



DIVISION OF  
CORPORATION FINANCE

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

Mail Stop 3720

March 5, 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 supplemental response letter dated February 2, 2010 as well as your filing and have the following comments. As noted in our comment letter dated January 29, 2010, we have limited our review to your financial statements and related disclosures and do not intend to expand our review to other portions of your documents.

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 your response to prior comment no. 1. Please tell us whether your Company's management reviews discrete financial information for the indefinite delivery/indefinite quantity (IDIQ) contracts; and if so, why they would not be considered operating segments in accordance with ASC 280-10-50-1. Also, describe for us in detail the financial and operating results regularly reviewed by your Company's chief operating decision maker when allocating resources and assessing performance.

\* \* \* \*

James E. Doyle  
Applied Signal Technology, Inc.  
March 5, 2010  
Page 2

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 Spigel  
Assistant Director