



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 3720

January 29, 2010

Via U.S. Mail and Fax

Mr. James E. Doyle
Vice President of Finance and Chief Financial Officer
Applied Signal Technology, Inc.
460 West California Avenue
Sunnyvale, CA 94086

**RE: Applied Signal Technology, Inc.
Form 10-K for the fiscal year ended October 31, 2009
Filed January 12, 2010
File No. 0-21236**

Dear Mr. Doyle:

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. We have asked you to provide us with supplemental information so we may better understand your disclosure. Please be as detailed as necessary in your explanation. After reviewing this information, we may or may not 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 on 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 Fiscal Year Ended October 31, 2009
Item 8: Consolidated Financial Statements and Supplementary Data
Note 10: Segment Reporting

1. We note that your "management reviews revenues and costs on an individual contract basis". Please tell us whether the "individual contracts" have discrete financial information; and if so, why they would not be considered operating segments in accordance with ASC 280-10-50-1. Also, explain to us your consideration of this literature when determining if the recently acquired Pyxis operations is a separate operating segment.

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Please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a letter that keys your responses to our comments and provides any requested supplemental information. Please file your response letter on EDGAR.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require for an informed 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 filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filings; 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 filings or in response to our comments on your filings.

You may contact Joseph Cascarano, Staff Accountant, at (202) 551-3376, or Robert Littlepage, Accountant Branch Chief at (202) 551-3361, if you have questions regarding comments on the financial statements and related matters. Please contact Paul Fischer, Attorney-Advisor, at (202) 551-3415, Kathleen Krebs, Special Counsel, at (202) 551-3350, or me, at (202) 551-3810, with any other questions.

Sincerely,

Larry Spirgel
Assistant Director