

February 17, 2016

Via EDGAR

Martin James, Senior Assistant Chief Accountant
Division of Corporation Finance - Office of Electronics and Machinery
United States Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: Amtech Systems, Inc.
Form 10-K for the fiscal year ended September 30, 2015
Filed November 19, 2015
File No. 000-11412

Dear Mr. James:

This letter sets forth the responses of Amtech Systems, Inc. (the "Company") to the comment letter, dated February 2, 2016, from the staff ("Staff") of the United States Securities and Exchange Commission ("Commission") relating to the Company's Form 10-K filed with the Commission on November 19, 2015.

The Company is filing, via EDGAR, this letter setting forth the Company's responses to comments of the Staff. The Staff's comments have been set forth below in italics and each is followed by our response.

Form 10-K for the fiscal year ended September 30, 2015

Sales and Marketing, page 11

1. *Please revise to disclose the name and the relationship, if any, with Amtech Systems, of the customers who accounted for 15% and 11% of your net revenue in 2015 and the customers who accounted for 18% and 11% of your net revenue in 2014. Refer to Item 101(c)(1) (vii) of Regulation S-K.*

R: The Company respectfully advises the Staff that, while certain customers in 2015 and 2014 accounted for 10% or more of our consolidated revenues, loss of any one of these customers would not have a material adverse effect on the registrant and its subsidiaries taken as a whole. We note that our largest customer has been different in each of the last three years and the ranking of our largest customers with respect to percentage of our consolidated revenue, most of whom represent less than 10% of consolidated revenue in most fiscal years, varies from year to year. Our products/systems are designed to operate and satisfy the needs of our customers for many years; thus, significant sales to the same customers in consecutive years generally do not occur. Since we do not rely on the same customers who represent greater than 10% of our consolidated revenues for recurring revenue of a similar magnitude year over year, we do not believe that the loss of any one of these customers would have a material adverse effect on future operations or the financial condition of the Company taken as a whole. In light of the foregoing, the Company respectfully submits that it believes further disclosure in this regard is not warranted. In future filings, we will continue to carefully consider whether we should disclose the names of customers

representing greater than 10% of our consolidated revenues, the loss of whom would have a material adverse effect on the Company and our subsidiaries taken as a whole.

Item 8. Financial Statements

Accounts Receivable and Allowance for Doubtful Accounts, page 51

2. *In the column for 2015 you show an adjustment of \$1,090,000. In future filings please revise the table to describe your other additions and deductions and the accounts charged. Refer to Rule 12-09 of Regulation S-X.*

R: In future filings, we will describe the other additions and deductions and the other accounts charged in accordance with Rule 12-09 of Regulation S-X.

Note 1. Summary of Significant Accounting Policies

Warranty, page 54

3. *In future filings please disclose the methodology you used in determining your liability for product warranties and separately show in your tabular reconciliation for the warranty liability the aggregate reductions in that liability for payments made under the warranty, the aggregate changes in the liability for accruals related to product warranties issued during the reporting period, and the aggregate changes in the liability for accruals related to preexisting warranties (including adjustments related to changes in estimates) in accordance with ASC 460-10-50-8(b) and (c).*

R: In future filings, we will disclose the methodology used in determining our liability for product warranties and we will separately report the required tabular disclosures in accordance with ASC 460-10-50-8(b) and (c).

Note 10. Income Taxes, page 67

4. *Please revise future filings to disclose the components of income (loss) before income tax expense (benefit) as either domestic or foreign in accordance with Rule 4-08(h)(1)(i) of Regulation S-X.*

R: In future filings, we will disclose the components of income (loss) before income tax expense (benefit) as either domestic or foreign in accordance with Rule 4-08(h)(1)(i) of Regulation S-X.

Note 14. Acquisitions, page 72

5. *You disclose pro forma information for the fiscal year ended September 30, 2013 for your fiscal 2015 acquisition of BTU International. In future filings please only present comparative pro forma information for the period of the acquisition and the comparable annual reporting period. Refer to ASC 805-10-50-2(h)(3).*

R: In future filings, we will only present comparative pro forma information for the period of the acquisition and the prior comparable annual reporting period in accordance with ASC 805-10-50-2(h)(3).

