UNITED STATES DEPARTMENT OF COMMERCE
BUREAU OF INDUSTRY AND SECURITY
WASHINGTON, D.C. 20230

In the Matter of: Applied Materials, Inc. 3050 Bowers Avenue | P.O. Box 58039 Santa Clara, CA 95054-3299 Applied Materials Korea Seongnam-si, Gyeonggi-do 5th FL. Korea Design Center Bldg. 322, Yanghyeon-ro, Bundang-gu, South Korea Respondents

ORDER RELATING TO
APPLIED MATERIALS INC. AND APPLIED MATERIALS KOREA

The Bureau of Industry and Security, U.S. Department of Commerce ("BIS"), has notified Applied Materials, Inc. of Santa Clara, California and Applied Materials Korea, Ltd. of South Korea (individually or collectively, "AMAT"), of its intention to initiate an administrative proceeding against AMAT pursuant to Section 766.3 of the Export Administration Regulations (the "Regulations"),[1] through the issuance of a Proposed Charging Letter to AMAT that alleges that AMAT committed 56 violations of the Regulations.[2] Specifically:

[1] The Regulations are issued under the authority of the Export Control Reform Act of 2018, Title XVII, Subtitle B of Pub. L. 115-232, 132 Stat. 2208 ("ECRA," 50 U.S.C. §§ 4801–4852).
[2] The EAR are currently codified in the Code of Federal Regulations at 15 C.F.R. Parts 730-774 (2026). The Regulations governing the violations at issue are found in the 2020-2022 versions of the Code of Federal Regulations (15 C.F.R. Parts 730-774 (2020-2022)). The 2026 Regulations set forth the procedures that apply to this matter.

GENERAL ALLEGATIONS

As described in greater detail below and in the attached Schedule of Violations, between November 8, 2020 and July 18, 2022, Applied Materials, Inc., a semiconductor manufacturing equipment company headquartered in Santa Clara, California, engaged in conduct prohibited by the EAR on 56 occasions when it reexported or attempted to cause the reexport from Applied Materials Korea, Ltd. ("AMK") of module systems of ion implanters (hereinafter "ion implanting equipment"), items from the United States, to Semiconductor Manufacturing International Corporation or its subsidiaries that were listed on the BIS Entity List on December 18, 2020 (hereafter collectively referred to as "SMIC").[3] The ion implanting equipment included in the reexports or attempted reexports to SMIC from AMK was valued at approximately $126,250,150, classified under Export Control Classification Number ("ECCN") 3B991, and subject to the EAR.

A. Key Parties: Applied Materials, Inc.

AMAT is a Delaware-incorporated semiconductor manufacturing equipment company with its principal place of business in Santa Clara, California. AMAT is a publicly traded U.S. company that, during the relevant time period, employed roughly 34,000 people, with a production location in Gloucester, Massachusetts, among others. AMAT provides semiconductor and display equipment hardware, software, and services.

AMAT is a leading producer of ion implanters—a critical piece of equipment for integrated circuit manufacturing.[4] AMAT is "the world[']s #1 semiconductor and display equipment company."[5] During fiscal year 2022, AMAT had $25.8 billion in annual revenue, spent approximately $2.8 billion on research and development, and had approximately $110 billion in market capital. AMAT is a world leader in the design, development, production, and distribution of manufacturing equipment for the production of integrated circuits and other semiconductor devices. During the relevant time period, approximately 90% of AMAT's revenue was generated overseas, and AMAT claimed that its "technology is inside every semiconductor and display factory in the world," giving it "broad insight into what is happening in the global technology sectors."

AMAT produces ion implanting equipment at its facility in Gloucester, Massachusetts and typically exports directly to customer sites around the world, where the equipment is combined with other ion implanter components produced in Asia and delivered from Singapore. AMAT has designed, implemented, and maintained an export

[3] As discussed further *infra*, ion implanters consisted of ion implanting equipment that originated from AMAT's Gloucester, Massachusetts facility. The ion implanting equipment, which was subject to the EAR, was reexported from South Korea to SMIC. The ion implanters also included an outer system enclosure and factory interface that were produced in Asia, shipped from Singapore to SMIC, and installed at a SMIC facility in China with the ion implanting equipment that originated from Gloucester.

[4] https://ir.appliedmaterials.com/news-releases/news-release-details/applied-materials-acquire-varian-semiconductor-equipment/.

[5] Unless otherwise noted, quotation marks refer to language in internal AMAT documents produced pursuant to the BIS investigation.

compliance program tailored to its risk profile and has applied for over 1,100 licenses from BIS. Regarding SMIC and its subsidiaries alone, between 2020 and 2022, AMAT applied for over 100 BIS licenses for shipments of various items. AMAT's ion implanters and the ion implanting equipment of those ion implanters are classified for U. S. export control purposes under ECCN 3B991.

1. **Varian Semiconductor Equipment ("VSE")** is an AMAT subsidiary that operates the Gloucester, Massachusetts plant. AMAT acquired VSE in 2011.[6]

2. **AMK**, located in South Korea, is a subsidiary of AMAT. Prior to 2021, AMK primarily provided refurbishing services for ion implanters from a single facility in Pyeongtaek. Aside from orders placed by and sent to SMIC, the AMK facility is also used for refurbishing ion implanters for other customers.

3. **Global Engineering** is a South-Korean third-party contractor that provided some of the labor required to perform final assembly and testing in South Korea for AMK. Global Engineering has its own facilities in South Korea.

B. Entity List Parties: Semiconductor Manufacturing International Corporation

The Entity List, which is set forth in Supplement No. 4 to Part 744 of the EAR, identifies entities that are subject to additional export, reexport, and transfer restrictions because "there is reasonable cause to believe, based on specific and articulable facts, that the entity . . . has been involved, is involved, or poses a significant risk of being or becoming involved in activities that are contrary to the national security or foreign policy interests of the United States." 15 C.F.R. § 744.11(b).

To export, reexport, or transfer (in-country) items subject to the EAR to entities on the Entity List, a license application must be submitted and granted before the export, reexport, or in-country transfer may occur. 15 C.F.R. § 744.11.

Additionally, 15 C.F.R. § 744.21(b) provides that BIS may inform persons that a license is required for a specific export, reexport, or in-country transfer of any item if there is an unacceptable risk of use in or diversion to "military end use" activities in the People's Republic of China.

1. Semiconductor Manufacturing International Corporation

SMIC is a partially state-owned, publicly traded semiconductor foundry in China. SMIC's shares are listed on stock exchanges in Hong Kong and Shanghai. Its principal place of business and operational headquarters is located at 18 Zhangjiang Road, Pudong New Area, Shanghai, People's Republic of China.

[6] https://ir.appliedmaterials.com/news-releases/news-release-details/applied-materials-acquire-varian-semiconductor-equipment/.

SMIC is China's leading provider of semiconductor foundry services, operating foundries throughout China. SMIC manufactures semiconductors for "fabless" semiconductor companies in China. SMIC provides integrated circuit manufacturing services from 350 nm to 7 nm process technologies.

On September 25, 2020, BIS sent AMAT an "is-informed" letter notifying AMAT that a license was required to export, reexport, or transfer in-country certain items subject to the EAR to SMIC. SMIC was added to the Entity List effective on December 18, 2020, as a result of China's military-civil fusion doctrine and evidence of activities between SMIC and entities of concern in the Chinese military industrial complex.[7] Therefore, since September 25, 2020, a license has been required to export, reexport, or transfer (in-country) certain items subject to the EAR to SMIC, and since December 18, 2020, a license has been required for all items subject to the EAR.

As noted above, on 56 occasions, AMAT violated the EAR by reexporting or attempting to reexport items subject to the EAR to SMIC, a party added to the Entity List in December 2020.

2. SMIC Subsidiaries

The following SMIC subsidiaries were also added to the Entity List at the same time and were subject to the same licensing requirements as SMIC.[8] All of these entities received ion implanters from AMAT after SMIC was added to the Entity List in December 2020:

a) Semiconductor Manufacturing South China Corporation ("SMSC")

b) Semiconductor Manufacturing North China (Beijing) Corporation ("SMNC"), also doing business as: SMIC Northern Integrated Circuit Manufacturing (Beijing) Co., Ltd.

c) Semiconductor Manufacturing International (Tianjin) Corporation ("SMIC-TJ")

d) Semiconductor Manufacturing International (Beijing) Corporation ("SMIC-BJ")

e) Semiconductor Manufacturing International (Shenzhen) Corporation ("SMIC-SZ")

f) Semiconductor Manufacturing International (Shanghai) Corporation ("SMIC-SH")

[7] *See Addition of Entities to the Entity List, Revision of Entry on the Entity List, and Removal of Entities from the Entity List*, 85 Fed. Reg. 83416 (Dec. 22, 2020).
[8] *Id.*

LEGAL FRAMEWORK

Pursuant to 15 C.F.R. § 764.2(a), "[n]o person may engage in any transaction or take any other action prohibited by or contrary to, or refrain from engaging in any transaction or take any other action required by [The Export Control Reform Act ("ECRA")], the EAR, or any order, license or authorization issued thereunder." Section 764.2(c) prohibits attempts to do so.

The EAR generally prohibit the export, reexport, or in-country transfer of items subject to the EAR to an entity that is on the Entity List without a license. *See* 15 C.F.R. § 744.11. Export means, among other things, "[a]n actual shipment or transmission out of the United States, including the sending or taking of an item out of the United States, in any manner." 15 C.F.R. § 734.13(a)(1). Also, "[t]he export of an item that will transit[9] through a country or countries to a destination identified in the EAR is deemed to be an export to that destination." 15 C.F.R. § 734.13(c). Reexport means, among other things, "[a]n actual shipment or transmission of an item subject to the EAR from one foreign country to another foreign country, including the sending or taking of an item to or from such countries in any manner." 15 C.F.R. § 734.14(a)(1).

Specifically, "[a] license is required, to the extent specified on the Entity List, to export, reexport, or transfer (in-country) any item subject to the EAR when an entity that is listed on the Entity List . . . is a party to the transaction . . . ." 15 C.F.R. § 744.11(a). Moreover, BIS may impose a license requirement for exports, reexports, or in-country transfers by providing written notice to persons individually or through amendment to the EAR. 15 C.F.R. §§ 744.11(c) and 744.21(b).

Pursuant to 15 C.F.R. § 734.3(a)(1)-(2), all items physically located in the United States, as well as U.S.-origin items wherever located, are subject to the EAR.

STATEMENT OF CHARGES

Charges 1 – 54 15 C.F.R. § 764.2(a) – Engaging in Prohibited Conduct

1. As described in greater detail below and in the Proposed Charging Letter's Schedule of Violations, between March 23, 2021 and June 3, 2022, AMAT committed 54 violations of the EAR. Between March 23, 2021 and June 3, 2022, AMAT engaged in conduct prohibited by the EAR on 54 occasions when it caused the reexport of ion implanting equipment of 54 ion implanters—U.S.-origin items subject to the EAR—from AMK to SMIC. At all relevant times, SMIC was on the Entity List, and all items subject to the EAR required an export/reexport license pursuant to Section 744.11 of the EAR, which AMAT did not obtain. The ion implanting equipment reexported to SMIC from AMK

[9] The term "transit" includes the term "transshipped." *See Revisions to Definitions in the Export Administration Regulations*, 81 Fed. Reg. 35586 (June 3, 2016) ("BIS also drops the term 'transshipped,' because the intended meaning of this paragraph is captured by 'transit.'").

was valued at approximately $118,450,150, classified under ECCN 3B991, and subject to the EAR.

Charges 55 – 56 **15 C.F.R. § 764.2(c) – Attempting to Engage in Prohibited Conduct**

1. On or about November 8, 2020, AMAT engaged in conduct prohibited by the EAR when it attempted to cause the reexport of ion implanting equipment of one ion implanter—an item subject to the EAR—to SMIC's subsidiary SMNC from AMK. At the time, SMNC was identified in a September 25, 2020 BIS is-informed letter to AMAT, and items classified under ECCN 3B991 required a BIS license pursuant to Section 744.21 of the EAR, which AMAT did not obtain. The ion implanting equipment was valued at approximately $3,900,000, classified under ECCN 3B991, and subject to the EAR.

2. On or about July 18, 2022, AMAT engaged in conduct prohibited by the EAR when it attempted to cause the reexport of ion implanting equipment of one ion implanter—an item subject to the EAR—to SMIC's subsidiary SMIC-SZ, an entity listed on the BIS Entity List, from AMK. At all relevant times, SMIC-SZ was on the Entity List, and all items subject to the EAR required a BIS license pursuant to Section 744.11 of the EAR, which AMAT did not obtain. The ion implanting equipment was valued at approximately $3,900,000, classified under ECCN 3B991, and subject to the EAR.

