



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 3720

January 6, 2010

Via U.S. Mail and facsimile to (413) 778-4817

Mr. Derek Dunaway
President and Chief Executive Officer
Cyalume Technologies Holdings, Inc.
96 Windsor Street
West Springfield, MA 01089

Re: Cyalume Technologies Holdings, Inc.
Form 10-K for the fiscal year ended December 31, 2008
Filed March 30, 2009
File No. 000-52247

Dear Mr. Dunaway:

We have reviewed your response letter dated December 23, 2009 and have the following comment. If you disagree, we will consider your explanation as to why our comment is inapplicable or a future revision is unnecessary. Please be as detailed as necessary in your explanation. 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 telephone numbers listed at the end of this letter.

Form 10-K for the Fiscal Year ended December 31, 2008

Item 15. Exhibits and Financial Statement Schedules, page 27

1. We note your response to our prior comment two in our letter dated December 17, 2009 and are unable to agree. Contrary to your supplemental response, the disclosure in your Form 10-K indicates that these contracts are between “two key customers” and the Company. Each of the agreements accounted for more than 10% of your total revenues in 2008. Contracts that the Company is substantially dependent upon are not considered ordinary course agreements. In future filings, please file these contracts as exhibits unless your customer base grows to an extent that the amount of revenues derived from each of these agreements is no longer material.

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Please respond to these comments through correspondence over EDGAR 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 understand that we may have additional comments after reviewing your responses to our comments.

Please contact John Harrington, Attorney-Adviser, at (202) 551-3576 or me, at (202) 551-3810, with any other questions.

Sincerely,

/s/ Larry Spigel
Assistant Director