

DREIER LLP
Attorneys at Law

DREIER LLP DRAFT - 10/12/05

499 Park Avenue
New York, New York 10022
Tel: (212) 328-6100
Facsimile: (212) 328-6101

Valerie A. Price
Direct Dial: (212) 328-6144
Direct Fax: (212) 652-3789
Partner
vprice@dreierllp.com

October 12, 2005

SENT VIA FAX AND FEDERAL EXPRESS

United States Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549
Attention: Russell Mancuso, Branch Chief, Division of Corporation Finance

Re: Electro-Optical Sciences, Inc.
Registration Statement on Form S-1
Filed June 3, 2005
File No. 333-125517

Ladies and Gentlemen:

On behalf of Electro-Optical Sciences, Inc., a Delaware corporation (the "Company"), and pursuant to the applicable provisions of the Securities Act of 1933, and the rules and regulations promulgated thereunder, we are submitting for filing with the Securities and Exchange Commission Amendment No. 5 to the above-captioned Registration Statement on Form S-1 ("Amendment No. 5"). A copy of Amendment No. 5 has been manually signed in accordance with Rule 302 of Regulation S-T and the signature pages thereto will be retained by the Company for a period of five years. The Company has authorized us to respond to the comment letter sent to Joseph V. Gulfo, M.D. of the Company, dated October 11, 2005, from the Staff of the Commission.

We have referenced the appropriate page numbers of the prospectus contained in Amendment No. 5 in our responses contained herein. The numbered paragraphs below set forth the Staff's comments together with our responses. Unless otherwise indicated, capitalized terms used herein have the meanings assigned to them in Amendment No. 5. For your convenience, we enclosed a copy of Amendment No. 5, marked to show changes from Amendment No. 4 to the Registration Statement as filed with the Commission on September 27, 2005.

Please note that Amendment No. 5 reflects an offering price of \$5.00 per share rather than a price range of \$5.50 - \$6.50 per share as previously contemplated in Amendment No. 4. As requested by the Staff of the Commission, we have provided a recirculation analysis, which is set forth below under the heading "Pricing Change."

Form S-1

Special Suitability for California Residents, page i

1. Given the last sentence of your response to comment 1, it is unclear why the last sentence on page i is appropriate. Please revise to clarify and add appropriate risk factors.

Response: After discussions with the Securities Regulation Division of the California Department of Corporations, we have deleted the last sentence on page i and replaced it with the following sentence: "Any such person, in addition, may not purchase shares of our common stock having an aggregate value in excess of 10% of such person's net worth."

Business, page 44

Manufacturing, page 55

2. Please expand your response to comment 5 to tell us whether the current stage of negotiations indicates that there will be any material terms to the agreement.

Response: The Company met with Carl Zeiss Jena ("CZJ") as recently as October 11, 2005 to continue the negotiations regarding various licensing provisions to be included in the agreement. The Company and CZJ continue to work toward resolution of the outstanding issues, but a final agreement has not been reached. We have revised the referenced disclosure on page 55 of the prospectus to reflect that the Company is "currently negotiating with Carl Zeiss Jena" rather than that the Company "anticipate[s] contracting with Carl Zeiss Jena."

Underwriting, page 88

3. Please reconcile your response to prior comment 6 with your disclosure on page 88 that:

- Underwriters and dealers may sell to online brokerage account holders;
- Underwriters may make internet distributions; and
- There is information on "such websites" that is in addition to the prospectus in electronic format.

Response: In response to Comment 3, we have revised the disclosure on page 88 to delete the above-referenced statements. In our letter dated September 27, 2005, we noted that the underwriters had advised the Company that they had contracted with NetRoadshow, Inc. to conduct an Internet roadshow. Please note that the underwriters

have advised the Company that they also contracted with i-Deal LLC to conduct an Internet roadshow.

Exhibit 5.1

4. We reissue comment 9 which also dealt with the reference to previously adopted Board resolutions mentioned in the penultimate paragraph of the opinion.

Response: While the subject matters of the board resolutions relating to the validity of the shares being offered by the Company are reflected in the Registration Statement, our opinion is based on the shares being issued in accordance with the actual resolutions adopted by the Board of Directors of the Company. The Board resolutions we refer to in our opinion authorize, among other things, the number of shares to be offered, the Underwriting Agreement and the application to list the Company's common stock on the NASDAQ SmallCap Market. We believe that the reference to resolutions adopted by the Board is consistent with language that counsel needs to rely on in rendering Exhibit 5.1 opinions and, accordingly, we believe that the assumption that the shares being issued and sold by the Company are being issued and sold in accordance with the resolutions adopted by the Board of Directors of the Company is necessary and appropriate.

To avoid any inference that we are relying on any resolution not related to the subject matters referenced in the Registration Statement, we have deleted the phrase "previously adopted by the Board of Directors of the Company" in the penultimate paragraph of Exhibit 5.1 and replaced it with "adopted by the Board of Directors of the Company."