BACKGROUND OF CHARGES

1. AMAT's Relationship with SMIC

AMAT has sold semiconductor-related products to SMIC since SMIC was founded in 2000. Between 2016 and 2020, SMIC purchased 180 semiconductor manufacturing tools from AMAT, with a total purchase price of approximately $1.4 billion. All of those semiconductor manufacturing tools were installed at SMIC's semiconductor foundries in China, and many remain in operation to this day. They are used exclusively by SMIC in the manufacture of semiconductors for its customers. Most of the AMAT semiconductor manufacturing tools sold to SMIC during this time period were classified under ECCN 3B991 or designated as EAR99 and were exported by AMAT to SMIC as No License Required ("NLR").

In September 2020, SMIC considered AMAT to be its "most important business partner and ally in the semiconductor industry." AMAT also saw SMIC as a major customer, stating in an internal email that SMIC had a "significant revenue impact across Applied [Materials]" product lines, with AMAT projecting $52 million in VSE sales to SMIC in the fourth quarter of 2020 alone.

AMAT continued to sell and ship semiconductor manufacturing tools to SMIC even after SMIC was added to the Entity List in December 2020. From the time of that Entity

Listing through 2023, AMAT requested hundreds of BIS licenses for shipments of various items that AMAT understood were subject to the EAR to SMIC, shipped other items that AMAT understood were not subject to the EAR to SMIC, and continued shipping products to SMIC affiliates that had not been added to the Entity List.

2. Development of the "Dual-Build" Process

Prior to the issuance of the is-informed letter in September 2020, AMAT produced ion implanting equipment at its production plant in Gloucester, Massachusetts, employing a modular design. AMAT produced ion implanting equipment for several models of ion implanters for shipment to SMIC, including the VIISta Trident, VIISta Trident XP, VIISta 900 XP, VIISta 900 XPT, and VIISta HCS Platform.[10] Depending on the model type, the ion implanting equipment of each ion implanter included several modules—including beamline, terminal, universal end station ("UES"), facilities, 55-degree, 70-degree, and 90-degree. Each of these modules was classified under ECCN 3B991 when subject to the EAR, except for the high current facilities module, which was designated EAR99. Although modules were shipped in multiple boxes, the ion implanting equipment was purchased by SMIC, billed to SMIC, and shipped as one complete item. Additionally, the documents affixed to the shipping containers listed SMIC as the customer and China as the destination.

The ion implanters also included an outer system enclosure and factory interface, which provided automation and safety features, without which an ion implanter could not be safely operated. The enclosure and factory interface were produced in Asia, shipped from Singapore to SMIC without entering the United States, and were installed at a SMIC facility in China with the ion implanting equipment that originally shipped from Gloucester. Because these components were foreign-made and were not subject to the EAR under the *de minimis* or foreign direct product rules, neither the factory interface nor the enclosure were subject to the EAR.

Type of Ion Implanter	**Modules Included**	**Additional Assembly Pieces from Singapore**
VIISta Trident XP (High Current)	UES, 55-Degree, 90-Degree, Facilities	Enclosure, Factory Interface
VIISta Trident (High Current)	UES, 55-Degree, 90-Degree, Facilities	Enclosure, Factory Interface
VIISta 900 XPT (Medium Current)	UES, Terminal, Beamline	Enclosure, Factory Interface
VIISta 900 XP (Medium Current)	UES, Terminal, Beamline	Enclosure, Factory Interface
VIISta HCS (High Current)	UES, 70-Degree, 90-Degree, Facilities	Enclosure, Factory Interface

[10] AMAT makes other ion implanter models—including VIISta PLAD, 3000XP, and 900 3D—that are not at issue in this case. *See Product Library*, Applied Materials, Inc., https://www.appliedmaterials.com/us/en/product-library.html (last visited January 21, 2026).

In spring 2020, AMAT's Global Trade Group began discussing a brand new, "dual-build" process by which AMAT would shift a portion of its Gloucester, Massachusetts production process to South Korea. AMAT was then preparing for the possibility that certain customers, including SMIC, may in the future be subject to military end user restrictions, which would restrict certain of AMAT's exports, reexports, and transfers of certain items subject to the EAR to those customers.

As part of the dual-build process, AMAT would partially produce ion implanting equipment of certain ion implanters at its plant in Gloucester, Massachusetts upon receipt of an order from SMIC, then ship the partially assembled items and all required U.S.-origin and foreign-origin parts and components to South Korea to complete production of the ion implanting equipment, and then ship it from AMK in South Korea to SMIC in China. Several options for this process were discussed, each involving various levels of assembly, testing, and integration to be conducted at AMK, a facility AMAT owned in South Korea that historically was used to refurbish ion implanters.

During the proposed dual-build process, certain ion implanting equipment would be partially produced in Gloucester. All of the remaining U.S.-origin and foreign-origin parts required for completion (including power supplies, controllers, and operating software) would be sourced from AMAT's inventory in Gloucester and then shipped from the United States to AMK pursuant to a SMIC order. Once the U.S.-origin and foreign-origin parts shipped from Gloucester were assembled in South Korea into the modules of the ion implanting equipment that were partially produced in Gloucester, the modules of the ion implanting equipment were tested in South Korea. To complete this testing, AMAT had to invest in test fixtures for AMK to use during the dual-build process. Finally, the ion implanting equipment would be shipped to SMIC where the ion implanting equipment consisting of modules (*i.e.*, beamline, terminal, 90-degree, 55-degree, UES, etc.) required for the specific type of ion implanter (Trident, Trident XP, 900 XP, HCS, or 900 XPT) would be installed with the enclosure and factory interface shipped from Singapore.

On September 21, 2020, AMAT made its last unlicensed export from Gloucester directly to SMIC, thereafter switching to the dual-build process.

3. Issuance of Is-Informed Letter and SMIC's Addition to the Entity List

On September 25, 2020, BIS sent AMAT an is-informed letter, pursuant to Section 744.21(b) of the EAR, notifying AMAT that a license was required to export, reexport, or transfer in-country certain items subject to the EAR—including items classified under ECCN 3B991—to SMIC because of an unacceptable risk of diversion to a military end use in the People's Republic of China. The next day, on September 26, 2020, a VSE Managing Director emphasized that receipt of the is-informed letter accelerated the move to the dual-build process in South Korea and instructed employees that "suffice to say we need to go into hyper drive on [South] Korea."

Following receipt of the "is-informed" letter, AMAT's Global Trade Group advised AMAT's senior executive leadership in a September 25, 2020 email with the subject line,

"SMIC Now a Restricted Military End-User," that "[t]he U.S. Department of Commerce informed us today that it now considers SMIC to be a Military End-User under the new Military End-Use rule. Consequently, Applied cannot export, reexport, or conduct in-country transfers of certain U.S. Origin semiconductor [items.]"

On December 18, 2020, SMIC and several of its subsidiaries were added to the Entity List, thereby creating a licensing requirement for all items subject to the EAR exported, reexported, or in-country transferred to SMIC. Accordingly, from October 2020 to June 2022, AMAT sought several licenses from BIS to continue sending ion implanting equipment directly to SMIC from Gloucester. Due to concerns regarding potential loss of business to foreign competitors if BIS licenses were delayed or denied, AMAT also simultaneously expedited its dual-build process in South Korea for shipments to SMIC.[11]

4. Acceleration/Implementation of the Gloucester "Dual-Build" Process

Between September 2020 and March 2021, AMAT expanded the AMK facility and the facility of contract manufacturer Global Engineering to enable a process unique to SMIC. In that "dual-build" process, the ion implanting equipment was partially built in Gloucester, based on an order from SMIC, and then sent to South Korea. Additionally, all of the U.S.-origin and foreign-origin parts and components needed to complete production were sent from Gloucester to AMK. In South Korea, the partially built modules of ion implanting equipment underwent further assembly and testing. The facilities modules of the ion implanting equipment of high current ion implanters did not undergo any modification in South Korea and were kept in storage. Upon completion in South Korea, the ion implanting equipment was sent from AMK to SMIC in China where, as had long been the case, the factory interface and system enclosure from Singapore were installed.

In January 2021, while still waiting on pending BIS export license applications, AMAT's leadership told SMIC's leadership that AMAT would "push [the South] Korea [dual-] build system shipment release A.S.A.P." Both companies were "committed" at the senior executive leadership level to the dual-build plan. AMAT leadership placed a "high priority" internally on the implementation of the dual-build process in South Korea.

In March 2021, in response to an order from SMIC, AMAT completed its first shipment to SMIC through the dual-build process. In this shipment, three modules of the ion implanting equipment were partially produced in Gloucester, and further assembly and testing was completed at AMK in South Korea.

The details of the dual-build process varied by shipment and over time. However, in each case, U.S.-origin and foreign-origin parts, components, and partially assembled ion implanting equipment were shipped from Gloucester to South Korea for assembly and testing to complete production of the ion implanting equipment, which was then shipped to SMIC. The Office of Export Enforcement's investigation confirmed that all U.S.-origin

[11] AMAT continued to ship ion implanting equipment to all other customers from the Gloucester facility and expanded production capabilities of the Gloucester facility during this time period.

and foreign-origin parts needed to complete production in South Korea were typically shipped from AMAT's facility in Gloucester, Massachusetts.[12]

5. AMAT's Continued Shipments to SMIC

During this time, AMAT continued to wait on approval of the license applications that it submitted to BIS in late 2020. AMAT was aware that it would lose SMIC's business if the licenses were not approved expeditiously. The potential impact of losing SMIC's business was significant. AMAT considered whether its sales to SMIC might "bleed out" if the BIS licenses were not granted in time to prevent SMIC from changing its supply lines to AMAT's foreign competitors. In January 2021, a VSE Managing Director stated, "[t]he situation is urgent. SMIC has several of our competitors knocking on their door, telling them that they can deliver now."

AMAT faced tremendous pressure to continue to sell ion implanters to SMIC. First, the ion implanters were a "substantial" revenue stream for AMAT—losing that business meant losing $112-150 million in annual revenue, and losing all of SMIC's business meant a total negative economic impact of more than $1 billion per year for AMAT. Second, AMAT was well aware that its foreign competitors could expeditiously produce most of the items that it sold to SMIC. Finally, AMAT recognized that a shift to a substitute supplier would not be merely temporary, it would result in the permanent loss of AMAT jobs from the loss of sales. This was an undesirable situation for AMAT and raised a risk that SMIC would accede to the "pressure to go elsewhere."

Because of AMAT's concerns about losing SMIC's business while awaiting the BIS licenses, AMAT moved forward with the dual-build process at AMK in South Korea. "Concern [was] rising that the MEU license may not materialize or at least continue for an extended delay at [the] same time that SMIC [was] looking to add tools . . . . [SMIC was] feeling pressure to go elsewhere if [AMAT could] not provide tools or a commitment." Accordingly, AMAT instructed its employees to "[m]ove forward with AMK planning as [the] #1 option/priority." SMIC also relied on AMAT to supply ion implanters. During a meeting between the two companies' leadership, SMIC "urged AMAT to ship the Implanter tools ASAP [because they were] the bottle neck for SMNC expansion."

6. AMAT's Misunderstanding of the EAR

AMAT's Global Trade Group at the time incorrectly concluded that if an item is "substantially transformed" in a foreign country, that was sufficient for the item to qualify as foreign-made for purposes of the EAR and the item therefore would not be subject to the EAR provided that the EAR's *de minimis* and foreign direct product rules also did not apply. The Global Trade Group acknowledged that U.S.-origin MEU-controlled parts "would not be able to ship . . . from any other global location," but incorrectly concluded

[12] According to AMAT's Counsel, the high-voltage power supply, which is not included in every tool, and an unspecified cable may have been shipped directly to South Korea from the foreign manufacturer or AMAT's parts inventory in South Korea, as may have other minor parts in certain discrete instances.

that the dual-build process described above passed a "substantial transformation" test. AMAT's Global Trade Group focused heavily on labor hours performed in their "substantial transformation" analysis.

Under this policy, AMAT created a checklist for its "substantial transformation" analysis, implemented automated system blocks in its export compliance system on shipments to SMIC, and would manually override the system block in its export compliance system if a shipment met the "substantial transformation" checklist criteria. That shipment would then be released, and the SMIC order would ultimately be fulfilled.

