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TERADYNE
Because Testing Matters

May 9, 2018

Re: Section 301 Action: Negative Impacts of Tariffs on Test Systems (90308200), Instruments (90309084, 90309089), and Printed Circuit Boards (90309066, 90309068)

Charles J. Gray
Vice President and General Counsel

Teradyne, a leading developer and supplier of automated test equipment ("ATE") based in North Reading, Massachusetts, is concerned about inclusion of its products — test systems (90308200), instruments (90309084, 90309089), and printed circuit boards (90309066, 90309068) — within the proposed list of Section 301 tariffs. Teradyne's ATE is used to test semiconductors, wireless products, data storage and complex electronic systems, which serve consumer, communications, industrial and government customers.

Imposition of 25 percent tariffs on Teradyne's highly specialized test systems would not advance the Administration's goal of encouraging China to change its technology transfer policies. The increased tariffs would affect products manufactured on behalf of a U.S. company by a global contract manufacturer for U.S. customers. No Chinese test company is a competitor in the U.S. market for these test systems. The major effect of the tariff would be to favor a Japanese company that has licensed its technology to a government-funded Chinese company.

These tariffs could cause harm to U.S. leadership in semiconductor testing equipment at a time the U.S. government is focused on preserving and enhancing U.S. leadership in semiconductors, while having no effect in encouraging China to change its policies. Accordingly, we request that Harmonized Tariff Schedule subheadings 90308200, 90309066, 90309068, 90309084 and 90309089 be removed from the proposed Section 301 action.

Teradyne's Automated Test Equipment ("ATE") Business

Teradyne, which has an annual revenue of $2.14 billion and employs 4,500 people worldwide, manufactures, among other things, its Flex and J750 families of testers used by semiconductor manufacturers to test and classify semiconductor wafers and devices. U.S. customers for Teradyne's Flex and J750 test systems include Qualcomm, Texas Instruments, On Semiconductor, Western Digital, and others.

A global contract manufacturer manufactures Teradyne's Flex and J750 families of test systems, instruments, and high value printed circuit boards at its Suzhou, China facility. The facility is in a Chinese free trade zone. Neither Teradyne nor its contract manufacturer receives subsidies or other benefits from the Chinese government, and Teradyne has not transferred any intellectual property to the contract manufacturer in China nor to any Chinese company and Teradyne has no obligation to do so.

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Proposed Section 301 Tariffs

Of the HTS subheadings included in the proposed Section 301 action, Teradyne is concerned about:

- 90308200: Instruments and apparatus for measuring or checking electrical quantities, nesoi: for measuring or checking semiconductor wafers or devices
- 90309066: Printed circuit assemblies for subheadings and apparatus of 9030.40 & 9030.82
- 90309068: Printed circuit assemblies, nesoi
- 90309084: Parts and accessories for instruments and apparatus for measuring or checking
- semiconductor wafers or devices, nesoi
- 90309089: Parts and accessories for articles of subheadings 9030.20 to 9030.40, 9030.83 and 9030.89, nesoi

These HTS subheadings are covered by the International Technology Agreement, and are ordinarily not subject to any duties in any signatory country.

Teradyne and its customers import from the Suzhou, China contract manufacturing facility both complete test systems, as well as components (instruments, and printed circuit boards) for upgrades and repair. It is common in this sector for customers to upgrade their test systems regularly to keep pace with rapid technological innovation.

Tariffs Should Not be Imposed on ATE

The proposed tariffs on ATE would be counterproductive, could undermine U.S. leadership in the broader semiconductor sector, and would have no impact on Chinese policy.

Harms to U.S. Customers and U.S. Employment

Imposition of Section 301 tariffs would negatively impact Teradyne's U.S. business, and would negatively affect its U.S. customers, including through increased pricing for products and decreased competition for test equipment. Teradyne's test systems are complex and require significant development investment by both Teradyne and its customers. The proposed tariff could impact the semiconductor industry as well as downstream industries such as automobile manufacturing which relies on semiconductors and will ultimately result in higher prices for consumers.

Moreover, even a temporary disruption of Teradyne's commercial relationships caused by tariffs could have a long-term impact for the company and for U.S. leadership in the sector. Many U.S. customers purchase initial engineering systems for delivery in the United States, with subsequent volume purchases of equipment used for production manufacturing outside the United States. If Teradyne loses the sales of the early engineering systems, the company could also lose the longer term and larger production sales internationally.