Note 15. Deconsolidation, page 73

6. *Please explain how you considered ASC 810-10-40-5 and 40-4A related to the carrying amount of any noncontrolling interest in the former subsidiary (including any accumulated other comprehensive*

income attributable to the noncontrolling interest) at the date Kingstone was deconsolidated in determining the amount of the gain.

- R:** In accordance with 810-10-40-4A, we derecognized all assets, liabilities and equity components related to Kingstone. Our derecognition of equity included derecognition of noncontrolling interest and amounts previously recognized in accumulated other comprehensive income as well as foreign currency translation adjustments related to Kingstone. The carrying amounts of noncontrolling interest and accumulated other comprehensive income attributable to the noncontrolling interest were included in the gain calculation in accordance with **810-10-40-5**.
7. *Please tell us the significant terms related to the agreements including the sale of exclusive sales and service rights in the solar ion implant equipment. Tell us whether the payment of \$5.6 million is in addition to the amount you will receive for the sale of part of your interest in Kingstone. Also tell us your consideration of filing the agreements related to the Kingstone transactions as exhibits under Item 601(b)(10) of Regulation S-K.*
- R:** Please refer to Item 1.01 of the Company's Current Report on Form 8-K, filed with the Commission on July 22, 2015, where we summarize the significant terms of the Investment Agreement and the Sale and Service Agreement, as follows:

Investment Agreement

- Amtech's ownership in Kingstone Hong Kong changes from 55% to 15%
- Kingstone Hong Kong's ownership in Kingstone Shanghai changes from 100% to 68.75%
- The Company will receive \$4,000,000 for a portion of its equity interest in Kingstone Hong Kong
- The Company will be repaid the outstanding principal amount of US\$4,000,000 under the Solar Tool Loan Agreement dated December 9, 2011
- Agreement is subject to entering into Sale and Service Agreement

Sale and Service Agreement

- i. Reaffirms the Company's exclusive right to sell and service the products of Shanghai Kingstone (subject to Shanghai Kingstone's right to sell and service products of Shanghai Kingstone in China),
- ii. Provides that Shanghai Kingstone and/or Kingstone Hong Kong will purchase from the Company such exclusive right for US\$5,600,000 by the earlier of (a) March 31, 2016 or (b) the commencement of any public offering process of Shanghai Kingstone, and
- iii. Confirms the Company's non-exclusive sales and service right in connection with the products of Shanghai Kingstone after the purchase in item (ii) has been consummated

The payment of \$5.6 million is in addition to the amount we received for the partial sale of our interest in Kingstone covered under the Investment Agreement.

Please note that, pursuant to Commission CDI 202.01 and Item 601 of Regulation S-K, the Investment Agreement was filed as an exhibit under Item 601(b)(10) of Regulation S-K with our Form 10-Q filed on August 6, 2015 for the quarter ended June 30, 2015, as we considered this to be a material transaction that was not part of our ordinary course of business, because it changes our ownership interest in a subsidiary from majority control to a minority interest.

Unlike the Investment Agreement, we do not consider the Sale and Service Agreement to be a Material Contract under Item 601(b)(1) of Regulation S-K. Also, we have already disclosed the terms of the Sale and Service Agreement as referenced above. We do not consider the Sale and Service Agreement to be material to the Company because the Company's revenue derived from the exclusive right to sell and service the products of Shanghai Kingstone has not represented a material portion of our consolidated revenues and, after the sale of such exclusive rights, we will retain the non-exclusive rights for which we have a base of potential customers. In the event Shanghai Kingstone and/or Kingstone Hong Kong purchases the Company's exclusive rights for the \$5.6 million, we have determined that such disposition would be immaterial to the Company as the proceeds would represent an insignificant portion of our consolidated assets.

