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

July 27, 2006

Date of Report (date of earliest event reported)

Nanometrics Incorporated

(Exact name of Registrant as specified in charter)

California (State or other jurisdiction

0-13470 (Commission File Number) 94-2276314 (I. R. S. Employer

of incorporation)

1550 Buckeye Drive, Milpitas, California 95035

Identification No.)

(Address of principal executive offices)

Registrant s telephone number, including area code: (408) 435-9600

N/A

(Former name or former address, if changed since last report)

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:

- " 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))

Item 2.02 Results of Operations and Financial Condition.

On July 27, 2006, Nanometrics Incorporated (the Company) conducted a conference call during which John D. Heaton, the Company s President and Chief Executive Officer, and Douglas J. McCutcheon, the Company s Executive Vice President and Chief Financial Officer, discussed earnings for the second quarter of 2006, and related matters. They also reported on the Company s recent consummation of its merger with Accent Optical Technologies, Inc. and responded to questions. A copy of the transcript of the conference call is attached hereto as Exhibit 99.1.

The information in this Form 8-K and the exhibit attached hereto shall not be deemed filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the Exchange Act of 1933, as amended, or the Exchange Act, except as shall be expressly set forth by specific reference in any such filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

99.1 Transcript of Nanometrics Incorporated Q2 2006 Earnings Conference Call on July 27, 2006.

Signature

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

Dated: August 2, 2006 NANOMETRICS INCORPORATED

/s/ Douglas J. McCutcheon Douglas J. McCutcheon

Chief Financial Officer

Exhibit Index

Exhibit

Number Exhibit Title

99.1 Transcript of Nanometrics Incorporated Q2 2006 Earnings Conference Call on July 27, 2006.