However, despite AMAT's Global Trade Group's incorrect assessment, "substantial transformation" does not appear anywhere in the EAR and is not the correct test for determining whether an item is subject to the EAR because it is an item of U.S. origin.

CONCLUSIONS

Because "substantial transformation" is a concept under the Customs regulations and is nowhere included in the EAR, AMAT's understanding—that it did not require a license for reexports from South Korea to SMIC—was incorrect.

Instead, the correct application of the EAR would have concluded that the ion implanting equipment was of U.S. origin because, based upon receipt of a SMIC order, AMAT began production in the United States, and all U.S.-origin and foreign-origin parts necessary to complete production in South Korea were exported from Gloucester for the sole purpose of producing ion implanting equipment for SMIC.[13] Given these facts, the fact that the ion implanting equipment may have been further assembled and/or tested in South Korea is of no moment; these items were all subject to the EAR at the time they were reexported from South Korea to SMIC in China. The regulatory analysis did not change when, in order to continue selling to a single customer on the Entity List, AMAT established a process that partially moved assembly and testing activities outside the United States for specific items on which production had begun in the United States and that had been ordered by that single customer. Under those circumstances, the EAR's *de minimis* provisions were inapplicable.

Accordingly, AMAT's dual-build process resulted in reexports to SMIC without the required licenses in violation of the EAR. AMAT's understanding that the dual-build process, through "substantial transformation" of the items, resulted in foreign-made ion implanting equipment being sent to SMIC, was incorrect.

Instead, even though AMAT completed assembly and testing of the ion implanting equipment in South Korea, the end user for the ion implanting equipment was at all times

[13] To the extent that AMAT understood that parts and components exported from the United States were incorporated into a foreign-made item in South Korea, that understanding was incorrect because the actions taken in South Korea did not create a foreign-made item.

SMIC and its entity-listed subsidiaries in China. Thus, the equipment as described above was subject to the EAR.[14]

BIS deems that U.S.-origin items or items physically located in the United States on which production begins in the United States are not rendered "foreign-made" when the items are exported and then undergo further assembly and testing in a foreign country when, as here, those activities outside the United States involved little or no foreign-origin parts that were shipped to the foreign location from a non-U.S. location.

Thus, upon completion of production in South Korea, the resulting ion implanting equipment remained a U.S.-origin item subject to the EAR. That the ion implanting equipment may have been tested and partially assembled while in South Korea does not alter this analysis. Because no license was obtained to authorize reexport to SMIC—despite AMAT having received the is-informed letter and SMIC being placed on the Entity List—AMAT's reexport of the ion implanting equipment from South Korea to SMIC was a prohibited reexport under the EAR. *See* 15 C.F.R. § 764.2(a). Accordingly, even though AMAT developed the dual-build process with a misunderstanding of the applicability of "substantial transformation," AMAT's dual-build process resulted in the reexport or attempted reexport of U.S.-origin items from South Korea to SMIC without the required licenses in violation of the EAR. Consequently, AMAT committed 56 violations of the EAR.

OTHER CONSIDERATIONS

AMAT changed its production process after receiving the September 2020 is-informed letter and after SMIC was added to the Entity List in December 2020. AMAT believed that, due to the actions by AMK and Global Engineering, the ion implanting equipment was foreign-made and not subject to the EAR pursuant to the EAR's *de minimis* rules. Those beliefs were mistaken.

To be clear, the violations in this charging letter are based on the reexport of U.S.-origin items subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(2), as described above. *See also* 15 C.F.R. § 732.2(b)-(c) (detailing steps 2-3 of the EAR Scope analysis). The following discussion, addressing why the EAR's *de minimis* provisions were inapplicable to AMAT's activities in this case, is purely informative.[15]

The EAR contemplate and allow for manufacturing processes that involve the incorporation of U.S.-origin controlled content into foreign-made items. Section 734.3(a)(3), Section 734.4, and Supp. No. 2 to Part 734 of the EAR describe the steps exporters are to undertake in carrying out a *de minimis* analysis to assess whether a foreign-made item is subject to the EAR. This analysis applies only to foreign-made items.

[14] *See* 15 C.F.R. §§ 734.13 and 734.14.
[15] As is clear from 15 C.F.R. § 732.2(b)(3), if an exporter is exporting items from a foreign country, they should proceed to Step 3 (§ 732.2(c)). If that item is of U.S. origin, the U.S. exporter should skip to Step 7 in § 732.3(b). Accordingly, AMAT should never have proceeded to Step 4 in § 732.2(d).

Pursuant to 15 C.F.R. § 734.3(a)(3), foreign-made commodities are subject to the EAR under certain circumstances. This includes foreign-made commodities that incorporate controlled U.S.-origin commodities,[16] but only if the controlled U.S.-origin commodities exceed the applicable *de minimis* levels specified in the EAR. *Id.* In most cases, foreign-made commodities that incorporate more than 25% controlled U.S.-origin content are subject to the EAR. *See* 15 C.F.R. § 734.4(d).

Generally, depending upon the classification of the U.S.-origin controlled commodities and the destination of the foreign-made item,[17] if an item contains less than the specified percentage of controlled U.S.-origin content, it is not subject to the EAR nor to any license requirements that may apply.[18] However, this general rule applies ***if and only if***: 1) the U.S.-origin commodities are not otherwise excluded from eligibility for *de minimis* treatment and 2) incorporation in fact occurs.

The facts described above demonstrate that AMAT's activities did not render the ion implanting equipment a foreign-made item eligible for *de minimis* treatment.

"U.S.-origin controlled content is considered 'incorporated' for *de minimis* purposes if the U.S.-origin controlled item is: Essential to the functioning of the foreign equipment; customarily included in sales of the foreign equipment; and reexported with the foreign produced item." 15 C.F.R. Part 734, Supp. 2, note to paragraph (a)(1). All three of these criteria must be met in order for the EAR's *de minimis* provisions to apply.

As described above, because production began in the United States and all or virtually all parts were exported from the United States, AMAT's activities in South Korea did not create foreign-produced items for the functioning of which U.S.-origin components were essential, nor were there sales of foreign-produced items which customarily included U.S.-origin components, or foreign-produced items with which U.S.-origin components were reexported.

Rather, what occurred in South Korea can be described as the combination of U.S.-origin and non-U.S.-origin content typically sent from the United States and assembled into already partially assembled U.S.-origin items, with little or no content sourced from outside the U.S. with which the U.S.-origin content was incorporated, and so no foreign-made item resulted. Therefore, because no foreign-made equipment existed, there were no grounds to consider whether U.S.-origin controlled content was incorporated into a foreign-

[16] Labor costs are not a relevant consideration for purposes of the applicable *de minimis* analysis discussed here, which takes into consideration only controlled U.S.-origin content. Nor would labor costs in any way affect whether an item is subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(1)-(2), as these provisions are based solely on an item's location or country of origin.

[17] There are some exceptions to this general framework. *Compare* 22 C.F.R. § 120.11(c) (defense articles remain subject to the International Traffic in Arms Regulations following incorporation or integration into any item not described on the U.S. Munitions List, unless specifically provided otherwise), *with* 15 C.F.R. § 734.4(a) (EAR specify that only certain items are ineligible for *de minimis* treatment).

[18] As noted above, this rule does not apply to items that are already subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(1)-(2).

made item. Because no foreign-made item was created in South Korea, no incorporation of U.S.-origin controlled content into a foreign-made item occurred. Accordingly, such controlled content was not eligible for *de minimis* treatment. *See* 15 C.F.R. Part 734, Supp. 2, note to paragraph (a)(1). Therefore, there is no need to perform any step of the incorporation analysis detailed above.

WHEREAS, BIS and AMAT have entered into a Settlement Agreement pursuant to Section 766.18(a) of the Regulations, whereby they agreed to settle this matter in accordance with the terms and conditions set forth therein;

WHEREAS, AMAT admits committing the alleged conduct described in the Proposed Charging Letter; and

WHEREAS, I have approved of the terms of such Settlement Agreement;

IT IS THEREFORE ORDERED:

FIRST, AMAT shall be assessed a civil penalty in the amount of $252,500,300, the payment of which shall be made to the U.S. Department of Commerce within 30 days of the date of this Order. Payment shall be made in the manner specified in the attached instructions.

SECOND, that, pursuant to the Debt Collection Act of 1982, as amended (31 U.S.C. §§ 3701-3720E (2012)), the civil penalty owed under this Order accrues interest as more fully described in the attached Notice, and if payment is not made by the due date specified herein, AMAT will be assessed, in addition to the full amount of the civil penalty and interest, a penalty charge and an administrative charge, as more fully described in the attached Notice.

THIRD, in accordance with the schedule below, AMAT shall complete two (2) internal audits of its export controls compliance program. The audits shall cover AMAT's compliance with U.S. export control laws (including recordkeeping requirements), with

respect to all exports, reexports, or transfers (in country) of semiconductor manufacturing equipment to or within China that are subject to the Regulations. The results of the audits, including any relevant supporting materials, shall be submitted to the Department of Commerce, Bureau of Industry and Security, Office of Export Enforcement, 313 Boston Post Road West, Suite 140, Marlborough, MA 01752, ("BIS Boston Field Office"). The first annual audit shall cover the 12-month period beginning on January 1, 2026, and the related report shall be due to the BIS Boston Field Office no later than July 1, 2027. The second annual audit shall cover the 12-month period beginning on January 1, 2027, and the related report shall be due to the BIS Boston Field Office no later than July 1, 2028. Said audits shall be in substantial compliance with the Export Compliance Program (ECP) sample audit module and shall include an assessment of AMAT's compliance with the Regulations. The ECP sample audit module is available on the BIS web site at https://media.bis.gov/sites/default/files/documents/ECP_0.pdf, page 35. In addition, where said audits identify actual or potential violations of the Regulations, AMAT shall promptly provide copies of the relevant export control documents and supporting documentation to the BIS Boston Field Office. AMAT may voluntarily disclose violations identified through the audits, copying the BIS Boston Field Office.

FOURTH, for a period of three (3) years from the date of this Order, AMAT shall be made subject to a denial of its export privileges under the Regulations ("denial"). As authorized by Section 766.18(c) of the Regulations, such denial shall be suspended during this three-year period and shall thereafter be waived, provided that AMAT has made full and timely payment of the civil penalty in accordance with the paragraphs above and has timely completed and submitted the audits in accordance with the

paragraphs above. If, during the three-year period of this Order, AMAT does not make full and timely payment or has not timely completed and submitted the audits, the suspension may be modified or revoked by BIS and a denial order (including a three-year denial period) activated against AMAT. If the suspension is modified or revoked, the activation order may also revoke any BIS licenses in which AMAT has an interest at the time of the activation order.

FIFTH, should the suspension of the denial be modified or revoked pursuant to Section 766.17(c) of the Regulations, and a denial order (including a three-year denial period) be activated against AMAT, for the duration of such denial order, AMAT, and when acting for or on its behalf, its successors, assigns, representatives, agents, or employees (hereinafter collectively referred to as "Denied Person"), may not, directly or indirectly, participate in any way in any transaction involving any commodity, software or technology (hereinafter collectively referred to as "item") exported or to be exported from the United States that is subject to the Regulations, or in any other activity subject to the Regulations, including, but not limited to:

i. Applying for, obtaining, or using any license, license exception, or export control document;

ii. Carrying on negotiations concerning, or ordering, buying, receiving, using, selling, delivering, storing, disposing of, forwarding, transporting, financing, or otherwise servicing in any way, any transaction involving any item exported or to be exported from the United States that is subject to the Regulations, or engaging in any other activity subject to the Regulations; or

iii. Benefitting in any way from any transaction involving any item exported or to be exported from the United States that is subject to the Regulations, or from any other activity subject to the Regulations.

SIXTH, compliance with the terms of the Settlement Agreement and this Order, including the full and timely payment of the civil penalty, and the timely completion of the audits and submission of the audit results as set forth above, are hereby made conditions to the granting, restoration, or continuing validity of any export license, license exception, permission, or privilege granted, or to be granted, to AMAT.

