



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 3720

December 7, 2009

Mr. John J. Joyce
Chief Executive Officer
Ambient Corporation
79 Chapel Street
Newton, Massachusetts 02458

**RE: Ambient Corporation
Form 10-K for the year ended December 31, 2008
Filed March 11, 2009
File No. 0-23723**

**Forms 10-Q for fiscal quarter ended September 30, 2009
Filed November 16, 2009**

Dear Mr. Joyce:

We have reviewed your filings and have the following comments. If you disagree with a comment, we will consider your explanation as to why it is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation.

In some comments we have asked you to provide us with additional information so we may better understand your disclosure. You should comply with the remaining comments in future filings, as applicable. Confirm in writing that you will do so and also explain to us how you intend to comply. Please do so within the time frame set forth below. Please understand that after our review of your responses, we may raise additional comments.

Form 10-K
Signatures, page 25

1. In future filings and in your response letter, please identify the officer and/or officers that are signing the report of behalf of the company in the capacities of your principal financial officer, and controller or principal accounting officer. See General Instruction D(2)(a) of Form 10-K.

Financial Statements

Consolidated Statement of Changes in Stockholders' Equity, page F-5

Revenue Recognition, page F-18

2. We note from page 9 that your relationship with Duke Energy is material to your success and that this relationship is dependent upon your support for delivered hardware and efforts of your engineering team to improve your software products. Tell us and disclose, in future filings, how you account for revenues from sales of your computer software embedded in your communication equipment and for computer software licensing revenues for software for use on third party equipment. Moreover, please describe the postcontract customer support service that you provide and explain to us how you account for multiple element arrangements. Please refer to all pertinent authoritative accounting literature in your response.

Debt Modification, page F-16

3. Refer to the paragraph bridging pages F-16 and F-17, which indicates that you applied the guidance of EITF 05-7 to the November 21, 2008 debt modification. The guidance of EITF 05-7 was superseded by the guidance of EITF 06-6 effective for periods beginning after the Board's ratification of EITF 06-6 in November 2006. Refer to the financing cash flows section of page F-6, which seems to indicate your majority shareholder, Vicis Master Capital Fund, paid you \$8.0 million in cash as part of a modification of debt transaction for which you recorded a \$2.8 million loss on extinguishment of debt and a beneficial conversion feature for \$10.0 million. In this regard tell us the following:
 - Explain how EITF 06-6 effected your accounting for this debt modification transaction and how you applied EITF 96-19,
 - Tell us how you determined the fair value of the modified debt,
 - Describe how the debt conversion terms were modified and how you determined the value of the resulting beneficial conversion feature,
 - Tell us how you calculated the \$2.8 million loss of extinguishment of debt, and
 - Explain to us, if applicable, how the November 24, 2008 exercise of warrants for 464,365,080 common shares was related to the November 21, 2008 debt modification.

Please refer to all pertinent authoritative accounting literature in your response.

Note 8 – Convertible Debt

4. We note that in connection with the July 7, November 07 and January 08 Securities Purchase agreements, you recorded a significant discount on the convertible promissory notes due to the significant fair value of the warrants and the beneficial conversion feature. We also note that as a result of the November 21, 2008 debt modification described on page F-16 you deemed the terms of the amendments to be substantially different and treated the convertible promissory notes as extinguished and exchanged for new notes. As such, it was necessary to reflect the convertible promissory notes at fair

market value and recorded a loss on extinguishment of debt of \$2.8 million. In this regard, please provide us with the accounting journal entries you used to record: (1) the original issuance of each of the July 7, November 07 and January 08 convertible promissory notes; (2) the subsequent amortization of the discount attributable to the fair value of the warrants and of the beneficial conversion feature and; (3) the impact of the debt modification in your financial statements.

- Tell us the business rationale for entering into the debt modification agreement. Tell us whether you are required under any circumstances to repay to the investor the additional \$8 million invested in your company on November 21, 2008. Tell us whether at the maturity dates of the convertible promissory notes you are required to repay the investor the face amount of the convertible promissory notes at their maturity dates.

Form 10-Q for the quarterly period ended June 30, 2009

Item 2. Management's Discussion and Analysis of Financial Condition..., page 10

5. In future filings, please enhance your MD&A to discuss the likely impact of known trends, demands, commitments, events or uncertainties which are reasonably likely to have material effects on your financial condition or results of operations. For example, we note that your results of operations have largely been dependent upon your agreement with Duke Energy (e.g., 100% of the hardware and software revenue for the 2009 and 2008 periods, as disclosed in Note 5). However, you do not provide a thorough discussion of how you believe this known commitment will impact your revenues or income in future periods. Further, if you know that the agreement is about to expire and are uncertain as to whether the agreement will be renewed, such situation may be an identified known uncertainty reasonably likely to have a material future effect on your financial condition and results of operations, and disclosure would be required. Note that disclosure is mandatory where there is a known trend or uncertainty that is reasonably likely to have a material effect on your financial condition or results of operations. For more information, refer to the Commission Guidance Regarding Management's Discussion and Analysis of Financial Condition and Results of Operations (Release Nos. 33-8350, 34-48960, dated December 29, 2003), and Section III of the Interpretive Rule on Management's Discussion and Analysis (Release Nos. 33-6835, 34-26831, dated May 18, 1989).
6. In future filings, please provide more detailed analysis of the reasons underlying identified material quantitative changes in operating measures from period to period. Your discussion should not merely repeat numerical data contained in the financial statements. For example, we note that revenues in the second quarter decreased to \$30,590 from \$747,223 in the prior year. However, you do not provide analysis as to why revenues materially decreased.

Mr. John J. Joyce
Ambient Corporation
December 7, 2009
Page 4

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 information. Detailed letters greatly facilitate our review. Please file your letter over EDGAR. Please understand that we may have additional comments after reviewing your responses to our comments.

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 comment, 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 M. Kempf, Senior Staff Accountant, at (202) 551-3352 or Carlos Pacho, Senior Assistant Chief Accountant, at (202) 551-3835, if you have questions regarding comments on the financial statements and related matters. Please contact Jay Knight, Attorney-Advisor, at (202) 551-3370 or me at (202) 551-3810 with any other questions.

Sincerely,

Larry Spigel
Assistant Director