



DIVISION OF
CORPORATION FINANCE

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

August 3, 2010

Ms. Julie A. Piton
Vice President, Finance and Administration and Chief Financial Officer
AtriCure, Inc.
6217 Centre Park Drive
West Chester, OH 45069

Re: AtriCure, Inc.
Form 10-K for the fiscal year ended December 31, 2009
Filed March 30, 2010
Form 10-Q for the quarterly period ended March 31, 2010
File No. 000-51470

Dear Ms. Piton:

We have reviewed your filings and response dated July 28, 2010 and have the following 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 this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to these comments, we may have additional comments.

Ms. Julie A. Pitton
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Form 10-K for the fiscal year ended December 31, 2009

Item 8. Financial Statements and Supplementary Data

Note 1. Description of Business and Summary of Significant Accounting Policies

Revenue Recognition, page 60

1. We refer to your response to prior comment 8. In future filings, please provide a brief description of the integral relationship between the handpieces and the generator and disclose your revenue recognition policy which is based upon the later of delivery of the generator or handpieces.

Share-Based Employee Compensation, page 63

2. Your proposed disclosure in response to prior comment 9 indicates that options granted to non-employees fall outside the scope of FASB Codification Topic 718 once vested. Please tell us why non-employee stock compensation would be accounted for under FASB Codification Topic 718, as opposed to FASB Codification Topic 505-50, the guidance applicable to equity-based payments to non-employees.

You may contact Leigh Ann Schultz at (202) 551-3628 or Gary Todd at (202) 551-3605 if you have questions regarding these comments. You may also contact me at (202) 551-3676 with any other questions.

Sincerely,

for

Brian Cascio
Accounting Branch Chief