SEVENTH, should the suspension of the denial be modified or revoked, and a denial order be activated against AMAT, for the duration of the denial order, no person may, directly or indirectly, do any of the following:

i. Export or reexport to or on behalf of the Denied Person any item subject to the Regulations;

ii. Take any action that facilitates the acquisition or attempted acquisition by the Denied Person of the ownership, possession, or control of any item subject to the Regulations that has been or will be exported from the United States, including financing or other support activities related to a transaction whereby the Denied Person acquires or attempts to acquire such ownership, possession or control;

iii. Take any action to acquire from or to facilitate the acquisition or attempted acquisition from the Denied Person of any item subject to the Regulations that has been exported from the United States;

iv. Obtain from the Denied Person in the United States any item subject to the Regulations with knowledge or reason to know that the item will be, or is intended to be, exported from the United States; or

v. Engage in any transaction to service any item subject to the Regulations that has been or will be exported from the United States and which is owned, possessed or controlled by the Denied Person, or service any item, of whatever origin, that is owned, possessed or controlled by the Denied Person if such service involves the use of any item subject to the Regulations that has been or will be exported from the United States. For purposes of this paragraph, servicing means installation, maintenance, repair, modification or testing.

EIGHTH, after notice and opportunity for comment as provided in Section 766.23 of the Regulations, any person, firm, corporation, or business organization related to the Denied Person by ownership, control, position of responsibility, affiliation, or other connection in the conduct of trade or business may also be made subject to the provisions of this Order.

NINTH, AMAT shall continue to provide extensive training on applicable export control requirements, continue to maintain internal and external procedures to notify company management if a party is suspected of export-related non-compliance, and continue to provide an anonymous reporting mechanism (hotline) each as provided in the Settlement Agreement.

TENTH, the Proposed Charging Letter, the Settlement Agreement, and this Order shall be made available to the public.

This Order, which constitutes the final agency action in this matter, is effective immediately.

David A. Peters
Assistant Secretary of Commerce
for Export Enforcement

Issued this 11th day of February, 2026.

UNITED STATES DEPARTMENT OF COMMERCE
BUREAU OF INDUSTRY AND SECURITY
WASHINGTON, D.C. 20230

In the Matter of:

Applied Materials, Inc.
3050 Bowers Avenue | P.O. Box 58039
Santa Clara, CA 95054-3299

Applied Materials Korea
Seongnam-si, Gyeonggi-do 5th FL.
Korea Design Center Bldg. 322,
Yanghyeon-ro, Bundang-gu,
South Korea

Respondents

SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is made by and between Applied Materials, Inc. of Santa Clara, California and Applied Materials Korea, Ltd. of South Korea (individually or collectively, "AMAT"), and the Bureau of Industry and Security, U.S. Department of Commerce ("BIS") (collectively, the "Parties"), pursuant to Section 766.18(a) of the Export Administration Regulations (the "Regulations").[1]

WHEREAS, BIS has notified AMAT of its intentions to initiate an administrative proceeding against AMAT, pursuant to the Regulations;[2]

WHEREAS, BIS has issued a Proposed Charging Letter to AMAT that alleges that AMAT committed 56 violations of the Regulations, specifically:

[1] The Regulations are issued under the authority of the Export Control Reform Act of 2018, Title XVII, Subtitle B of Pub. L. 115-232, 132 Stat. 2208 ("ECRA," 50 U.S.C. §§ 4801–4852).
[2] The EAR are currently codified in the Code of Federal Regulations at 15 C.F.R. Parts 730-774 (2026). The Regulations governing the violations at issue are found in the 2020-2022 versions of the Code of Federal Regulations (15 C.F.R. Parts 730-774 (2020-2022)). The 2026 Regulations set forth the procedures that apply to this matter.

GENERAL ALLEGATIONS

As described in greater detail below and in the attached Schedule of Violations, between November 8, 2020 and July 18, 2022, Applied Materials, Inc., a semiconductor manufacturing equipment company headquartered in Santa Clara, California, engaged in conduct prohibited by the EAR on 56 occasions when it reexported or attempted to cause the reexport from Applied Materials Korea, Ltd. ("AMK") of module systems of ion implanters (hereinafter "ion implanting equipment"), items from the United States, to Semiconductor Manufacturing International Corporation or its subsidiaries that were listed on the BIS Entity List on December 18, 2020 (hereafter collectively referred to as "SMIC").[3] The ion implanting equipment included in the reexports or attempted reexports to SMIC from AMK was valued at approximately $126,250,150, classified under Export Control Classification Number ("ECCN") 3B991, and subject to the EAR.

A. Key Parties: Applied Materials, Inc.

AMAT is a Delaware-incorporated semiconductor manufacturing equipment company with its principal place of business in Santa Clara, California. AMAT is a publicly traded U.S. company that, during the relevant time period, employed roughly 34,000 people, with a production location in Gloucester, Massachusetts, among others. AMAT provides semiconductor and display equipment hardware, software, and services.

AMAT is a leading producer of ion implanters—a critical piece of equipment for integrated circuit manufacturing.[4] AMAT is "the world[']s #1 semiconductor and display equipment company."[5] During fiscal year 2022, AMAT had $25.8 billion in annual revenue, spent approximately $2.8 billion on research and development, and had approximately $110 billion in market capital. AMAT is a world leader in the design, development, production, and distribution of manufacturing equipment for the production of integrated circuits and other semiconductor devices. During the relevant time period, approximately 90% of AMAT's revenue was generated overseas, and AMAT claimed that its "technology is inside every semiconductor and display factory in the world," giving it "broad insight into what is happening in the global technology sectors."

AMAT produces ion implanting equipment at its facility in Gloucester, Massachusetts and typically exports directly to customer sites around the world, where the equipment is combined with other ion implanter components produced in Asia and delivered from Singapore. AMAT has designed, implemented, and maintained an export compliance program tailored to its risk profile and has applied for over 1,100 licenses from BIS. Regarding SMIC and its subsidiaries alone, between 2020 and 2022, AMAT applied for over 100 BIS licenses for shipments of various items.

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[3] As discussed further *infra*, ion implanters consisted of ion implanting equipment that originated from AMAT's Gloucester, Massachusetts facility. The ion implanting equipment, which was subject to the EAR, was reexported from South Korea to SMIC. The ion implanters also included an outer system enclosure and factory interface that were produced in Asia, shipped from Singapore to SMIC, and installed at a SMIC facility in China with the ion implanting equipment that originated from Gloucester.

[4] https://ir.appliedmaterials.com/news-releases/news-release-details/applied-materials-acquire-varian-semiconductor-equipment/.

[5] Unless otherwise noted, quotation marks refer to language in internal AMAT documents produced pursuant to the BIS investigation.

AMAT's ion implanters and the ion implanting equipment of those ion implanters are classified for U. S. export control purposes under ECCN 3B991.

1. **Varian Semiconductor Equipment ("VSE")** is an AMAT subsidiary that operates the Gloucester, Massachusetts plant. AMAT acquired VSE in 2011.[6]

2. **AMK**, located in South Korea, is a subsidiary of AMAT. Prior to 2021, AMK primarily provided refurbishing services for ion implanters from a single facility in Pyeongtaek. Aside from orders placed by and sent to SMIC, the AMK facility is also used for refurbishing ion implanters for other customers.

3. **Global Engineering** is a South-Korean third-party contractor that provided some of the labor required to perform final assembly and testing in South Korea for AMK. Global Engineering has its own facilities in South Korea.

B. Entity List Parties: Semiconductor Manufacturing International Corporation

The Entity List, which is set forth in Supplement No. 4 to Part 744 of the EAR, identifies entities that are subject to additional export, reexport, and transfer restrictions because "there is reasonable cause to believe, based on specific and articulable facts, that the entity . . . has been involved, is involved, or poses a significant risk of being or becoming involved in activities that are contrary to the national security or foreign policy interests of the United States." 15 C.F.R. § 744.11(b).

To export, reexport, or transfer (in-country) items subject to the EAR to entities on the Entity List, a license application must be submitted and granted before the export, reexport, or in-country transfer may occur. 15 C.F.R. § 744.11.

Additionally, 15 C.F.R. § 744.21(b) provides that BIS may inform persons that a license is required for a specific export, reexport, or in-country transfer of any item if there is an unacceptable risk of use in or diversion to "military end use" activities in the People's Republic of China.

1. Semiconductor Manufacturing International Corporation

SMIC is a partially state-owned, publicly traded semiconductor foundry in China. SMIC's shares are listed on stock exchanges in Hong Kong and Shanghai. Its principal place of business and operational headquarters is located at 18 Zhangjiang Road, Pudong New Area, Shanghai, People's Republic of China.

SMIC is China's leading provider of semiconductor foundry services, operating foundries throughout China. SMIC manufactures semiconductors for "fabless" semiconductor companies in China. SMIC provides integrated circuit manufacturing services from 350 nm to 7 nm process technologies.

[6] https://ir.appliedmaterials.com/news-releases/news-release-details/applied-materials-acquire-varian-semiconductor-equipment/.

On September 25, 2020, BIS sent AMAT an "is-informed" letter notifying AMAT that a license was required to export, reexport, or transfer in-country certain items subject to the EAR to SMIC. SMIC was added to the Entity List effective on December 18, 2020, as a result of China's military-civil fusion doctrine and evidence of activities between SMIC and entities of concern in the Chinese military industrial complex.[7] Therefore, since September 25, 2020, a license has been required to export, reexport, or transfer (in-country) certain items subject to the EAR to SMIC, and since December 18, 2020, a license has been required for all items subject to the EAR.

As noted above, on 56 occasions, AMAT violated the EAR by reexporting or attempting to reexport items subject to the EAR to SMIC, a party added to the Entity List in December 2020.

2. SMIC Subsidiaries

The following SMIC subsidiaries were also added to the Entity List at the same time and were subject to the same licensing requirements as SMIC.[8] All of these entities received ion implanters from AMAT after SMIC was added to the Entity List in December 2020:

a) Semiconductor Manufacturing South China Corporation ("SMSC")

b) Semiconductor Manufacturing North China (Beijing) Corporation ("SMNC"), also doing business as: SMIC Northern Integrated Circuit Manufacturing (Beijing) Co., Ltd.

c) Semiconductor Manufacturing International (Tianjin) Corporation ("SMIC-TJ")

d) Semiconductor Manufacturing International (Beijing) Corporation ("SMIC-BJ")

e) Semiconductor Manufacturing International (Shenzhen) Corporation ("SMIC-SZ")

f) Semiconductor Manufacturing International (Shanghai) Corporation ("SMIC-SH")

LEGAL FRAMEWORK

Pursuant to 15 C.F.R. § 764.2(a), "[n]o person may engage in any transaction or take any other action prohibited by or contrary to, or refrain from engaging in any transaction or take any other action required by [The Export Control Reform Act ("ECRA")], the EAR, or any order, license or authorization issued thereunder." Section 764.2(c) prohibits attempts to do so.

The EAR generally prohibit the export, reexport, or in-country transfer of items subject to the EAR to an entity that is on the Entity List without a license. *See* 15 C.F.R. § 744.11. Export means, among other things, "[a]n actual shipment or transmission out of the United States, including the sending or taking of an item out of the United States, in any manner." 15 C.F.R. § 734.13(a)(1). Also, "[t]he export of an item that will transit[9] through a country or countries to a

[7] *See Addition of Entities to the Entity List, Revision of Entry on the Entity List, and Removal of Entities from the Entity List*, 85 Fed. Reg. 83416 (Dec. 22, 2020).
[8] *Id.*
[9] The term "transit" includes the term "transshipped." *See Revisions to Definitions in the Export Administration Regulations*, 81 Fed. Reg. 35586 (June 3, 2016) ("BIS also drops the term 'transshipped,' because the intended meaning of this paragraph is captured by 'transit.'").

destination identified in the EAR is deemed to be an export to that destination." 15 C.F.R. § 734.13(c). Reexport means, among other things, "[a]n actual shipment or transmission of an item subject to the EAR from one foreign country to another foreign country, including the sending or taking of an item to or from such countries in any manner." 15 C.F.R. § 734.14(a)(1).

Specifically, "[a] license is required, to the extent specified on the Entity List, to export, reexport, or transfer (in-country) any item subject to the EAR when an entity that is listed on the Entity List . . . is a party to the transaction . . . ." 15 C.F.R. § 744.11(a). Moreover, BIS may impose a license requirement for exports, reexports, or in-country transfers by providing written notice to persons individually or through amendment to the EAR. 15 C.F.R. §§ 744.11(c) and 744.21(b).

Pursuant to 15 C.F.R. § 734.3(a)(1)-(2), all items physically located in the United States, as well as U.S.-origin items wherever located, are subject to the EAR.

