



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

Mail Stop 6010

March 28, 2008

Mr. Jeffrey A. Hawthorne  
Chief Executive Officer  
Photon Dynamics, Inc.  
5970 Optical Court  
San Jose, CA 95138

**Re: Photon Dynamics, Inc.**  
**Form 10-K for the Fiscal Year Ended September 30, 2007**  
**File No. 000-27234**

Dear Mr. Hawthorne:

We have reviewed your filing and have the following 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 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 September 30, 2007

Item 8. Financial Statements and Supplementary Data, page 69

Consolidated Statement of Operations, page 74

1. We note from page 54 that your revenues from customer support and spare parts represented approximately 28% and 9% of total revenue for fiscal 2007 and 2006, respectively. Please revise future filings to provide separate disclosure of revenues from sales of products and revenues from services and separate the related costs and expenses for products and services on your Statements of Operations. Alternatively, please explain why you do not believe this is required. Refer to the requirements of Rule 5-03(b)(1) and (2) of Regulation S-X.

Consolidated Statements of Cash Flows, page 76

2. You present cash flows under the indirect method and begin your reconciliation with net income (loss) from continuing operations. Please revise future filings to be consistent with paragraph 28 of SFAS 95 which states that companies should adjust, and therefore begin with "net income" in presenting operating cash flows under the indirect method.

Notes to Consolidated Financial Statements, page 77

Note 8. Financial Instruments, page 98

3. We note that you held \$16.2 million in auction-rate securities and \$4 million in mortgage-backed securities as of September 30, 2007. In your future filings, as applicable, please clearly discuss the nature of the material aspects of those securities as necessary to provide your investors with information necessary for a clear understanding of your balance sheet items. For example, as appropriate, identify the nature of those securities that you hold, the credit rating of those securities, indicate what factors may affect the value or liquidity of those securities, disclose how the interest rates on those investments will be determined and any material risks. Also, if those securities are reasonably likely to affect your financial condition in a material way, please expand your discussion and analysis in applicable future filings to provide your investors with information necessary for a clear understanding of the trend or uncertainty. Refer to Item 303(a) of Regulation S-K. Also add any appropriate disclosure required by Item 305 of Regulation S-K.
4. In your future filings, as applicable, revise the "Critical Accounting Policies" section of "Management's Discussion and Analysis" to discuss the material accounting estimates and assumptions you make in valuing the aforementioned securities that you hold. Describe the process by which you determine the value of those securities, the levels of

Mr. Jeffrey A. Hawthorne  
Photon Dynamics, Inc.  
March 28, 2008  
Page 3

judgment involved and the susceptibility of the resulting value to changes in your estimates and assumptions.

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 that keys your responses to our comment and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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 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.

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.

You may contact Tara Harkins, Staff Accountant, at (202) 551-3639 or me at (202) 551-3643 if you have questions regarding these comments. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

Kevin Vaughn  
Branch Chief

Mr. Jeffrey A. Hawthorne  
Photon Dynamics, Inc.  
March 28, 2008  
Page 4