Pricing Change

In discussions with the Staff of the Commission regarding the proposed change from an estimated price range of \$5.50 - \$6.50 per share, as contemplated by Amendment No. 4 to the Registration Statement, to a price of \$5.00 per share, as contemplated by Amendment No. 5 (the "Pricing Change"), we have been asked to provide a recirculation analysis. We believe that the Pricing Change does not require a recirculation of the preliminary prospectus contained in Amendment No. 4 to the Registration Statement (the "Preliminary Prospectus") because the Company will continue to use the proceeds to fund qualitatively the same activities as those disclosed in the Preliminary Prospectus and because the Company will still be able to pursue the same strategy, with the same expected results, as disclosed in the Preliminary Prospectus. The Pricing Change results in no material change to the Company's business strategy, other than to reduce the amount of cash that would have been held by the Company. Accordingly, the associated changes to the Use of Proceeds and other sections of the Preliminary Prospectus are not material. Recirculation of the Preliminary Prospectus will not provide potential investors with meaningful additional disclosure. Each of these reasons is discussed in greater detail below.

- The Company has not changed the number of shares to be sold in the Offering. As a result of the change in the estimated net proceeds to the Company has been reduced

to approximately \$16.5 million (based on an offering price per share of \$5.00 and assuming no exercise of the underwriters' over-allotment option) from approximately \$20.2 million as reflected in the Preliminary Prospectus (based on the midpoint of the applicable estimated price range and assuming no exercise of the underwriters' over-allotment option).

- The Pricing Change was approved at a meeting of the pricing committee of the Company's board of directors held on October 11, 2005. At the same meeting, and in connection with the Pricing Change, the members of the Pricing Committee determined that \$5.00 per share was currently the minimum price per share at which the Company would be willing to proceed with the Offering.
- The reduction in proceeds will not adversely affect the Company's ability to carry on its business (as described in the Preliminary Prospectus or otherwise) or trigger any material adverse change to the Company's rights or obligations under any provision of any of the Company's material agreements. There are no legal or business conditions, covenants or requirements applicable to the Company that will not be met as a result of the Pricing Change.
- In the "Use of Proceeds" section of the Preliminary Prospectus, the Company disclosed that it would use approximately 72% of the proceeds from the offering (approximately \$14.5 million) to fund the Company's research and development activities, approximately 5% of the proceeds from the offering (approximately \$1.0 million) to fund development of the Company's sales and marketing capabilities and approximately 23% of the proceeds from the offering (approximately \$4.7 million) for general corporate purposes. The Company has reviewed its use of proceeds in light of the reduced proceeds now expected from the offering and has determined that, although the amount of proceeds will decrease in absolute dollars, the funds from the offering will continue to be spent on the categories listed in the bullet points in the second paragraph under the "Use of proceeds" section of the Preliminary Prospectus in approximately the same percentages, with the percentage of the proceeds used to fund research and development activities increasing by 6%, and the percentages of the proceeds used for development of the Company's sale and marketing capabilities and general corporate purposes decreasing by 2% and 4%, respectively.
- Not only will the uses of proceeds and the relative distribution of the proceeds among such uses remain approximately the same as described in the Preliminary Prospectus, the Company expects that it will be able to accomplish each element of its strategy as described throughout the Preliminary Prospectus. In other words, the Pricing Change has not resulted in any change to the Company's business strategy.

- In particular, the Company believes that the reduction in net proceeds does not change the Company's belief, as stated in the "Management's discussion and analysis of financial condition and results of operations - Operating Capital and Capital Expenditure Requirements" section of the Preliminary Prospectus, that the net proceeds from the Offering, together with current cash, cash equivalents and marketable securities and interest on such balances, should be sufficient to meet the Company's anticipated cash needs for working capital and capital expenditures through mid-2007.
- As reflected in Amendment No. 5, the extent of changes made to the Preliminary Prospectus as a result of the Pricing Change has not been substantial. None of the primary sections of the Preliminary Prospectus, including "Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Business," "Management," and "Underwriting," have changed in any material respect as a result of the Pricing Change. As a result, a recirculation of the Preliminary Prospectus would not provide prospective investors with any material new information.
- We note that in the vast majority of recent initial public offering of which we are aware in which the final price range was reduced, no recirculation of the preliminary prospectus was required. Moreover, so far as we are aware, those companies that have engaged in an initial public offering involving a price reduction of similar magnitude to the magnitude of the Pricing Change and where the price reduction had no material effect on the operations, financial condition or disclosure in the preliminary prospectus, have not recirculated their preliminary prospectuses.
- Recirculation of the Preliminary Prospectus would result in a delay in the offering just as it is ready to be completed. Any such delay, particularly in light of current market conditions, could jeopardize the Company's ability to complete the offering at any time in foreseeable future. Moreover, the preparation and distribution of new copies of the Preliminary Prospectus would result in significant additional expense to the Company and further negatively affect the net proceeds to the Company from the offering. Given the significant negative effects on the Company of any recirculation, and in light of the fact that no new material information would be provided to prospective purchasers in the Offering, we believe that a recirculation of the Preliminary Prospectus is unnecessary.
- The Company's underwriters have agreed to notify all prospective purchasers to whom they expect to confirm sales of common stock in the offering, prior to any sale or oral confirmation, of the Pricing Change. In addition, a final prospectus reflecting the Pricing Change will accompany all confirmations of purchase orders.

* * * *

Russell Mancuso, Branch Chief, Division of Corporation Finance
October 12, 2005
Page 6

We hope that the foregoing has been responsive to the Staff's comments. Should you have any questions relating to any of the foregoing, please feel free to contact the undersigned at (212) 328-6144. Thank you for your cooperation and attention to this matter.

Very truly yours,
/s/ Valerie A. Price

Valerie A. Price, Esq.

VAP/ma
Enclosure

cc: Joseph V. Gulfo, M.D
Karen Krumeich
William Bronner
Lewis B. Leventhal, CPA
David C. Peck, Esq.