STATEMENT OF CHARGES

Charges 1 – 54 15 C.F.R. § 764.2(a) – Engaging in Prohibited Conduct

1. As described in greater detail below and in the Proposed Charging Letter's Schedule of Violations, between March 23, 2021 and June 3, 2022, AMAT committed 54 violations of the EAR. Between March 23, 2021 and June 3, 2022, AMAT engaged in conduct prohibited by the EAR on 54 occasions when it caused the reexport of ion implanting equipment of 54 ion implanters—U.S.-origin items subject to the EAR—from AMK to SMIC. At all relevant times, SMIC was on the Entity List, and all items subject to the EAR required an export/reexport license pursuant to Section 744.11 of the EAR, which AMAT did not obtain. The ion implanting equipment reexported to SMIC from AMK was valued at approximately $118,450,150, classified under ECCN 3B991, and subject to the EAR.

Charges 55 – 56 15 C.F.R. § 764.2(c) – Attempting to Engage in Prohibited Conduct

1. On or about November 8, 2020, AMAT engaged in conduct prohibited by the EAR when it attempted to cause the reexport of ion implanting equipment of one ion implanter—an item subject to the EAR—to SMIC's subsidiary SMNC from AMK. At the time, SMNC was identified in a September 25, 2020 BIS is-informed letter to AMAT, and items classified under ECCN 3B991 required a BIS license pursuant to Section 744.21 of the EAR, which AMAT did not obtain. The ion implanting equipment was valued at approximately $3,900,000, classified under ECCN 3B991, and subject to the EAR.

2. On or about July 18, 2022, AMAT engaged in conduct prohibited by the EAR when it attempted to cause the reexport of ion implanting equipment of one ion implanter—an item subject to the EAR—to SMIC's subsidiary SMIC-SZ, an entity listed on the BIS Entity List, from AMK. At all relevant times, SMIC-SZ was on the Entity List, and all items subject to the EAR required a BIS license pursuant to Section 744.11 of the EAR, which AMAT did not obtain. The ion implanting equipment was valued at approximately $3,900,000, classified under ECCN 3B991, and subject to the EAR.

BACKGROUND OF CHARGES

1. AMAT's Relationship with SMIC

AMAT has sold semiconductor-related products to SMIC since SMIC was founded in 2000. Between 2016 and 2020, SMIC purchased 180 semiconductor manufacturing tools from AMAT, with a total purchase price of approximately $1.4 billion. All of those semiconductor manufacturing tools were installed at SMIC's semiconductor foundries in China, and many remain in operation to this day. They are used exclusively by SMIC in the manufacture of semiconductors for its customers. Most of the AMAT semiconductor manufacturing tools sold to SMIC during this time period were classified under ECCN 3B991 or designated as EAR99 and were exported by AMAT to SMIC as No License Required ("NLR").

In September 2020, SMIC considered AMAT to be its "most important business partner and ally in the semiconductor industry." AMAT also saw SMIC as a major customer, stating in an internal email that SMIC had a "significant revenue impact across Applied [Materials]" product lines, with AMAT projecting $52 million in VSE sales to SMIC in the fourth quarter of 2020 alone.

AMAT continued to sell and ship semiconductor manufacturing tools to SMIC even after SMIC was added to the Entity List in December 2020. From the time of that Entity Listing through 2023, AMAT requested hundreds of BIS licenses for shipments of various items that AMAT understood were subject to the EAR to SMIC, shipped other items that AMAT understood were not subject to the EAR to SMIC, and continued shipping products to SMIC affiliates that had not been added to the Entity List.

2. Development of the "Dual-Build" Process

Prior to the issuance of the is-informed letter in September 2020, AMAT produced ion implanting equipment at its production plant in Gloucester, Massachusetts, employing a modular design. AMAT produced ion implanting equipment for several models of ion implanters for shipment to SMIC, including the VIISta Trident, VIISta Trident XP, VIISta 900 XP, VIISta 900 XPT, and VIISta HCS Platform.[10] Depending on the model type, the ion implanting equipment of each ion implanter included several modules—including beamline, terminal, universal end station ("UES"), facilities, 55-degree, 70-degree, and 90-degree. Each of these modules was classified under ECCN 3B991 when subject to the EAR, except for the high current facilities module, which was designated EAR99. Although modules were shipped in multiple boxes, the ion implanting equipment was purchased by SMIC, billed to SMIC, and shipped as one complete item. Additionally, the documents affixed to the shipping containers listed SMIC as the customer and China as the destination.

The ion implanters also included an outer system enclosure and factory interface, which provided automation and safety features, without which an ion implanter could not be safely operated. The enclosure and factory interface were produced in Asia, shipped from Singapore to SMIC without entering the United States, and were installed at a SMIC facility in China with the

[10] AMAT makes other ion implanter models—including VIISta PLAD, 3000XP, and 900 3D—that are not at issue in this case. *See Product Library*, Applied Materials, Inc., https://www.appliedmaterials.com/us/en/product-library.html (last visited January 21, 2026).

ion implanting equipment that originally shipped from Gloucester. Because these components were foreign-made and were not subject to the EAR under the *de minimis* or foreign direct product rules, neither the factory interface nor the enclosure were subject to the EAR.

Type of Ion Implanter	**Modules Included**	**Additional Assembly Pieces from Singapore**
VIISta Trident XP (High Current)	UES, 55-Degree, 90-Degree, Facilities	Enclosure, Factory Interface
VIISta Trident (High Current)	UES, 55-Degree, 90-Degree, Facilities	Enclosure, Factory Interface
VIISta 900 XPT (Medium Current)	UES, Terminal, Beamline	Enclosure, Factory Interface
VIISta 900 XP (Medium Current)	UES, Terminal, Beamline	Enclosure, Factory Interface
VIISta HCS (High Current)	UES, 70-Degree, 90-Degree, Facilities	Enclosure, Factory Interface

In spring 2020, AMAT's Global Trade Group began discussing a brand new, "dual-build" process by which AMAT would shift a portion of its Gloucester, Massachusetts production process to South Korea. AMAT was then preparing for the possibility that certain customers, including SMIC, may in the future be subject to military end user restrictions, which would restrict certain of AMAT's exports, reexports, and transfers of certain items subject to the EAR to those customers.

As part of the dual-build process, AMAT would partially produce ion implanting equipment of certain ion implanters at its plant in Gloucester, Massachusetts upon receipt of an order from SMIC, then ship the partially assembled items and all required U.S.-origin and foreign-origin parts and components to South Korea to complete production of the ion implanting equipment, and then ship it from AMK in South Korea to SMIC in China. Several options for this process were discussed, each involving various levels of assembly, testing, and integration to be conducted at AMK, a facility AMAT owned in South Korea that historically was used to refurbish ion implanters.

During the proposed dual-build process, certain ion implanting equipment would be partially produced in Gloucester. All of the remaining U.S.-origin and foreign-origin parts required for completion (including power supplies, controllers, and operating software) would be sourced from AMAT's inventory in Gloucester and then shipped from the United States to AMK pursuant to a SMIC order. Once the U.S.-origin and foreign-origin parts shipped from Gloucester were assembled in South Korea into the modules of the ion implanting equipment that were partially produced in Gloucester, the modules of the ion implanting equipment were tested in South Korea. To complete this testing, AMAT had to invest in test fixtures for AMK to use during the dual-build process. Finally, the ion implanting equipment would be shipped to SMIC where the ion implanting equipment consisting of modules (*i.e.*, beamline, terminal, 90-degree, 55-degree, UES, etc.) required for the specific type of ion implanter (Trident, Trident XP, 900 XP, HCS, or 900 XPT) would be installed with the enclosure and factory interface shipped from Singapore.

On September 21, 2020, AMAT made its last unlicensed export from Gloucester directly to SMIC, thereafter switching to the dual-build process.

3. Issuance of Is-Informed Letter and SMIC's Addition to the Entity List

On September 25, 2020, BIS sent AMAT an is-informed letter, pursuant to Section 744.21(b) of the EAR, notifying AMAT that a license was required to export, reexport, or transfer in-country certain items subject to the EAR—including items classified under ECCN 3B991—to SMIC because of an unacceptable risk of diversion to a military end use in the People's Republic of China. The next day, on September 26, 2020, a VSE Managing Director emphasized that receipt of the is-informed letter accelerated the move to the dual-build process in South Korea and instructed employees that "suffice to say we need to go into hyper drive on [South] Korea."

Following receipt of the "is-informed" letter, AMAT's Global Trade Group advised AMAT's senior executive leadership in a September 25, 2020 email with the subject line, "SMIC Now a Restricted Military End-User," that "[t]he U.S. Department of Commerce informed us today that it now considers SMIC to be a Military End-User under the new Military End-Use rule. Consequently, Applied cannot export, reexport, or conduct in-country transfers of certain U.S. Origin semiconductor [items.]"

On December 18, 2020, SMIC and several of its subsidiaries were added to the Entity List, thereby creating a licensing requirement for all items subject to the EAR exported, reexported, or in-country transferred to SMIC. Accordingly, from October 2020 to June 2022, AMAT sought several licenses from BIS to continue sending ion implanting equipment directly to SMIC from Gloucester. Due to concerns regarding potential loss of business to foreign competitors if BIS licenses were delayed or denied, AMAT also simultaneously expedited its dual-build process in South Korea for shipments to SMIC.[11]

4. Acceleration/Implementation of the Gloucester "Dual-Build" Process

Between September 2020 and March 2021, AMAT expanded the AMK facility and the facility of contract manufacturer Global Engineering to enable a process unique to SMIC. In that "dual-build" process, the ion implanting equipment was partially built in Gloucester, based on an order from SMIC, and then sent to South Korea. Additionally, all of the U.S.-origin and foreign-origin parts and components needed to complete production were sent from Gloucester to AMK. In South Korea, the partially built modules of ion implanting equipment underwent further assembly and testing. The facilities modules of the ion implanting equipment of high current ion implanters did not undergo any modification in South Korea and were kept in storage. Upon completion in South Korea, the ion implanting equipment was sent from AMK to SMIC in China where, as had long been the case, the factory interface and system enclosure from Singapore were installed.

In January 2021, while still waiting on pending BIS export license applications, AMAT's leadership told SMIC's leadership that AMAT would "push [the South] Korea [dual-] build system shipment release A.S.A.P." Both companies were "committed" at the senior executive leadership level to the dual-build plan. AMAT leadership placed a "high priority" internally on the implementation of the dual-build process in South Korea.

[11] AMAT continued to ship ion implanting equipment to all other customers from the Gloucester facility and expanded production capabilities of the Gloucester facility during this time period.

In March 2021, in response to an order from SMIC, AMAT completed its first shipment to SMIC through the dual-build process. In this shipment, three modules of the ion implanting equipment were partially produced in Gloucester, and further assembly and testing was completed at AMK in South Korea.

The details of the dual-build process varied by shipment and over time. However, in each case, U.S.-origin and foreign-origin parts, components, and partially assembled ion implanting equipment were shipped from Gloucester to South Korea for assembly and testing to complete production of the ion implanting equipment, which was then shipped to SMIC. The Office of Export Enforcement's investigation confirmed that all U.S.-origin and foreign-origin parts needed to complete production in South Korea were typically shipped from AMAT's facility in Gloucester, Massachusetts.[12]

5. AMAT's Continued Shipments to SMIC

During this time, AMAT continued to wait on approval of the license applications that it submitted to BIS in late 2020. AMAT was aware that it would lose SMIC's business if the licenses were not approved expeditiously. The potential impact of losing SMIC's business was significant. AMAT considered whether its sales to SMIC might "bleed out" if the BIS licenses were not granted in time to prevent SMIC from changing its supply lines to AMAT's foreign competitors. In January 2021, a VSE Managing Director stated, "[t]he situation is urgent. SMIC has several of our competitors knocking on their door, telling them that they can deliver now."

AMAT faced tremendous pressure to continue to sell ion implanters to SMIC. First, the ion implanters were a "substantial" revenue stream for AMAT—losing that business meant losing $112-150 million in annual revenue, and losing all of SMIC's business meant a total negative economic impact of more than $1 billion per year for AMAT. Second, AMAT was well aware that its foreign competitors could expeditiously produce most of the items that it sold to SMIC. Finally, AMAT recognized that a shift to a substitute supplier would not be merely temporary, it would result in the permanent loss of AMAT jobs from the loss of sales. This was an undesirable situation for AMAT and raised a risk that SMIC would accede to the "pressure to go elsewhere."

Because of AMAT's concerns about losing SMIC's business while awaiting the BIS licenses, AMAT moved forward with the dual-build process at AMK in South Korea. "Concern [was] rising that the MEU license may not materialize or at least continue for an extended delay at [the] same time that SMIC [was] looking to add tools . . . . [SMIC was] feeling pressure to go elsewhere if [AMAT could] not provide tools or a commitment." Accordingly, AMAT instructed its employees to "[m]ove forward with AMK planning as [the] #1 option/priority." SMIC also relied on AMAT to supply ion implanters. During a meeting between the two companies' leadership, SMIC "urged AMAT to ship the Implanter tools ASAP [because they were] the bottle neck for SMNC expansion."

