



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-7010

VIA FACSIMILE AND U.S. MAIL

December 11, 2008

Timothy C. Carlson
Chief Financial Officer
ATMI, Inc.
7 Commerce Drive
Danbury, CT 06810

**RE: ATMI, Inc.
Form 10-K for Fiscal Year Ended December 31, 2007
Forms 10-Q for Fiscal Quarters Ended March 31, 2008, June 30, 2008
and September 30, 2008
File No. 1-16239**

Dear Mr. Carlson:

We have reviewed your letter dated November 14, 2008 and have the following comments. Where indicated, we think you should revise your disclosures 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. 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 phone numbers listed below.

FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2007

General

1. Where a comment below requests additional disclosures or other revisions, please show us in your response what the revisions will look like. These revisions should be included in your future filings, including your interim filings where appropriate.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 27

Year Ended December 31, 2007 Compared to Year Ended December 31, 2006, page 32

2. We read your response to comment eight from our letter dated October 31, 2008. You indicate in your proposed disclosure that gross profit margins from your microelectronics and lifesciences product lines were approximately 50% and 42%. Please expand your disclosure to discuss the business reasons for changes in gross profit and gross profit margin between periods. Please quantify each factor you cite as impacting your gross profit and gross profit margin.

Definitive Proxy Statement on Schedule 14A Filed on April 23, 2008

Compensation Discussion & Analysis, page 17

3. We note your response to comment 16. However, please disclose for each named executive officer, where actual restricted stock award payments fall within peer group targeted parameters and explain why, to the extent applicable, actual restricted stock award payments were outside a targeted percentile range.

Compensation Discussion & Analysis, page 18

4. We note your response to comment 17. Please disclose the actual restricted stock award operating income objectives achieved for each named executive officer since they appear material and confirm that you will disclose material targets.
5. We note your reply to comment number 17; however, we did not see responsive analysis regarding how you determined the amount of actual restricted stock award payouts and how achievement of the agreed upon objectives resulted in specific payouts. Please refer to Item 402(b) of Regulation S-K.

* * * *

Please respond to these comments within 10 business days, or tell us when you will provide us with a response. Please provide us with a response letter that keys your responses to our comments and provides any requested information. Detailed letters greatly facilitate our review. Please file your response on EDGAR as a correspondence file. Please understand that we may have additional comments after reviewing your responses to our comments.

Mr. Timothy Carlson

December 11, 2008

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You may contact Sherry Haywood, Attorney, at (202) 551-3345 or, in her absence, Jennifer Hardy, Legal Branch Chief, at (202) 551-3767 if you have any questions regarding legal matters. Please contact Ernest Greene, Staff Accountant, at (202) 551-3733 or, in his absence, the undersigned at (202) 551-3769 if you have questions regarding comments on the financial statements and related matters.

Sincerely,

Rufus Decker
Accounting Branch Chief