



DIVISION OF
CORPORATION FINANCE
Mail Stop 3720

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

January 29, 2010

Mr. William B. Van Fleet III
Chief Executive Officer
Applied Signal Technology, Inc.
460 West California Avenue
Sunnyvale, California 94086

**Re: Applied Signal Technology, Inc.
Preliminary Proxy Materials filed on Schedule 14A
Filed on January 25, 2010
File No. 0-21236**

Dear Mr. Van Fleet:

We have examined your filing and have the following comments. Where indicated, we think you should revise your document 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.

Compensation Discussion and Analysis

Overview and Compensation Philosophy

1. Please revise paragraph three to briefly explain how and why your position as a supplier to the United States Government causes the Compensation Committee to weigh differently the accounting implications of increasing the variable portion of your executive compensation.

Independent Compensation Consultants

2. Please revise this section to discuss specifically how Compensia, Inc. assisted the Compensation Committee in its evaluation of your executive compensation programs during fiscal 2009.

Peer Group Selection and Benchmarking

3. We note that the Compensation Committee used compensation data from the Radford Executive Survey as a comparative framework to define specific peer companies and data sources in the assessment of the compensation of your named executive officers. In particular, you disclose that the Compensation Committee sought to set base salaries and total cash compensation close to the 75th percentile of the Radford Executive survey. Please revise to identify all of the component companies of the survey that the Compensation Committee used for benchmarking purposes. For further information, please see Question 118.05 of the Compliance & Disclosure Interpretations, available on our website at <http://www.sec.gov/divisions/corpfin/guidance/regs-kinterp.htm>.

Annual Incentive Compensation

4. We note that the performance measures for the Annual Incentive Compensation for fiscal year 2009 were, on a company wide basis, revenue and profitability, and, in certain individual instances, division revenue, division profit, and company bookings. Please revise to disclose the quantitative performance targets that must be reached for payment to each officer, including threshold, target and maximum levels for each performance goal. See Item 402(b)(2)(v) of Regulation S-K. To the extent you believe that disclosure of these targets is not required because it would result in competitive harm such that you may omit this information under Instruction 4 to Item 402(b) of Regulation S-K, please provide in your response letter a detailed explanation of such conclusion. In this regard, please note that we generally do not agree with the argument that disclosing a company-level performance target for the last fiscal year would cause a registrant competitive harm when disclosure of the performance target will occur after the fiscal year has ended and actual company results have been disclosed.
5. We note that a performance target for fiscal year 2009 was company adjusted earnings before interest and taxes. Please disclose how you calculated this non-GAAP financial measure from your audited financial statements. Refer to Instruction 5 to Regulation S-K Item 402(b).

Equity Compensation Awards

6. Please discuss why the Compensation Committee awarded the particular amounts of restricted stock to each named executive officer.

Outstanding Equity Awards at Fiscal Year-End

7. Please disclose the vesting dates of each equity award held at fiscal year end. Although you disclose the vesting schedules in footnotes (1) and (2) to the table, it is not possible to know the actual vesting dates without disclosure of the grant date for each equity award. See Instruction 2 to Regulation S-K Item 402(f)(2).

* * * *

Please revise your preliminary proxy materials in response to these comments. You may wish to provide us with marked copies of your revised filing to expedite our review. Please furnish a cover letter with your revised materials that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your revised filing and 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 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 that 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.

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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.

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 questions.

Sincerely,

Larry Spigel
Assistant Director

cc: James Doyle, Chief Financial Officer
Via Facsimile, 408-738-4318