[12] According to AMAT's Counsel, the high-voltage power supply, which is not included in every tool, and an unspecified cable may have been shipped directly to South Korea from the foreign manufacturer or AMAT's parts inventory in South Korea, as may have other minor parts in certain discrete instances.

6. AMAT's Misunderstanding of the EAR

AMAT's Global Trade Group at the time incorrectly concluded that if an item is "substantially transformed" in a foreign country, that was sufficient for the item to qualify as foreign-made for purposes of the EAR and the item therefore would not be subject to the EAR provided that the EAR's *de minimis* and foreign direct product rules also did not apply. The Global Trade Group acknowledged that U.S.-origin MEU-controlled parts "would not be able to ship . . . from any other global location," but incorrectly concluded that the dual-build process described above passed a "substantial transformation" test. AMAT's Global Trade Group focused heavily on labor hours performed in their "substantial transformation" analysis.

Under this policy, AMAT created a checklist for its "substantial transformation" analysis, implemented automated system blocks in its export compliance system on shipments to SMIC, and would manually override the system block in its export compliance system if a shipment met the "substantial transformation" checklist criteria. That shipment would then be released, and the SMIC order would ultimately be fulfilled.

However, despite AMAT's Global Trade Group's incorrect assessment, "substantial transformation" does not appear anywhere in the EAR and is not the correct test for determining whether an item is subject to the EAR because it is an item of U.S. origin.

CONCLUSIONS

Because "substantial transformation" is a concept under the Customs regulations and is nowhere included in the EAR, AMAT's understanding—that it did not require a license for reexports from South Korea to SMIC—was incorrect.

Instead, the correct application of the EAR would have concluded that the ion implanting equipment was of U.S. origin because, based upon receipt of a SMIC order, AMAT began production in the United States, and all U.S.-origin and foreign-origin parts necessary to complete production in South Korea were exported from Gloucester for the sole purpose of producing ion implanting equipment for SMIC.[13] Given these facts, the fact that the ion implanting equipment may have been further assembled and/or tested in South Korea is of no moment; these items were all subject to the EAR at the time they were reexported from South Korea to SMIC in China. The regulatory analysis did not change when, in order to continue selling to a single customer on the Entity List, AMAT established a process that partially moved assembly and testing activities outside the United States for specific items on which production had begun in the United States and that had been ordered by that single customer. Under those circumstances, the EAR's *de minimis* provisions were inapplicable.

Accordingly, AMAT's dual-build process resulted in reexports to SMIC without the required licenses in violation of the EAR. AMAT's understanding that the dual-build process, through

[13] To the extent that AMAT understood that parts and components exported from the United States were incorporated into a foreign-made item in South Korea, that understanding was incorrect because the actions taken in South Korea did not create a foreign-made item.

"substantial transformation" of the items, resulted in foreign-made ion implanting equipment being sent to SMIC, was incorrect.

Instead, even though AMAT completed assembly and testing of the ion implanting equipment in South Korea, the end user for the ion implanting equipment was at all times SMIC and its entity-listed subsidiaries in China. Thus, the equipment as described above was subject to the EAR.[14]

BIS deems that U.S.-origin items or items physically located in the United States on which production begins in the United States are not rendered "foreign-made" when the items are exported and then undergo further assembly and testing in a foreign country when, as here, those activities outside the United States involved little or no foreign-origin parts that were shipped to the foreign location from a non-U.S. location.

Thus, upon completion of production in South Korea, the resulting ion implanting equipment remained a U.S.-origin item subject to the EAR. That the ion implanting equipment may have been tested and partially assembled while in South Korea does not alter this analysis. Because no license was obtained to authorize reexport to SMIC—despite AMAT having received the is-informed letter and SMIC being placed on the Entity List—AMAT's reexport of the ion implanting equipment from South Korea to SMIC was a prohibited reexport under the EAR. *See* 15 C.F.R. § 764.2(a). Accordingly, even though AMAT developed the dual-build process with a misunderstanding of the applicability of "substantial transformation," AMAT's dual-build process resulted in the reexport or attempted reexport of U.S.-origin items from South Korea to SMIC without the required licenses in violation of the EAR. Consequently, AMAT committed 56 violations of the EAR.

OTHER CONSIDERATIONS

AMAT changed its production process after receiving the September 2020 is-informed letter and after SMIC was added to the Entity List in December 2020. AMAT believed that, due to the actions by AMK and Global Engineering, the ion implanting equipment was foreign-made and not subject to the EAR pursuant to the EAR's *de minimis* rules. Those beliefs were mistaken.

To be clear, the violations in this charging letter are based on the reexport of U.S.-origin items subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(2), as described above. *See also* 15 C.F.R. § 732.2(b)-(c) (detailing steps 2-3 of the EAR Scope analysis). The following discussion, addressing why the EAR's *de minimis* provisions were inapplicable to AMAT's activities in this case, is purely informative.[15]

The EAR contemplate and allow for manufacturing processes that involve the incorporation of U.S.-origin controlled content into foreign-made items. Section 734.3(a)(3), Section 734.4, and Supp. No. 2 to Part 734 of the EAR describe the steps exporters are to undertake

[14] *See* 15 C.F.R. §§ 734.13 and 734.14.

[15] As is clear from 15 C.F.R. § 732.2(b)(3), if an exporter is exporting items from a foreign country, they should proceed to Step 3 (§ 732.2(c)). If that item is of U.S. origin, the U.S. exporter should skip to Step 7 in § 732.3(b). Accordingly, AMAT should never have proceeded to Step 4 in § 732.2(d).

in carrying out a *de minimis* analysis to assess whether a foreign-made item is subject to the EAR. This analysis applies only to foreign-made items.

Pursuant to 15 C.F.R. § 734.3(a)(3), foreign-made commodities are subject to the EAR under certain circumstances. This includes foreign-made commodities that incorporate controlled U.S.-origin commodities,[16] but only if the controlled U.S.-origin commodities exceed the applicable *de minimis* levels specified in the EAR. *Id.* In most cases, foreign-made commodities that incorporate more than 25% controlled U.S.-origin content are subject to the EAR. *See* 15 C.F.R. § 734.4(d).

Generally, depending upon the classification of the U.S.-origin controlled commodities and the destination of the foreign-made item,[17] if an item contains less than the specified percentage of controlled U.S.-origin content, it is not subject to the EAR nor to any license requirements that may apply.[18] However, this general rule applies ***if and only if***: 1) the U.S.-origin commodities are not otherwise excluded from eligibility for *de minimis* treatment and 2) incorporation in fact occurs.

The facts described above demonstrate that AMAT's activities did not render the ion implanting equipment a foreign-made item eligible for *de minimis* treatment.

"U.S.-origin controlled content is considered 'incorporated' for *de minimis* purposes if the U.S.-origin controlled item is: Essential to the functioning of the foreign equipment; customarily included in sales of the foreign equipment; and reexported with the foreign produced item." 15 C.F.R. Part 734, Supp. 2, note to paragraph (a)(1). All three of these criteria must be met in order for the EAR's *de minimis* provisions to apply.

As described above, because production began in the United States and all or virtually all parts were exported from the United States, AMAT's activities in South Korea did not create foreign-produced items for the functioning of which U.S.-origin components were essential, nor were there sales of foreign-produced items which customarily included U.S.-origin components, or foreign-produced items with which U.S.-origin components were reexported.

Rather, what occurred in South Korea can be described as the combination of U.S.-origin and non-U.S.-origin content typically sent from the United States and assembled into already partially assembled U.S.-origin items, with little or no content sourced from outside the U.S. with which the U.S.-origin content was incorporated, and so no foreign-made item resulted. Therefore, because no foreign-made equipment existed, there were no grounds to consider whether U.S.-origin controlled content was incorporated into a foreign-made item. Because no foreign-made

[16] Labor costs are not a relevant consideration for purposes of the applicable *de minimis* analysis discussed here, which takes into consideration only controlled U.S.-origin content. Nor would labor costs in any way affect whether an item is subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(1)-(2), as these provisions are based solely on an item's location or country of origin.

[17] There are some exceptions to this general framework. *Compare* 22 C.F.R. § 120.11(c) (defense articles remain subject to the International Traffic in Arms Regulations following incorporation or integration into any item not described on the U.S. Munitions List, unless specifically provided otherwise), *with* 15 C.F.R. § 734.4(a) (EAR specify that only certain items are ineligible for *de minimis* treatment).

[18] As noted above, this rule does not apply to items that are already subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(1)-(2).

item was created in South Korea, no incorporation of U.S.-origin controlled content into a foreign-made item occurred. Accordingly, such controlled content was not eligible for *de minimis* treatment. *See* 15 C.F.R. Part 734, Supp. 2, note to paragraph (a)(1). Therefore, there is no need to perform any step of the incorporation analysis detailed above.

WHEREAS, AMAT has reviewed, with the assistance of counsel, the terms of this Agreement, the Proposed Charging Letter and is aware of the allegations made against it and the administrative sanctions that could be imposed against it;

WHEREAS, AMAT fully understands the terms of this Agreement and the Order ("Order") that the Assistant Secretary of Commerce for Export Enforcement will issue if he approves this Agreement as the final resolution of this matter;

WHEREAS, AMAT enters into this Agreement voluntarily and with full knowledge of its rights, after having consulted with counsel;

WHEREAS, AMAT states that no promises or representations have been made to it other than the agreements and considerations herein expressed;

WHEREAS, AMAT admits committing the alleged conduct described in the Proposed Charging Letter; and

WHEREAS, AMAT agrees to be bound by the Order, if issued;

NOW THEREFORE, the Parties hereby agree, for purposes of this Settlement Agreement, as follows:

1. BIS has jurisdiction over AMAT, under the Regulations, in connection with the matters alleged in the Proposed Charging Letter.

2. The following sanctions shall be imposed against AMAT:

a. AMAT shall be assessed a civil penalty in the amount of $252,500,300, the payment of which shall be made to the U.S. Department of Commerce within 30 days of the date of the Order. Payment shall be made in the

manner specified in the attached instructions.

Pursuant to the Debt Collection Act of 1982, as amended (31 U.S.C. §§ 3701-3720E (2012)), the civil penalty owed under the Order, if issued, accrues interest as more fully described in the attached Notice, and if payment is not made by the due date specified herein, Respondent will be assessed, in addition to the full amount of the civil penalty and interest, a penalty charge and an administrative charge, as more fully described in the attached Notice.

b. In accordance with the schedule below, AMAT shall complete two (2) internal audits of its export controls compliance program. The audits shall cover AMAT's compliance with U.S. export control laws (including recordkeeping requirements), with respect to exports, reexports, or transfers (in country) of semiconductor manufacturing equipment to or within China that are subject to the Regulations. The results of the audits, including any relevant supporting materials, shall be submitted to the Department of Commerce, Bureau of Industry and Security, Office of Export Enforcement, 313 Boston Post Road West, Suite 140, Marlborough, MA 01752, ("BIS Boston Field Office"). The first annual audit shall cover the 12-month period beginning on January 1, 2026, and the related report shall be due to the BIS Boston Field Office no later than July 1, 2027. The second annual audit shall cover the 12-month period beginning on January 1, 2027, and the related report shall be due to the BIS Boston Field Office no later than July 1, 2028. Said audits shall be in substantial compliance with the Export Compliance Program (ECP) sample audit module and shall include an assessment of AMAT's compliance with the Regulations. The ECP sample audit module is available on the BIS web site at https://media.bis.gov/sites/default/files/documents/ECP_0.pdf, page 35. In addition,

where said audits identify actual or potential violations of the Regulations, AMAT shall promptly provide copies of the relevant export control documents and supporting documentation to the BIS Boston Field Office. AMAT may voluntarily disclose violations identified through the audits, copying the BIS Boston Field Office.

c. For a period of three (3) years from the date of the Order, AMAT shall be made subject to a denial of its export privileges under the Regulations ("denial"). As authorized by Section 766.18(c) of the Regulations, such denial shall be suspended during this three-year period and shall thereafter be waived, provided that AMAT has made full and timely payment in accordance with Paragraph 2.a above and has timely completed and submitted the audits in Paragraph 2.b. If, during the three-year period of the Order, AMAT does not make full and timely payment or has not timely completed and submitted the audits, the suspension may be modified or revoked by BIS and a denial order (including a three-year denial period) activated against AMAT. If the suspension is modified or revoked, the activation order may also revoke any BIS licenses in which AMAT has an interest at the time of the activation order.

