



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-3030

July 29, 2010

Gregory R. L. Smith
Chief Financial Officer
Image Sensing Systems, Inc.
500 Spruce Tree Centre
1600 University Avenue West
St. Paul, MN 55104

Re: Image Sensing Systems, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2009
Filed March 24, 2010
Form 10-Q for the Fiscal Quarter Ended March 31, 2010
File No. 000-26056

Dear Mr. Smith:

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 amending your filing, 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 or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filing and the information you provide in response to these comments, we may have additional comments.

Form 10-K for the Fiscal Year Ended December 31, 2009

Note 1. Description of Business and Significant Accounting Policies, page 33

Goodwill, page 34

1. We note your accounting policy for testing goodwill impairment, which is performed annually or whenever an impairment indicator arises. The impairment test for goodwill is a two-step test as described in paragraphs 350-20-35-1 to 35-13 of the FASB ASC. Based on your current disclosure, it is not clear how your assessment of goodwill for impairment complied with this two-step test. Please tell us and revise future filing to describe in appropriate detail, how your goodwill accounting polices comply with the aforementioned guidance. Additionally, please tell us the results of your most recent goodwill impairment testing under this methodology.

Exhibit 31.1 and 31.2

2. We note that the identification of the certifying individual at the beginning of the Section 302 certification required by Item 601(b)(31) of Regulation S-K also includes the title of the certifying individual. In future filings, including any amendments, please revise the identification of the certifying individual at the beginning of the certification to remove the individual's title.

Form 10-Q for the Fiscal Quarter Ended March 31, 2010

Exhibit 31.1 and 31.2

3. We note that you present management's report on internal control over financial reporting on page 44 of the Form 10-K as required by Item 308T of Regulation S-K. As such, your certifications are required to include the introductory language in paragraph 4 and paragraph 4(b) of the certification that refers to the certifying officers' responsibility for establishing and maintaining internal control over financial reporting for the company. Please refer to Item 601(b)(31) of Regulation S-K and file an amendment to your Form 10-Q for the fiscal quarter ended March 31, 2010 that includes corrected and newly dated certifications. You may provide an abbreviated amendment for the Form 10-Q that consist of a cover page, explanatory note, signature page and paragraphs 1, 2, 4 and 5 of the certification.

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.

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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 Kevin Kuhar, Staff Accountant, at (202) 551-3662 or me, at (202) 551-3212 if you have questions regarding comments on the financial statements and related matters. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant at (202) 551-3157 with any other questions.

Sincerely,

Jeff Jaramillo
Accounting Branch Chief