

Mail Stop 6010

May 23, 2007

Via U.S. Mail and Facsimile

Mr. Michael Falvey
Chief Financial Officer
Aspect Medical Systems, Inc.
One Upland Road
Norwood, Massachusetts 02062

**Re: Aspect Medical Systems, Inc.
Form 10-K
Filed March 15, 2007
File No. 000-24663**

Dear Mr. Falvey:

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. 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 Year Ended December 31, 2006

Financial Statements, page F-1

Note (10) Equity Incentive Plans, page F-19

2001 Stock Incentive Plan, page F-20

1. We note the disclosure on page F-21 that you utilized an independent valuation firm to validate the assumptions used in the Black-Scholes option price model. Please revise future filings, beginning with your next 10-Q, to name the independent valuation firm. In addition, please note that if you intend to incorporate your Form 10-K by reference into any registration statement, you will be required to identify the appraisal firm in the "Experts" section and include its consent in the registration statement.

Form 8-K filed April 25, 2007

Reconciliation of GAAP to Non-GAAP Net Income

2. We note that you present your non-GAAP measures and reconciliation in the form of non-GAAP statements of income. These formats may be confusing to investors as they also reflect numerous non-GAAP measures, such as non-GAAP cost of revenues, non-GAAP gross profit margin, non-GAAP research and development, non-GAAP sales and marketing, non-GAAP general and administrative expenses, non-GAAP income from operations, non-GAAP income before income tax, and non-GAAP net income which have not been described to investors. In fact, it appears that management does not use all of these non-GAAP measures but they are shown here as a result of the presentation format. Please note that Instruction 2 to Item 2.02 of Form 8-K requires that when furnishing information under this item you must provide all the disclosures required by paragraph (e)(1)(i) of Item 10 of Regulation S-K and Question 8 of the FAQ Regarding the Use of Non-GAAP Financial Measures dated June 13, 2003, including a reconciliation to the directly comparable GAAP measure for *each* non-GAAP measure presented and explain why you believe the measures provide useful information to investors.
 - To eliminate investor confusion, please remove the non-GAAP statements of income from all future filings and instead provide only those non-GAAP

measures used by management that you wish to highlight for investors, with the appropriate reconciliations and disclosures.

- Please note that in the event that your Form 8-K is incorporated by reference into a 33 Act registration statement, we may have additional questions relating to the appropriateness of this information being included in a document filed with, and not just furnished to, the Commission. At that time, we may request an amendment to the Form 8-K.

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 comments and provides any requested information. Detailed cover letters greatly facilitate our review. When sending supplemental information regarding this filing, please include the following ZIP+4 code in our address: 20549-6010. 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 Lynn Dicker at (202) 551-3616 or me at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. In

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this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

Brian Cascio
Accounting Branch Chief