Should the suspension of the denial be modified or revoked pursuant to Section 766.17(c) of the Regulations, and a denial order (including a three-year denial period) be activated against AMAT, for the duration of such denial order, AMAT, and when acting for or on its behalf, its successors, assigns, representatives, agents, or employees (hereinafter collectively referred to as "Denied Person"), may not, directly or indirectly, participate in any way in any transaction involving any commodity, software or technology (hereinafter collectively referred to as "item") exported or to be exported from the United States that is subject to the Regulations, or in any other

activity subject to the Regulations, including, but not limited to:

i. Applying for, obtaining, or using any license, license exception, or export control document;

ii. Carrying on negotiations concerning, or ordering, buying, receiving, using, selling, delivering, storing, disposing of, forwarding, transporting, financing, or otherwise servicing in any way, any transaction involving any item exported or to be exported from the United States that is subject to the Regulations, or engaging in any other activity subject to the Regulations; or

iii. Benefitting in any way from any transaction involving any item exported or to be exported from the United States that is subject to the Regulations, or from any other activity subject to the Regulations.

d. Compliance with the terms of this Agreement and the Order, including the full and timely payment of the civil penalty agreed to in Paragraph 2.a, above, and the timely completion of the audits and submission of the audit results in Paragraph 2.b, are hereby made conditions to the granting, restoration, or continuing validity of any export license, license exception, permission, or privilege granted, or to be granted, to AMAT.

e. AMAT shall continue to provide extensive training on applicable export control requirements to (a) its leadership, management, and employees, and (b) the leadership, management and employees of its subsidiaries, affiliates, and other entities worldwide over which it has ownership or control. Within twelve (12) months from the date of the Order, if issued, AMAT shall certify that it has continued to provide such training, including by providing a list of participating functions and any training materials

used to the Boston Field Office.

f. AMAT shall continue to maintain internal and external procedures to notify company management if a party is suspected of export-related non-compliance. AMAT shall continue to provide an anonymous reporting mechanism (hotline) for employees available worldwide by phone and email in the English language.

4. Subject to the approval of this Agreement pursuant to Paragraph 8 hereof, AMAT hereby waives all rights to further procedural steps in this matter, including, without limitation, any right to: (a) an administrative hearing regarding the allegations in any charging letter; (b) request a refund of any civil penalty paid pursuant to this Agreement and the Order, if issued; and (c) seek judicial review or otherwise contest the validity of this Agreement or the Order, if issued. AMAT also waives and will not assert any Statute of Limitations defense, and the Statute of Limitations will be tolled, in connection with any violation of the Act or the Regulations arising out of the transactions identified in the Proposed Charging Letter or in connection with collection of the civil penalty or enforcement of this Agreement and the Order, if issued, from the date of the Order until the later of the date AMAT pays in full the civil penalty agreed to in Paragraph 2.a of this Agreement, has completed the audits and submitted the audit results in Paragraph 2.b, or the three-year suspension period under the Order has successfully run.

5. BIS agrees that, while AMAT is in compliance with and upon successful compliance in full with the terms of this Agreement and the Order, if issued, BIS will not initiate any further administrative proceeding against AMAT in connection with any violation of the Regulations arising out of the transactions investigated by BIS in BIS Case Number EE/01755997/21, including those specifically detailed in the Proposed Charging Letter.

6. This Agreement is for settlement purposes only. Therefore, if this Agreement is not accepted and the Order is not issued by the Assistant Secretary of Commerce for Export Enforcement pursuant to Section 766.18(a) of the Regulations, no Party may use this Agreement in any administrative or judicial proceeding and the Parties shall not be bound by the terms contained in this Agreement in any subsequent administrative or judicial proceeding.

7. This Agreement constitutes and contains the entire agreement and understanding among the parties, and the terms of this Agreement, or the Order, if issued, may not be varied or otherwise altered or affected by any agreement, understanding, representation, or interpretation not contained in this Agreement; nor shall this Agreement serve to bind, constrain, or otherwise limit any action by any other agency or department of the U.S. Government with respect to the facts and circumstances addressed herein.

8. This Agreement shall become binding on the Parties only if the Assistant Secretary of Commerce for Export Enforcement approves it by issuing the Order, which will have the same force and effect as a decision and order issued after a full administrative hearing on the record.

9. BIS will make the Proposed Charging Letter, this Agreement, and the Order, if issued, available to the public.

10. Each signatory affirms that they have authority to enter into this Settlement Agreement and to bind their respective party to the terms and conditions set forth herein.

11. If any provision of this Settlement Agreement is found to be unlawful, only the specific provision in question shall be affected and the other provisions shall remain in full force and effect.

BUREAU OF INDUSTRY AND SECURITY
U.S. DEPARTMENT OF COMMERCE

John Sonderman
Principal Deputy Assistant Secretary of Commerce for Export Enforcement

Date: 2/11/26

APPLIED MATERIALS, INC.
APPLIED MATERIALS KOREA

Teri Little, Esq.
Senior Vice President, Chief Legal Officer and Corporate Secretary

Date: 2-11-26

Reviewed and approved by:

Steven E. Fagell, Esq.
Eric Sandberg-Zakian, Esq.

Covington & Burling LLP

Date: 2/11/26

PROPOSED CHARGING LETTER

U.S. CERTIFIED MAIL- RETURN RECEIPT REQUESTED

Applied Materials, Inc.
Attention: Gary Dickerson
3050 Bowers Avenue | P.O. Box 58039
Santa Clara, CA 95054-3299

Applied Materials Korea
Seongnam-si, Gyeonggi-do 5th FL.
Korea Design Center Bldg. 322,
Yanghyeon-ro, Bundang-gu,
South Korea

Dear Mr. Dickerson,

The Bureau of Industry and Security, U.S. Department of Commerce ("BIS"), has reason to believe that Applied Materials, Inc. of Santa Clara, California and Applied Materials Korea, Ltd. of South Korea (individually or collectively, "AMAT"), have committed 56 violations of the Export Administration Regulations (the "Regulations" or "EAR"). Specifically, BIS alleges and charges the following:[1]

GENERAL ALLEGATIONS

As described in greater detail below and in the attached Schedule of Violations, between November 8, 2020 and July 18, 2022, Applied Materials, Inc., a semiconductor manufacturing equipment company headquartered in Santa Clara, California, engaged in conduct prohibited by the EAR on 56 occasions when it reexported or attempted to cause the reexport from Applied Materials Korea, Ltd. ("AMK") of module systems of ion implanters (hereinafter "ion implanting equipment"), items from the United States, to Semiconductor Manufacturing International Corporation or its subsidiaries that were listed on the BIS Entity List on December 18, 2020 (hereafter collectively referred to as "SMIC").[2] The ion implanting equipment included in the reexports or attempted reexports

[1] The EAR are currently codified in the Code of Federal Regulations at 15 C.F.R. Parts 730-774 (2026). The Regulations governing the violations at issue are found in the 2020-2022 versions of the Code of Federal Regulations (15 C.F.R. Parts 730-774 (2020-2022)). The 2026 Regulations set forth the procedures that apply to this matter.

[2] As discussed further *infra*, ion implanters consisted of ion implanting equipment that originated from AMAT's Gloucester, Massachusetts facility. The ion implanting equipment, which was subject to the EAR, was reexported from South Korea to SMIC. The ion implanters also included an outer system enclosure and factory interface that were produced in Asia, shipped from Singapore to SMIC, and installed at a SMIC facility in China with the ion implanting equipment that originated from Gloucester.

to SMIC from AMK was valued at approximately $126,250,150, classified under Export Control Classification Number ("ECCN") 3B991, and subject to the EAR.

A. Key Parties: Applied Materials, Inc.

AMAT is a Delaware-incorporated semiconductor manufacturing equipment company with its principal place of business in Santa Clara, California. AMAT is a publicly traded U.S. company that, during the relevant time period, employed roughly 34,000 people, with a production location in Gloucester, Massachusetts, among others. AMAT provides semiconductor and display equipment hardware, software, and services.

AMAT is a leading producer of ion implanters—a critical piece of equipment for integrated circuit manufacturing.[3] AMAT is "the world[']s #1 semiconductor and display equipment company."[4] During fiscal year 2022, AMAT had $25.8 billion in annual revenue, spent approximately $2.8 billion on research and development, and had approximately $110 billion in market capital. AMAT is a world leader in the design, development, production, and distribution of manufacturing equipment for the production of integrated circuits and other semiconductor devices. During the relevant time period, approximately 90% of AMAT's revenue was generated overseas, and AMAT claimed that its "technology is inside every semiconductor and display factory in the world," giving it "broad insight into what is happening in the global technology sectors."

AMAT produces ion implanting equipment at its facility in Gloucester, Massachusetts and typically exports directly to customer sites around the world, where the equipment is combined with other ion implanter components produced in Asia and delivered from Singapore. AMAT has designed, implemented, and maintained an export compliance program tailored to its risk profile and has applied for over 1,100 licenses from BIS. Regarding SMIC and its subsidiaries alone, between 2020 and 2022, AMAT applied for over 100 BIS licenses for shipments of various items. AMAT's ion implanters and the ion implanting equipment of those ion implanters are classified for U. S. export control purposes under ECCN 3B991.

1. **Varian Semiconductor Equipment ("VSE")** is an AMAT subsidiary that operates the Gloucester, Massachusetts plant. AMAT acquired VSE in 2011.[5]

2. **AMK**, located in South Korea, is a subsidiary of AMAT. Prior to 2021, AMK primarily provided refurbishing services for ion implanters from a single facility in Pyeongtaek. Aside from orders placed by and sent to SMIC, the AMK facility is also used for refurbishing ion implanters for other customers.

[3] https://ir.appliedmaterials.com/news-releases/news-release-details/applied-materials-acquire-varian-semiconductor-equipment/.

[4] Unless otherwise noted, quotation marks refer to language in internal AMAT documents produced pursuant to the BIS investigation.

[5] https://ir.appliedmaterials.com/news-releases/news-release-details/applied-materials-acquire-varian-semiconductor-equipment/.

3. **Global Engineering** is a South-Korean third-party contractor that provided some of the labor required to perform final assembly and testing in South Korea for AMK. Global Engineering has its own facilities in South Korea.

B. Entity List Parties: Semiconductor Manufacturing International Corporation

The Entity List, which is set forth in Supplement No. 4 to Part 744 of the EAR, identifies entities that are subject to additional export, reexport, and transfer restrictions because "there is reasonable cause to believe, based on specific and articulable facts, that the entity . . . has been involved, is involved, or poses a significant risk of being or becoming involved in activities that are contrary to the national security or foreign policy interests of the United States." 15 C.F.R. § 744.11(b).

To export, reexport, or transfer (in-country) items subject to the EAR to entities on the Entity List, a license application must be submitted and granted before the export, reexport, or in-country transfer may occur. 15 C.F.R. § 744.11.

Additionally, 15 C.F.R. § 744.21(b) provides that BIS may inform persons that a license is required for a specific export, reexport, or in-country transfer of any item if there is an unacceptable risk of use in or diversion to "military end use" activities in the People's Republic of China.

1. Semiconductor Manufacturing International Corporation

SMIC is a partially state-owned, publicly traded semiconductor foundry in China. SMIC's shares are listed on stock exchanges in Hong Kong and Shanghai. Its principal place of business and operational headquarters is located at 18 Zhangjiang Road, Pudong New Area, Shanghai, People's Republic of China.

SMIC is China's leading provider of semiconductor foundry services, operating foundries throughout China. SMIC manufactures semiconductors for "fabless" semiconductor companies in China. SMIC provides integrated circuit manufacturing services from 350 nm to 7 nm process technologies.

On September 25, 2020, BIS sent AMAT an "is-informed" letter notifying AMAT that a license was required to export, reexport, or transfer in-country certain items subject to the EAR to SMIC. SMIC was added to the Entity List effective on December 18, 2020, as a result of China's military-civil fusion doctrine and evidence of activities between SMIC and entities of concern in the Chinese military industrial complex.[6] Therefore, since September 25, 2020, a license has been required to export, reexport, or transfer (in-country) certain items subject to the EAR to SMIC, and since December 18, 2020, a license has been required for all items subject to the EAR.

[6] *See Addition of Entities to the Entity List, Revision of Entry on the Entity List, and Removal of Entities from the Entity List*, 85 Fed. Reg. 83416 (Dec. 22, 2020).

