

FORM 5

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL

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☐ Check this box if no longer
subject to Section 16. Form 4
or Form 5 obligations may
continue. See Instruction 1(b).

☐ Form 3 Holdings Reported

☐ Form 4 Transactions
Reported

ANNUAL STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the
Investment Company Act of 1940

1. Name and Address of Reporting Person * COHEN AVI		2. Issuer Name and Ticker or Trading Symbol KLA TENCOR CORP [KLAC]		5. Relationship of Reporting Person(s) to Issuer (Check all applicable) ____ Director X Officer (give title below) 10% Owner ____ Other (specify below) VP, Pattern Solutions Group					
(Last) (First) (Middle)		3. Statement for Issuer's Fiscal Year Ended (Month/Day/Year) 06/30/2004							
C/O KLA-TENCOR CORPORATION, 160 RIO ROBLES									
(Street)		4. If Amendment, Date Original Filed(Month/Day/Year)		6. Individual or Joint/Group Reporting (check applicable line) X Form Filed by One Reporting Person ____ Form Filed by More than One Reporting Person					
SAN JOSE, CA 95130									
(City) (State) (Zip)		Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned							
1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)	4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned at end of Issuer's Fiscal Year (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
				Amount	(A) or (D)	Price			
Common Stock	06/30/2004		J(1)	598	A	\$ 31.756	2,000	D	

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly. **Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.** SEC 2270 (9-02)

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)	5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)	6. Date Exercisable and Expiration Date (Month/Day/Year)	7. Title and Amount of Underlying Securities (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of Derivative Securities Beneficially Owned at End of Issuer's Fiscal Year (Instr. 4)	10. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
					(A) (D)	Date Exercisable Expiration Date	Title Amount or Number of Shares				
Non- Qualified Stock Option (right to buy)	\$ 10.63					08/31/1999 08/31/2008	Common Stock 47,313		47,313	D	
Non- Qualified Stock Option (right to buy)	\$ 22.25					04/30/1998 04/30/2007	Common Stock 7,500		7,500	D	
Non- Qualified Stock Option (right to buy)	\$ 26.25					11/10/2001 11/10/2010	Common Stock 8,750		8,750	D	

Non-Qualified Stock Option (right to buy)	\$ 29.31						10/02/2002	10/02/2011	Common Stock	22,500		22,500	D	
Non-Qualified Stock Option (right to buy)	\$ 32.75						04/04/2002	04/04/2011	Common Stock	8,750		8,750	D	
Non-Qualified Stock Option (right to buy)	\$ 33.75						10/27/2000	10/27/2009	Common Stock	24,000		24,000	D	
Non-Qualified Stock Option (right to buy)	\$ 34.67						11/08/2003	01/28/2013	Common Stock	12,500		12,500	D	
Non-Qualified Stock Option (right to buy)	\$ 37.05						11/08/2003	11/08/2012	Common Stock	6,250		6,250	D	
Non-Qualified Stock Option (right to buy)	\$ 44.6875						08/13/2001	08/13/2010	Common Stock	17,500		17,500	D	
Non-Qualified Stock Option (right to buy)	\$ 45.16						10/27/2004	04/26/2014	Common Stock	10,000		10,000	D	
Non-Qualified Stock Option (right to buy)	\$ 51.229						11/08/2003	07/30/2013	Common Stock	6,250		6,250	D	
Non-Qualified Stock Option (right to buy)	\$ 53.86						10/27/2004	10/27/2013	Common Stock	16,000		16,000	D	
Non-Qualified Stock Option (right to buy)	\$ 58.10						10/27/2004	01/27/2014	Common Stock	8,000		8,000	D	

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other

COHEN AVI C/O KLA-TENCOR CORPORATION 160 RIO ROBLES SAN JOSE, CA 95130			VP, Pattern Solutions Group	
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Signatures

By: Stuart J. Nichols For: Avi Cohen		08/10/2004
<small>**Signature of Reporting Person</small>		<small>Date</small>

Explanation of Responses:

- * If the form is filed by more than one reporting person, see Instruction 4(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- (1) Voluntary reporting of ESPP shares Purchased on 6/30/2004.

Note: File three copies of this Form, one of which must be manually signed. If space provided is insufficient, *see* Instruction 6 for procedure.

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