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**SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**SCHEDULE TO**

(Amendment No. 5)

(Rule 14d-100)

**TENDER OFFER STATEMENT UNDER SECTION 14(d)(1) OR 13(e)(1)  
OF THE SECURITIES EXCHANGE ACT OF 1934**

**THERMA-WAVE, INC.**

(Name of subject company (Issuer))

**KLA-TENCOR CORPORATION  
FENWAY ACQUISITION CORPORATION**

(Names of Filing Persons (Offerors))

Common Stock, \$0.01 par value per share  
Series B Convertible Preferred Stock, \$0.01 par value per share  
(Title of classes of securities)

88343A108  
NA  
(CUSIP number of classes of securities)

Jeffrey L. Hall  
Chief Financial Officer  
KLA-Tencor Corporation  
160 Rio Robles  
San Jose, California 95134-1809  
Telephone: (408) 875-3000

*Copies to:*  
William M. Kelly, Esq.  
Davis Polk & Wardwell  
1600 El Camino Real  
Menlo Park, California 94025  
Telephone: (650) 752-2000

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

**CALCULATION OF FILING FEE**

<b>Transaction Valuation(1)</b>	<b>Amount of Filing Fee(2)</b>
<b>\$73,954,744</b>	<b>\$7,914</b>

(1) Estimated for purposes of calculating the filing fee only. This amount is based upon an estimate of the maximum number of shares of Common Stock and Series B Convertible Preferred Stock of Therma-Wave to be purchased pursuant to the tender offer at the tender offer price of \$1.65 per share of Common Stock and \$1.65 per share of Common Stock into which each share of Series B Convertible Preferred Stock is convertible.

(2) The amount of the filing fee calculated in accordance with the Securities Exchange Act of 1934, as amended, equals \$107.00 for each \$1,000,000 of value.

Check the 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: \$ 7,914 Filing Party: KLA-Tencor Corporation and Fenway Acquisition Corporation  
Form of Registration No.: Schedule TO Date Filed: January 18, 2007

Check the box if the filing relates solely to preliminary communications made before the commencement of the 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
- 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:

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<b>1</b>	NAMES OF REPORTING PERSONS: KLA-TENCOR CORPORATION  I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY):  04-2564110	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS):  (a) <input type="checkbox"/> (b) <input type="checkbox"/> N/A	
<b>3</b>	SEC USE ONLY:	
<b>4</b>	SOURCE OF FUNDS (SEE INSTRUCTIONS):  N/A	
<b>5</b>	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e):  <input type="checkbox"/> N/A	
<b>6</b>	CITIZENSHIP OR PLACE OF ORGANIZATION:  DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	<b>7</b>	SOLE VOTING POWER:  32,830,254
	<b>8</b>	SHARED VOTING POWER:  0
	<b>9</b>	SOLE DISPOSITIVE POWER:  32,830,254
	<b>10</b>	SHARED DISPOSITIVE POWER:  0
<b>11</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON:  0	
<b>12</b>	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS):  <input checked="" type="checkbox"/>	
<b>13</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11):  88.1%	
<b>14</b>	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS):  CO	

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[Items 1 through 9, and Item 11](#)

[Item 12. Exhibits](#)

[Item 13. Information Required by Schedule 13 E-3](#)

[SIGNATURE](#)

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## TENDER OFFER

This Amendment No. 5 to Tender Offer Statement on Schedule TO (this "Amendment") is filed by KLA-Tencor Corporation, a Delaware corporation ("Parent"), and Fenway Acquisition Corporation, a Delaware corporation and a wholly-owned subsidiary of Parent ("Purchaser"). This Amendment relates to the offer by Purchaser to purchase all of the outstanding shares of common stock, par value \$0.01 per share ("Common Shares"), of Therma-Wave, Inc., a Delaware corporation (the "Company"), at \$1.65 per Common Share, net to the seller in cash without interest, less any required withholding taxes, and all the outstanding shares of Series B Convertible Preferred Stock, par value \$0.01 per share ("Preferred Shares"), of the Company at \$1.65 per Common Share into which each Preferred Share is convertible at the time of the consummation of the Offer, net to the seller in cash without interest, less any required withholding taxes, upon the terms and subject to the conditions set forth in the Offer to Purchase dated January 18, 2007 (the "Offer to Purchase") and in the related Letter of Transmittal, copies of which are attached as Exhibits (a)(1)(i) and (a)(1)(ii) (which, together with any amendments or supplements thereto, collectively constitute the "Offer"). Capitalized terms used and not defined herein shall have the meanings assigned to such terms in the Offer to Purchase.

