the tender offer. "

Introductory Statement

This Amendment No. 2 (this Amendment) amends and supplements the Tender Offer Statement on Schedule TO (the Schedule TO) filed with the Securities and Exchange commission (the SEC) on February 27, 2007, relating to our offer to amend or replace outstanding. Eligible Options (as defined in the Offer to Amend or Replace attached to the Schedule TO as Exhibit (a)(1)) held by current employees subject to taxation in the United States so that those options will not be subject to Section 409A of the Internal Revenue Code. Except as amended and supplemented hereby and by Amendment No. 1 thereto, all terms of the Schedule TO and the Offer to Amend or Replace and all disclosure set forth in the Schedule TO and Exhibits thereto remain unchanged.

COVER PAGE AND INTRODUCTION

The information set forth in the Cover Page and Introduction to the Offer to Amend or Replace is hereby amended as follows: The third sentence of the second paragraph on page ii of the Offer to Amend or Replace is deleted in its entirety and replaced with the following language: The Cash Bonus will be paid on the Company s first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008. The first sentence of the second to the last paragraph on page iv of the Offer to Amend or Replace is deleted in its entirety and replaced with the following language: The Cash Bonus will be paid on the Company s first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008.

SUMMARY TERM SHEET

The information set forth in the Summary Term Sheet of the Offer to Amend or Replace is hereby amended as follows: The sixth sentence of the first paragraph under the question entitled WHAT ARE THE COMPONENTS OF THE OFFER? is deleted in its entirety and replaced with the following language: The Cash Bonus will be paid on the Company s first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008. The first sentence of the second paragraph under the question entitled WHEN WILL MY ELIGIBLE OPTIONS BE AMENDED OR REPLACED? is amended to read as follows: As soon as administratively practicable after the Amendment Date, we will deliver to you a final and complete Amendment Agreement that will reflect the adjustment to the exercise price of each of your Amended Options and the Company s unconditional obligation to pay you on its first regularly scheduled payroll date after January 1, 2008, the Cash Bonus calculated for each Amended Option. The last sentence under the question entitled WHAT ARE SOME OF THE KEY DATES TO REMEMBER? is hereby deleted in its entirety and replaced with the following language: The Cash Bonus will be paid on the Company s first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008.

ITEM 1. ELIGIBLE OPTIONEES; ELIGIBLE OPTIONS; AMENDMENT OF ELIGIBLE OPTIONS AND CASH BONUS; NEW OPTIONS; EXPIRATION DATE; ADDITIONAL CONSIDERATIONS.

The information set forth in Item 1 of the Offer to Amend or Replace, entitled Eligible Optiones; Eligible Options; Amendment of Eligible Options and Cash Bonus; New Options; Expiration Date; Additional Considerations—is hereby amended as follows: The third sentence of the third paragraph in the Section entitled—Amendment of Eligible Options and Cash Bonus—of Item 1 is deleted in its entirety and replaced with the following language: The Cash Bonus will be paid on the Company—s first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008. The sentence comprising the final paragraph of the Section entitled—Amendment of Eligible Options and Cash Bonus—of Item 1 is deleted in its entirety and replaced with the following language: Your Cash Bonus will be paid on the Company—s first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008, and will be subject to the Company—s collection of all applicable withholding taxes.

ITEM 4. PROCEDURES FOR TENDERING ELIGIBLE OPTIONS.

The information set forth in Item 4 of the Offer to Amend or Replace, entitled Procedures for Tendering Eligible Options, is hereby amended as follows: The third sentence of the last paragraph in Item 4 is deleted in its entirety and replaced with the following language: Schedule I to that agreement will indicate the Adjusted Exercise Price in effect for each of your Amended Options and the Company s obligation to pay you on its first regularly scheduled payroll date after January 1, 2008, the Cash Bonus calculated for each Amended Option.

ITEM 6. ACCEPTANCE OF ELIGIBLE OPTIONS FOR AMENDMENT OR REPLACEMENT AND COMMITMENT TO PAY CASH BONUS WITH RESPECT TO AMENDED OPTIONS.

The information set forth in Item 6 of the Offer to Amend or Replace, entitled Acceptance of Eligible Options for Amendment or Replacement and Commitment to Pay Cash Bonus with Respect to Amended Options, is hereby amended as follows: The fourth sentence of the second paragraph in Item 6 is deleted in its entirety and replaced with the following language: Schedule I to that agreement will reflect the increases to the exercise prices of the Amended Options and the Company's unconditional obligation to pay such Eligible Optionee the applicable Cash Bonus for each of his or her Amended Options on its first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008.

ITEM 7. CONDITIONS OF THE OFFER.

The information set forth in Item 7 of the Offer to Amend or Replace, entitled Conditions of the Offer, is hereby amended as follows: Clause (b) of Item 7 is amended to read as follows: (b) we shall have been unable to obtain exemptive relief from the prompt payment provisions of Rules 13e-4(f)(5) and 14e-1(c) under the 1934 Act, as they may apply to the scheduled payment of the Cash Bonuses on the Company s first regularly scheduled payroll date following January 1, 2008;

ITEM 9. SOURCE AND AMOUNT OF CONSIDERATION; TERMS OF AMENDED OPTIONS OR NEW OPTIONS.