8. *Please tell us your consideration of the requirements of Item 2.01 of Form 8-K related to the disposition of your controlling interest in Kingstone.*

R: Based on our consideration of the requirements of Item 2.01 of Form 8-K, we determined that the disposition did not involve a significant amount of assets, and thus the filing of an Item 2.01 Form 8-K was not required in these circumstances. Pursuant to Instruction 4 to Item 2.01 of Form 8-K, we performed the calculations required under Item 2.01 of Form 8-K to determine if this was a disposition of a significant amount of assets. Pursuant to Instruction 4(i), we determined the assets disposed of did not exceed 10% of our total assets and the payment received did not exceed 10% of our total assets. Pursuant to Instruction 4(ii), we determined that the business was not a significant subsidiary as defined in Section 210.1-02(w), as (1) our investments in and advances to the subsidiary did not exceed 10% of our total assets, (2) our proportionate share of the total assets of the subsidiary does not exceed 10% of our total assets, and (3) our equity in Kingstone's net income did not exceed 10% of our net income.

Item 9A. Controls and Procedures

Management's Report on Internal Control Over Financial Reporting, page 75

9. *The audit report on page 44 refers to the framework Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Please confirm to us that management also used the COSO framework of 2013 in performing its assessment and revise the report in the requested amended Form 10-K to disclose the framework used, as required by Item 308(a)(2) of Regulation S-K.*

R: We confirm that management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control - Integrated Framework (2013)* in performing its assessment of the effectiveness of internal control over financial reporting. We will revise Management's Report on Internal Control Over Financial Reporting in an amended Form 10-K.

Item 11. Executive Compensation, page 76

10. *We note that you increased base salary and option awards compensation for your three named executive officers by significant amounts during fiscal year 2015. Please revise your disclosure in your Form 10-K to explain what factors you considered in the decision to make these material increases in compensation. Refer to Item 402(b)(2)(ix) of Regulation S-K. In this regard, we also note your disclosure on page 13 of your definitive proxy statement filed on January 25, 2016 that the compensation committee considers “the roles and performance.” Please revise to discuss and analyze how individual performance contributes to actual base salary compensation for named executive officers. Refer to Item 402(b)(2) (vii) of Regulation S-K.*

R: We will revise the disclosure in our Form 10-K to explain the increases in the compensation of our named executive officers as well as revise, discuss and analyze in our definitive proxy statement how individual performance contributes to actual base salary compensation for named executive officers.

11. *We note the disclosure on page 11 of your definitive proxy statement regarding your pay positioning compared to your peer group companies. Please revise your disclosure in your Form 10-K to discuss how each element of compensation relates to the data you analyzed from peer companies and include an analysis of where actual payments fell within the targeted parameters. If any of your named executive officers are compensated at levels that are materially different from targeted levels of compensation, please provide a discussion and analysis as to why. Refer to Item 402(b)(2)(xiv) of Regulation S-K.*

R: We will revise the disclosure in our Form 10-K to discuss how each element of compensation relates to the peer company data and will include an analysis of where actual compensation fell within the targeted parameters. The discussion and analysis will include why our named executive officers are compensated at levels that are materially different from targeted levels of compensation.

Signatures, page 77

12. *We note your Form 10-K has not been signed by the registrant. Please amend your Form 10-K to include both sets of signatures that are required by the “Signatures” section and by General Instruction D of Form 10-K.*

R: We will amend our Form 10-K to include both sets of signatures that are required by the instructions of Form 10-K.

The Company acknowledges that it is responsible for the adequacy and accuracy of the disclosure in the filings; that 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.

We trust that the foregoing is responsive to your comments. If you have any questions or comments, please contact the undersigned.

Best regards,
Amtech Systems, Inc.

/s/ Bradley C. Anderson

Bradley C. Anderson
Chief Financial Officer

cc: Michael Garnreiter, Chairman of the Audit Committee of the Board of
Directors
Jaime Daddona, Squire Patton Boggs (US) LLP