The information set forth in the Offer to Purchase and the related Letter of Transmittal is incorporated herein by reference with respect to Items 1 through 9 and 11 of this Schedule TO, except that such information is hereby amended and supplemented to the extent specifically provided herein.

### Items 1 through 9, and Item 11.

Items 8 and 11 of the Schedule TO are hereby amended and supplemented by adding the following text thereto:

"The initial period of the Offer expired at 12:00 Midnight, New York City time, on Thursday, May 17, 2007. According to Computershare Shareholder Services, Inc., the depository for the Offer, as of 12:00 Midnight, New York City time, on Thursday, May 17, 2007, 32,830,254 Common Shares were tendered pursuant to the Offer and not withdrawn (including 606,928 Shares that were tendered pursuant to the guaranteed delivery procedures set forth in the Offer to Purchase), representing approximately 88.1% of all outstanding Common Shares, and all Preferred Shares were tendered pursuant to the Offer. Purchaser has accepted for payment all Shares that were validly tendered and not withdrawn.

On May 18, 2007, KLA-Tencor commenced a subsequent offering period for all remaining untendered Common Shares that will expire at 5:00 p.m., New York City time, on Thursday, May 24, 2007. During the subsequent offering period, holders of Common Shares who did not previously tender their Common Shares into the Offer may do so and will promptly receive the same purchase price to be paid pursuant to the Offer of \$1.65 per Common Share, net to the seller in cash without interest, less any required withholding taxes. The procedures for accepting the Offer and tendering Common Shares during the subsequent offering period are the same as those described for the Offer in the Offer to Purchase except that (i) guaranteed delivery procedures may not be used during the subsequent offering period and (ii) Shares tendered during the subsequent offering period may not be withdrawn."

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**Item 12. Exhibits.**

- (a)(1)(i) Offer to Purchase, dated January 18, 2007.\*
- (a)(1)(ii) Form of Letter of Transmittal.\*
- (a)(1)(iii) Form of Notice of Guaranteed Delivery.\*
- (a)(1)(iv) Form of Letter to Brokers, Dealers, Commercial Banks, Trust Companies and Other Nominees.\*
- (a)(1)(v) Form of Letter to Clients for use by Brokers, Dealers, Commercial Banks, Trust and Other Nominees.\*
- (a)(1)(vi) Guidelines for Certification of Taxpayer Identification Number on Substitute Form W-9.\*
  - (b) None.
  - (d)(1) Agreement and Plan of Merger, dated January 7, 2007, among Parent, Purchaser and the Company.\*
  - (d)(2) Tender and Support Agreement, dated January 7, 2007, among Parent, Purchaser, the Company and each shareholder party thereto.\*
  - (d)(3) Amended and Restated Mutual Nondisclosure Agreement, dated May 15, 2006, by and between Therma-Wave, Inc. and Parent Corporation.\*
    - (g) None.
    - (h) None.

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\* Previously Filed.

**Item 13. Information Required by Schedule 13 E-3.**

Not applicable.

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**SIGNATURE**

After due 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.

Dated: May 18, 2007

KLA-TENCOR CORPORATION

By: /s/ Brian M. Martin  
Brian M. Martin  
Senior Vice President and  
General Counsel

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**Exhibit Index**

<b>Exhibit No.</b>	<b>Description</b>
(a)(1)(i)	Offer to Purchase, dated January 18, 2007.*
(a)(1)(ii)	Form of Letter of Transmittal.*
(a)(1)(iii)	Form of Notice of Guaranteed Delivery.*
(a)(1)(iv)	Form of Letter to Brokers, Dealers, Commercial Banks, Trust Companies and Other Nominees.*
(a)(1)(v)	Form of Letter to Clients for use by Brokers, Dealers, Commercial Banks, Trust and Other Nominees.*
(a)(1)(vi)	Guidelines for Certification of Taxpayer Identification Number on Substitute Form W-9.*
(b)	None.
(d)(1)	Agreement and Plan of Merger, dated January 7, 2007, among Parent, Purchaser and the Company.*
(d)(2)	Tender and Support Agreement, dated January 7, 2007, among Parent, Purchaser, the Company and each shareholder party thereto.*
(d)(3)	Amended and Restated Mutual Nondisclosure Agreement, dated May 15, 2006, by and between Therma-Wave, Inc. and Parent Corporation.*
(g)	None.
(h)	None.

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\* Previously Filed.