The information set forth in Item 9 of the Offer to Amend or Replace, entitled Source and Amount of Consideration; Terms of Amended Options or New Options, is hereby amended as follows: The second sentence of the third paragraph of Item 9 is deleted in its entirety and replaced with the following language: The Cash Bonus will be paid from KLA-Tencor s general assets on its first regularly scheduled payroll date after January 1, 2008, which is scheduled to be January 10, 2008, and you will be a general creditor of KLA-Tencor with respect to the Cash Bonus.

ITEM 14. LEGAL MATTERS; REGULATORY APPROVALS.

The information set forth in Item 14 of the Offer to Amend or Replace, entitled Legal Matters; Regulatory Approvals, is hereby amended as follows: The first sentence of the second paragraph of Item 14 is deleted in its entirety and replaced with the following language: We will not be able to complete the Offer unless we obtain exemptive relief from the prompt payment provisions of Rules 13e-4(f)(5) and 14e-1(c) under the 1934 Act, as they may apply to the scheduled payment of the Cash Bonuses on the Company s first regularly scheduled payroll date following January 1, 2008.

ITEM 12. EXHIBITS.

Pursuant to this Amendment, Exhibits (a)(3), (a)(12) and (a)(16) to the Schedule TO are hereby amended in their entirety to read as set forth in, and to be replaced by, Exhibits (a)(3), (a)(12) and (a)(16), respectively, to this Amendment. In addition, Exhibits (a)(17) and (a)(21) to this Amendment are hereby filed as Exhibits (a)(17) and (a)(21) to the Schedule TO.

(a)(1)	Offer to Amend or Replace, dated February 27, 2007.*
(a)(2)	Email Announcement of Offer to Amend or Replace, dated February 27, 2007.*
(a)(3)	Frequently Asked Questions.
(a)(4)	Screenshot of Login Page to Offer website at https://kla.equitybenefits.com.*
(a)(5)	Screenshot of Welcome Page to Offer website at https://kla.equitybenefits.com.*
(a)(6)	Screenshot of Electronic Election Form (screenshots 1-2).**
(a)(7)	Screenshot of Election Amendment Review.**
(a)(8)	Screenshot of Agreement to Terms of Election (screenshots 1-3).*
(a)(9)	Screenshot of Print Confirmation.**
(a)(10)	Screenshot of Election Confirmation Statement.**
(a)(11)	Instructions to Electronic Election Form.*
(a)(12)	Form of Stock Option Amendment and Special Bonus Agreement.
(a)(13)	Form of Acknowledgement of Receipt of Election Form.**
(a)(14)	Form of Email Reminder of Expiration Date.*
(a)(15)	Paper Election Form.**
(a)(16)	Form of Notice of Expiration of Offer, Amendment of Eligible Option and Commitment to Pay Cash Bonus.
(a)(17)	Material Income Tax Consequences for Eligible Optionees Resident Outside the United States.
(a)(18)	KLA-Tencor Corporation Annual Report on Form 10-K for the year ended June 30, 2006, filed with the SEC on January 29, 2007, is incorporated herein by reference.
(a)(19)	KLA-Tencor Corporation Quarterly Report on Form 10-Q for its fiscal quarter ended September 30, 2006, filed with the SEC on January 29, 2007, is incorporated herein by reference.
(a)(20)	Email Containing Hyperlink to Offer to Amend or Replace and Information Regarding Eligible Options, dated March 2, 2007.**
(a)(21)	Email Announcing Change to Scheduled Payment Date of Cash Bonus.
(b)	Not applicable.
(d)(1)	KLA-Tencor Corporation Restated 1982 Stock Option Plan, as amended November 18, 1996 is incorporated herein by reference from Exhibit 10.74 to Form S-8, filed with the SEC on March 7, 1997.
(d)(2)	KLA-Tencor Corporation Restated 1982 Stock Option Plan Form of Stock Option Agreement.**
(d)(3)	KLA-Tencor Corporation 2000 Nonstatutory Stock Option Plan is incorporated herein by reference from Exhibit 10.3 to Form S-8, filed with the SEC on September 27, 2002.
(d)(4)	KLA-Tencor Corporation 2000 Nonstatutory Stock Option Plan Form of Stock Option Agreement.**

(d)(5)	KLA-Tencor Corporation 2004 Equity Incentive Plan is incorporated herein by reference from Exhibit 10.1 to Form S-8, filed with the SEC on December 23, 2004.
(d)(6)	KLA-Tencor Corporation 2004 Equity Incentive Plan Form of Stock Option Agreement.**
(g)	Not applicable.
(h)	Not applicable.
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^{*} Previously filed with the Schedule TO filed with the SEC on February 27, 2007, and incorporated herein by reference.

ITEM 13. INFORMATION REQUIRED BY SCHEDULE 13E-3.

(a) Not applicable.

^{**} Previously filed with the Schedule TO-I/A filed with the SEC on March 2, 2007, and incorporated herein by reference.

SIGNATURE

After due inquiry and to the best of my knowledge and belief, I certify that the information set forth in this Amendment No. 2 to Schedule TO is true, complete and correct.

KLA-TENCOR CORPORATION

By: /s/ Jeffrey L. Hall

Jeffrey L. Hall Chief Financial Officer

Date: March 13, 2007

6

INDEX OF EXHIBITS

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