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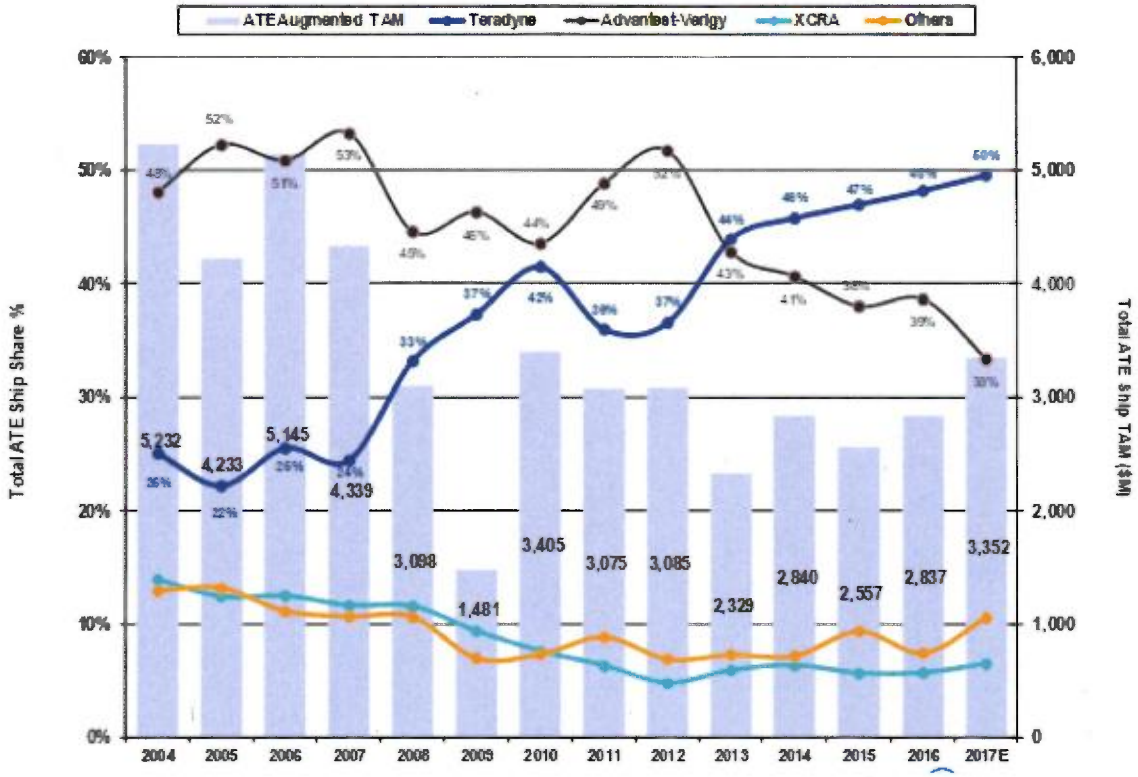
Higher costs for Teradyne's products and for U.S. manufacturing could result in less production here in the U.S. and put pressure on U.S. employment. Although Teradyne cannot at this time estimate the impact of the proposed tariffs on its U.S. workforce, the company has over 1,700 employees in 32 states in the United States, including approximately 800 in Massachusetts, 550 in California, 153 in Illinois, and 69 in Texas.

Distortion to Market in Favor of Non-U.S. Competitor

Teradyne's principal competitors are Advantest, a Japanese company with most of its production in Japan, and, to a lesser extent, Xcerra, a U.S. company with production in Malaysia that competes in some product segments with Teradyne. In the global market for semiconductor test equipment, Teradyne has 50 percent market share, Advantest has 33 percent, Xcerra has 7 percent, and all others have 10 percent. Of the three principal players in the industry, Teradyne has maintained its independence and has no strategic or licensing relationship with or obligation to any other company.

Total ATE Market Share



We understand that Advantest has provided technology to a Chinese-government funded company. Advantest is a joint venture partner in a Chinese company called Shanghai NCATEST Technologies Co., Ltd. The other significant joint venture partner is TongFu Microelectronics (formerly Nantong Fujitsu). The joint venture uses Advantest's T2000 instruments, licenses Advantest's technology, and rebrands the tester as its C2000 tester for the Chinese market.

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Advantest would be the principal beneficiary of a tariff on Teradyne products manufactured in China. Advantest would have a cost advantage for future "design ins" by U.S. customers and with U.S. customers who purchase both from Advantest and Teradyne, as dual suppliers.

Xcerra has a limited product portfolio, and is not a viable alternative for many of Teradyne's U.S. customers who use Teradyne's Flex and J750 testers. In April 2017, Xcerra announced it had agreed to sell the company to Hubei Xinyan, a Chinese state-backed semiconductor investment fund. The sale was terminated in February 2018 after the Committee on Foreign Investment in the United States ("CFIUS") failed to approve the proposed sale. Notwithstanding the deal termination, Xcerra's chief executive officer stated publicly at the time that "Xcerra and Xinyan are discussing alternatives to pursue opportunities in new and existing markets in China."[1]

No Impact on Chinese Policy

Imposition of 25 percent tariffs on semiconductor test equipment would not advance the Administration's goal of encouraging China to change its technology transfer policies. No Chinese company would be adversely impacted by the tariffs because no Chinese test company is a competitor in the U.S. market for the test systems covered by the tariffs. If anything, the proposed tariffs could indirectly benefit Chinese policies through favoring a Japanese competitor that has contributed its technology to a Chinese entity and a U.S. competitor that has previously sold assets to a Chinese entity and, following the attempted sale of the entire company to a Chinese entity, announced plans to pursue opportunities with that Chinese entity.

Conclusion

Imposing increased duties on Teradyne's tariff codes would adversely impact Teradyne's U.S. operations and employees, Teradyne's U.S. customers and U.S. consumers who buy electronics or products such as cars that have significant electronics content will be impacted by the increased costs to U.S.-based semiconductor manufacturers and decreased competition in the U.S. test equipment market. The tariff would cause disproportionate harm to U.S. interests while not impacting the Chinese practices the proposed tariffs are meant to address. Moreover, Teradyne has over 1,700 employees working in the U.S. many of whom could be impacted by the implementation of tariffs on the company's products.

Charles J. Gray
Vice President and General Counsel, Teradyne, Inc.

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[1] "U.S. Blocks Chip Equipment Maker Xcerra's Sale to Chinese State Fund," Reuters (Feb. 22, 2018) (https://www.reuters.com/article/us-xcerra-m-a-hubeixinyan/u-s-blocks-chip-equipment-maker-xcerras-sale-to-chinese-state-fund-idUSKCN1G703H)