



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

Mail Stop 6010

November 15, 2007

Mr. Timothy J. Stultz
Chief Executive Officer
Nanometrics Incorporated
1550 Buckeye Drive
Milpitas, California 95035

RE: Nanometrics Incorporated
Form 10-K for the fiscal year ended December 30, 2006
Filed March 15, 2007
File No. 0-13470

Dear Mr. Stultz:

We have reviewed your filing and have the following comments. We have limited our review of your filing to those issues we have addressed in our comments. Where indicated, we think you should revise your document in future filings in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the fiscal year ended December 30, 2006

Note 1. Significant Accounting Policies, page 52

Revenue Recognition, page 52

1. We note that you use the word generally in several instances when describing your revenue accounting policy. Please tell us and revise the note in future filings to include clear descriptions of your accounting policies which set forth the accounting you follow for each type of transaction you undertake, including those transactions you may not encounter frequently.

Note 2. Acquisitions, page 59

Accent Optical Technologies, Inc. 61

2. We note that on July 21, 2006, you completed the acquisition of Accent Optical Technologies, Inc. We assume that the acquired company does not meet the significance criteria set forth under Rules 3-05 (b) and 11-01 (b) of Regulation S-X. Please confirm and provide supporting calculations.

Form 10-Q for the period ended September 29, 2007

Note. 1. Consolidated Financial Statements – Reclassification, page 6

3. We note that you reclassified \$4.2 million from inventories to deferred revenue and product margins to conform to the current period presentation. Please tell us more about this reclassification. With respect to the item “deferred profit margins” we assume that you defer both gross revenue and gross costs of sales. Please confirm. Refer to the guidance in SAB 104, which states, “simply deferring recognition of the gross margin on the transaction is not appropriate.”

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that they have provided all information investors require. Since the company and its management are in possession of all facts relating to a company’s disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that

- the company is responsible for the adequacy and accuracy of the disclosure in the filings;

- staff comments or changes to disclosure in response to staff comments in the filings reviewed by the staff do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter with your response that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please file your cover letter on EDGAR. Please understand that we may have additional comments after reviewing your responses to our comments.

You may contact Dennis Hult, Staff Accountant, at (202) 551-3618 or me at (202) 551-3554 if you have questions regarding comments on the financial statements and related matters. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

Angela J. Crane
Accounting Branch Chief