



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

Mail Stop 3030

October 15, 2009

VIA U.S. MAIL and FACSIMILE

Richard I. Steinhart  
Chief Financial Officer  
Electro-Optical Sciences, Inc.  
3 West Main Street, Suite 201  
Irvington, NY 10533

**Re: Electro-Optical Sciences, Inc.**  
**Form 10-K for fiscal year ended December 31, 2008**  
**Filed March 15, 2009**  
**File No. 000-51481**

Dear Mr. Steinhart:

We have reviewed your response dated October 7, 2009 and related filings and have the following comment. Where indicated, we think you should revise your future filings in response to this comment. 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. 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.

Richard I. Steinhart  
Electro-Optical Sciences, Inc.  
October 15, 2009  
Page 2

Form 10-K for the fiscal year ended December 31, 2008

Financial Statements

Note 8. Stock-Based Compensation and Warrants, page 61

1. We note the statement in your response to prior comment 2 that you use “accepted methods for computing volatility.” Please tell us and revise future filings to disclose the actual methods and assumptions used to compute volatility.

Please respond to this comment 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 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 comment.

You may contact Kristin Lochhead, Staff Accountant, at (202) 551-3664 or me at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. In this regard, please don’t hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671 with any questions.

Sincerely,

Brian Cascio  
Accounting Branch Chief