

VIA EDGAR

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549

Attention: Brian Cascio, Accounting Branch Chief
Michael Fay, Senior Accountant
Andri Boerman

Re: Ambarella, Inc.
Form 10-K for Fiscal Year Ended January 31, 2015
Filed March 30, 2015
File No. 001-35667

Ladies and Gentlemen:

We submit this letter in response to comments from the staff (the “**Staff**”) of the Securities and Exchange Commission (the “**Commission**”) to Ambarella, Inc. (the “**Company**”) received by letter dated November 17, 2015 (the “**Comment Letter**”), relating to the above referenced filing. For your convenience, we have repeated the comments contained in the Comment Letter before the Company’s response. Page references herein correspond to the page of the Company’s Form 10-Q for the quarterly period ended October 31, 2015 filed on December 9, 2015. References to “we,” “our,” or “us” mean the Company.

Form 10-K for the Fiscal Year Ended January 31, 2015

Item 7: Management’s Discussion and Analysis of Financial Condition and Results of Operations, page 44

Comparison of the Fiscal Years Ended January 31, 2015, 2014 and 2013, page 48

- 1. We note the discussion of the reasons for the 38.5% increase in revenues in fiscal 2015 on page 44. Please revise the discussion in future filings to separately describe and quantify the impact of the change attributed to each of the markets in which you operate. Refer to Item 303 of Regulation S-K which requires quantification of the contribution of each factor when necessary to the understanding of a material change. Also refer to the guidance in Section III (D) of SEC Release 34-26831.***

We respectfully submit that we have considered Item 303 of Regulation S-K and have reviewed the guidance provided in Section III.D of SEC Release 34-26831. We respectfully submit that we are unable to quantify the impact of material changes attributable to each of the end markets into which our SoC solutions are sold. As described in our filings, our solutions are sold to OEMs and ODMs servicing camera markets and the broadcast infrastructure market. Many OEMs and ODMs incorporate a variety of our solutions into camera devices that serve multiple camera markets. These customers do not have an obligation to, and typically do not, report to us the end markets in which our solutions are incorporated. In addition, many of

the ODMs to whom we supply our solutions build camera products on behalf of multiple OEMs, which may participate in multiple end markets. As a result, though we generally know the end markets for which we have achieved design wins, we are unable to quantify the allocation of our products across the various camera markets in any particular period and, thus, unable to quantify changes across the different markets.

As described in the Management's Discussion and Analysis of Financial Condition and Results of Operations (the "MD&A") section of our Form 10-Q for the quarterly period ended October 31, 2015, the increase in our revenue for the nine-month period presented was due to demand for our solutions across all of our target camera markets. To enhance a reader's understanding of material changes in our business, we have included disclosure in the MD&A section relating to qualitative factors or known material trends that are impacting our end markets and our financial results. For example, to give context to the relative sizes of our camera markets we have added disclosure on page 23 stating that "[t]he wearable sports and IP security markets are currently our largest end markets and sales into these markets collectively generate a majority of our revenue." Additionally, on page 22, we have included disclosure of specific qualitative trends impacting the wearable sports and IP security markets for the three-month period ended October 31, 2015 and, in the case of the wearable sports camera market, potentially the quarter ending January 31, 2016 as follows:

"Despite experiencing revenue growth in the IP security camera market for the three and nine months ended October 31, 2015, we experienced some softness in the China region for the three months ended October 31, 2015, which partially offset stronger results in other geographic regions in that period."

"For the three months ended October 31, 2015, the growth in the IP security, automotive aftermarket and UAV markets was partially offset by a decline in the wearable sports camera market as a result of earlier than usual launch of customer products targeted at the consumer market in the second quarter of fiscal year 2016. In addition, we anticipate that higher than normal customer inventory levels at the end of the third calendar quarter in the wearable sports camera market will significantly impact our revenues in the fourth quarter ending January 31, 2016, and possibly the first quarter ending April 30, 2016."

We also have included on page 22 disclosure of material trends impacting the UAV and automotive aftermarket camera markets. These disclosures are repeated on page 26 in the Comparison of Comparison of the Three and Nine Months Ended October 31, 2015 and 2014. On page 27, we added qualitative disclosure relating to the anticipated trend for our gross margin, stating that "[w]e anticipate that gross margin will decrease over the next twelve months as revenues from the Asia IP security camera market and the consumer IP security market grow as a percentage of our total revenue and revenue from our infrastructure business continues to decline as a percentage of our total revenue."

The Company acknowledges that:

- the Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- the Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing; 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.

Please direct your questions or comments regarding the Company's responses to me at (408) 400-1492. Thank you for your assistance.

Sincerely,

/s/ Michael Morehead

Michael Morehead
General Counsel
Ambarella, Inc

cc: George Laplante, Chief Financial Officer, Ambarella, Inc.
Herbert Fockler, Wilson Sonsini Goodrich & Rosati, P.C.
Jennifer Knapp, Wilson Sonsini Goodrich & Rosati, P.C.