



DIVISION OF
CORPORATION FINANCE

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

March 30, 2011

Mr. Chris L. Koliopoulos
Chief Executive Officer
Zygo Corporation
Laurel Brook Road
Middlefield, CT 06455

**Re: Zygo Corporation
Form 10-K for the Fiscal Year Ended June 30, 2010
Filed September 13, 2010
File No. 0-12944**

Dear Mr. Koliopoulos:

We have reviewed your filing and have the following comments. We have limited our review to only your financial statements and related disclosures and do not intend to expand our review to other portions of your documents. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to these comments, we may have additional comments.

Form 10-K for the Fiscal Year Ended June 30, 2010

Item 9A. Controls and Procedures, page 33

1. We note your disclosure that management has concluded that your disclosure controls and procedures are not effective "in recording, processing, summarizing and reporting on a timely manner." The language that is currently included after the words "not effective" in your disclosure appears to be superfluous, since the meaning of "disclosure controls and procedures" is established by Rule 13a-15(e) of the Exchange Act. However, if you do not wish to eliminate this language, please revise future filings, so that the language that appears after the word "effective" is substantially similar in all material respects to

the language that appears in the entire two-sentence definition of "disclosure controls and procedures" set forth in Rule 13a-15(e).

Consolidated Financial Statements, page F-1

Note 16. Segment Reporting, page F-26

2. We note from here and page 11 that you generated approximately 18% of your total fiscal 2010 revenue from Japan. With a view towards disclosure, please explain to us the impact that the earthquake and tsunami that occurred in Japan during March 2011 has had or expect to have upon your consolidated financial statements and your continuing operations.

Forms 10-Q as of September 30 and December 31, 2010

Item 4. Controls and Procedures, pages 25 and 27, respectively

3. Please amend your September 30 and December 31, 2010 Forms 10-Q to provide a conclusion regarding the effectiveness of your disclosure controls and procedures as required by Item 307 of Regulation S-K.
4. We note that you conducted an evaluation of the effectiveness of your internal control over financial reporting as of September 30 and December 31, 2010. Item 308 of Regulation S-K indicates that management's conclusion on the effectiveness of its internal controls over financial reporting is an annual assessment and disclosure rather than a quarterly assessment and disclosure. Please tell us if management performed an assessment on the effectiveness of its internal controls over financial reporting as of September 30 and December 31, 2010.

Forms 10-Q as of December 31, 2010

Notes to Condensed Consolidated Financial Statements

Note 3 – Acquisitions, page 8

5. Please provide to us your analysis that allowed you to conclude the ASML asset acquisition was a business under paragraphs 805-10-55-4 through 55-9 of the FASB Accounting Standards Codification.
6. We note that you recorded a gain on acquisition of \$2,014 on the ASML asset acquisition. Please revise future filings and explain to us why the ASML asset

acquisition resulted in a bargain purchase in accordance with paragraph 805-30-25-2 of the FASB Accounting Standards Codification.

7. We note you used a valuation specialist to determine fair value for the building and land in the ASML asset acquisition. While in future filings, management may elect to take responsibility for the fair value valuation, please note that if you continue to refer to the work of the third party in a Form 10-K that is incorporated by reference into a registration statement, you may be required to obtain and include a consent from the third party. Refer to Section 141 of the Securities Act Section 7 and Compliance and Disclosure Interpretation 141.02, available at our website at <http://www.sec.gov/divisions/corpfin/guidance/sasinterp.htm>.
8. Please tell us how you determined that it was impractical to provide pro forma financial information for this acquisition, and what information was provided that allowed you to conclude the acquisition was not significant under Rule 3-05 of Regulation S-X.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules 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 responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments 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.

You may contact Gary Newberry, Staff Accountant, at (202) 551-3761 or Lynn Dicker, Reviewing Accountant, at (202) 551-3616 if you have questions regarding these comments. In this regard, do not hesitate to contact me at (202) 551-3643.

Mr. Chris L. Koliopoulos
Zygo Corporation
March 30, 2011
Page 4

Sincerely,

Kevin L. Vaughn
Accounting Branch Chief