



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 3030

September 30, 2016

Via E-mail

Mark T. Frost
Senior Vice President and Chief Financial Officer
Analogic Corporation
8 Centennial Drive
Peabody, Massachusetts 01960

**Re: Analogic Corporation
Form 8-K Dated September 21, 2016
Filed September 21, 2016
File No. 000-06715**

Dear Mr. Frost:

We have limited our review of your filing to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to these comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing your response to this comment, we may have additional comments.

Form 8-K dated September 22, 2016

1. In the bullets on page 1, you disclose trend information in bps for non-GAAP operating margin; however, you do not provide this information for the comparable GAAP measures. We also note that the commentary in the paragraph after the bullets is limited to non-GAAP operating margin. Please include a comparable GAAP analysis in your next earnings release. See Question 102.10 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016.
2. In your next earnings release, please provide a substantive, and concise, discussion of how your non-GAAP measures are useful to investors. Please provide us with your proposed changes in your response letter.

3. You disclose that non-GAAP net income for the year ended July 31, 2015 includes a discrete tax benefit of \$0.38 per share. However, we note that in the year ended July 31, 2014 you excluded a discrete tax benefit from non-GAAP net income. Please explain your basis for excluding certain discrete tax benefits but not others. See Question 100.02 and 100.03 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016.
4. We note that you exclude restructuring charges from your non-GAAP measures. Please explain to us why these are not normal, recurring, cash operating expenses necessary to operate your business. See Question 100.01 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016.

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.

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 Julie Sherman at (202) 551-3640 or Christine Dietz, Assistant Chief Accountant, at (202) 551-3408 with any questions.

Sincerely,

/s/ Martin James

Martin James
Senior Assistant Chief Accountant
Office of Electronics and Machinery