As noted above, on 56 occasions, AMAT violated the EAR by reexporting or attempting to reexport items subject to the EAR to SMIC, a party added to the Entity List in December 2020.

2. SMIC Subsidiaries

The following SMIC subsidiaries were also added to the Entity List at the same time and were subject to the same licensing requirements as SMIC.[7] All of these entities received ion implanters from AMAT after SMIC was added to the Entity List in December 2020:

a) Semiconductor Manufacturing South China Corporation ("SMSC")

b) Semiconductor Manufacturing North China (Beijing) Corporation ("SMNC"), also doing business as: SMIC Northern Integrated Circuit Manufacturing (Beijing) Co., Ltd.

c) Semiconductor Manufacturing International (Tianjin) Corporation ("SMIC-TJ")

d) Semiconductor Manufacturing International (Beijing) Corporation ("SMIC-BJ")

e) Semiconductor Manufacturing International (Shenzhen) Corporation ("SMIC-SZ")

f) Semiconductor Manufacturing International (Shanghai) Corporation ("SMIC-SH")

LEGAL FRAMEWORK

Pursuant to 15 C.F.R. § 764.2(a), "[n]o person may engage in any transaction or take any other action prohibited by or contrary to, or refrain from engaging in any transaction or take any other action required by [The Export Control Reform Act ("ECRA")], the EAR, or any order, license or authorization issued thereunder." Section 764.2(c) prohibits attempts to do so.

The EAR generally prohibit the export, reexport, or in-country transfer of items subject to the EAR to an entity that is on the Entity List without a license. *See* 15 C.F.R. § 744.11. Export means, among other things, "[a]n actual shipment or transmission out of the United States, including the sending or taking of an item out of the United States, in any manner." 15 C.F.R. § 734.13(a)(1). Also, "[t]he export of an item that will transit[8] through a country or countries to a destination identified in the EAR is deemed to be an export to that destination." 15 C.F.R. § 734.13(c). Reexport means, among other things, "[a]n actual shipment or transmission of an item subject to the EAR from one foreign

[7] *Id.*

[8] The term "transit" includes the term "transshipped." *See Revisions to Definitions in the Export Administration Regulations*, 81 Fed. Reg. 35586 (June 3, 2016) ("BIS also drops the term 'transshipped,' because the intended meaning of this paragraph is captured by 'transit.'").

country to another foreign country, including the sending or taking of an item to or from such countries in any manner." 15 C.F.R. § 734.14(a)(1).

Specifically, "[a] license is required, to the extent specified on the Entity List, to export, reexport, or transfer (in-country) any item subject to the EAR when an entity that is listed on the Entity List . . . is a party to the transaction . . . ." 15 C.F.R. § 744.11(a). Moreover, BIS may impose a license requirement for exports, reexports, or in-country transfers by providing written notice to persons individually or through amendment to the EAR. 15 C.F.R. §§ 744.11(c) and 744.21(b).

Pursuant to 15 C.F.R. § 734.3(a)(1)-(2), all items physically located in the United States, as well as U.S.-origin items wherever located, are subject to the EAR.

STATEMENT OF CHARGES

Charges 1 – 54 15 C.F.R. § 764.2(a) – Engaging in Prohibited Conduct

1. As described in greater detail below and in the Proposed Charging Letter's Schedule of Violations, between March 23, 2021 and June 3, 2022, AMAT committed 54 violations of the EAR. Between March 23, 2021 and June 3, 2022, AMAT engaged in conduct prohibited by the EAR on 54 occasions when it caused the reexport of ion implanting equipment of 54 ion implanters—U.S.-origin items subject to the EAR—from AMK to SMIC. At all relevant times, SMIC was on the Entity List, and all items subject to the EAR required an export/reexport license pursuant to Section 744.11 of the EAR, which AMAT did not obtain. The ion implanting equipment reexported to SMIC from AMK was valued at approximately $118,450,150, classified under ECCN 3B991, and subject to the EAR.

Charges 55 – 56 15 C.F.R. § 764.2(c) – Attempting to Engage in Prohibited Conduct

1. On or about November 8, 2020, AMAT engaged in conduct prohibited by the EAR when it attempted to cause the reexport of ion implanting equipment of one ion implanter—an item subject to the EAR—to SMIC's subsidiary SMNC from AMK. At the time, SMNC was identified in a September 25, 2020 BIS is-informed letter to AMAT, and items classified under ECCN 3B991 required a BIS license pursuant to Section 744.21 of the EAR, which AMAT did not obtain. The ion implanting equipment was valued at approximately $3,900,000, classified under ECCN 3B991, and subject to the EAR.

2. On or about July 18, 2022, AMAT engaged in conduct prohibited by the EAR when it attempted to cause the reexport of ion implanting equipment of one ion implanter—an item subject to the EAR—to SMIC's subsidiary SMIC-SZ, an entity listed on the BIS Entity List, from AMK. At all relevant times, SMIC-SZ was on the Entity List, and all items subject to the EAR required a BIS license pursuant to Section 744.11 of the EAR, which AMAT did not obtain. The ion

implanting equipment was valued at approximately $3,900,000, classified under ECCN 3B991, and subject to the EAR.

BACKGROUND OF CHARGES

1. AMAT's Relationship with SMIC

AMAT has sold semiconductor-related products to SMIC since SMIC was founded in 2000. Between 2016 and 2020, SMIC purchased 180 semiconductor manufacturing tools from AMAT, with a total purchase price of approximately $1.4 billion. All of those semiconductor manufacturing tools were installed at SMIC's semiconductor foundries in China, and many remain in operation to this day. They are used exclusively by SMIC in the manufacture of semiconductors for its customers. Most of the AMAT semiconductor manufacturing tools sold to SMIC during this time period were classified under ECCN 3B991 or designated as EAR99 and were exported by AMAT to SMIC as No License Required ("NLR").

In September 2020, SMIC considered AMAT to be its "most important business partner and ally in the semiconductor industry." AMAT also saw SMIC as a major customer, stating in an internal email that SMIC had a "significant revenue impact across Applied [Materials]" product lines, with AMAT projecting $52 million in VSE sales to SMIC in the fourth quarter of 2020 alone.

AMAT continued to sell and ship semiconductor manufacturing tools to SMIC even after SMIC was added to the Entity List in December 2020. From the time of that Entity Listing through 2023, AMAT requested hundreds of BIS licenses for shipments of various items that AMAT understood were subject to the EAR to SMIC, shipped other items that AMAT understood were not subject to the EAR to SMIC, and continued shipping products to SMIC affiliates that had not been added to the Entity List.

2. Development of the "Dual-Build" Process

Prior to the issuance of the is-informed letter in September 2020, AMAT produced ion implanting equipment at its production plant in Gloucester, Massachusetts, employing a modular design. AMAT produced ion implanting equipment for several models of ion implanters for shipment to SMIC, including the VIISta Trident, VIISta Trident XP, VIISta 900 XP, VIISta 900 XPT, and VIISta HCS Platform.[9] Depending on the model type, the ion implanting equipment of each ion implanter included several modules—including beamline, terminal, universal end station ("UES"), facilities, 55-degree, 70-degree, and 90-degree. Each of these modules was classified under ECCN 3B991 when subject to the EAR, except for the high current facilities module, which was designated EAR99. Although modules were shipped in multiple boxes, the ion implanting equipment was

[9] AMAT makes other ion implanter models—including VIISta PLAD, 3000XP, and 900 3D—that are not at issue in this case. *See Product Library*, Applied Materials, Inc., https://www.appliedmaterials.com/us/en/product-library.html (last visited January 21, 2026).

purchased by SMIC, billed to SMIC, and shipped as one complete item. Additionally, the documents affixed to the shipping containers listed SMIC as the customer and China as the destination.

The ion implanters also included an outer system enclosure and factory interface, which provided automation and safety features, without which an ion implanter could not be safely operated. The enclosure and factory interface were produced in Asia, shipped from Singapore to SMIC without entering the United States, and were installed at a SMIC facility in China with the ion implanting equipment that originally shipped from Gloucester. Because these components were foreign-made and were not subject to the EAR under the *de minimis* or foreign direct product rules, neither the factory interface nor the enclosure were subject to the EAR.

Type of Ion Implanter	**Modules Included**	**Additional Assembly Pieces from Singapore**
VIISta Trident XP (High Current)	UES, 55-Degree, 90-Degree, Facilities	Enclosure, Factory Interface
VIISta Trident (High Current)	UES, 55-Degree, 90-Degree, Facilities	Enclosure, Factory Interface
VIISta 900 XPT (Medium Current)	UES, Terminal, Beamline	Enclosure, Factory Interface
VIISta 900 XP (Medium Current)	UES, Terminal, Beamline	Enclosure, Factory Interface
VIISta HCS (High Current)	UES, 70-Degree, 90-Degree, Facilities	Enclosure, Factory Interface

In spring 2020, AMAT's Global Trade Group began discussing a brand new, "dual-build" process by which AMAT would shift a portion of its Gloucester, Massachusetts production process to South Korea. AMAT was then preparing for the possibility that certain customers, including SMIC, may in the future be subject to military end user restrictions, which would restrict certain of AMAT's exports, reexports, and transfers of certain items subject to the EAR to those customers.

As part of the dual-build process, AMAT would partially produce ion implanting equipment of certain ion implanters at its plant in Gloucester, Massachusetts upon receipt of an order from SMIC, then ship the partially assembled items and all required U.S.-origin and foreign-origin parts and components to South Korea to complete production of the ion implanting equipment, and then ship it from AMK in South Korea to SMIC in China. Several options for this process were discussed, each involving various levels of assembly, testing, and integration to be conducted at AMK, a facility AMAT owned in South Korea that historically was used to refurbish ion implanters.

During the proposed dual-build process, certain ion implanting equipment would be partially produced in Gloucester. All of the remaining U.S.-origin and foreign-origin parts required for completion (including power supplies, controllers, and operating software) would be sourced from AMAT's inventory in Gloucester and then shipped from the United States to AMK pursuant to a SMIC order. Once the U.S.-origin and foreign-

origin parts shipped from Gloucester were assembled in South Korea into the modules of the ion implanting equipment that were partially produced in Gloucester, the modules of the ion implanting equipment were tested in South Korea. To complete this testing, AMAT had to invest in test fixtures for AMK to use during the dual-build process. Finally, the ion implanting equipment would be shipped to SMIC where the ion implanting equipment consisting of modules (*i.e.*, beamline, terminal, 90-degree, 55-degree, UES, etc.) required for the specific type of ion implanter (Trident, Trident XP, 900 XP, HCS, or 900 XPT) would be installed with the enclosure and factory interface shipped from Singapore.

On September 21, 2020, AMAT made its last unlicensed export from Gloucester directly to SMIC, thereafter switching to the dual-build process.

3. Issuance of Is-Informed Letter and SMIC's Addition to the Entity List

On September 25, 2020, BIS sent AMAT an is-informed letter, pursuant to Section 744.21(b) of the EAR, notifying AMAT that a license was required to export, reexport, or transfer in-country certain items subject to the EAR—including items classified under ECCN 3B991—to SMIC because of an unacceptable risk of diversion to a military end use in the People's Republic of China. The next day, on September 26, 2020, a VSE Managing Director emphasized that receipt of the is-informed letter accelerated the move to the dual-build process in South Korea and instructed employees that "suffice to say we need to go into hyper drive on [South] Korea."

Following receipt of the "is-informed" letter, AMAT's Global Trade Group advised AMAT's senior executive leadership in a September 25, 2020 email with the subject line, "SMIC Now a Restricted Military End-User," that "[t]he U.S. Department of Commerce informed us today that it now considers SMIC to be a Military End-User under the new Military End-Use rule. Consequently, Applied cannot export, reexport, or conduct in-country transfers of certain U.S. Origin semiconductor [items.]"

On December 18, 2020, SMIC and several of its subsidiaries were added to the Entity List, thereby creating a licensing requirement for all items subject to the EAR exported, reexported, or in-country transferred to SMIC. Accordingly, from October 2020 to June 2022, AMAT sought several licenses from BIS to continue sending ion implanting equipment directly to SMIC from Gloucester. Due to concerns regarding potential loss of business to foreign competitors if BIS licenses were delayed or denied, AMAT also simultaneously expedited its dual-build process in South Korea for shipments to SMIC.[10]

4. Acceleration/Implementation of the Gloucester "Dual-Build" Process

Between September 2020 and March 2021, AMAT expanded the AMK facility and the facility of contract manufacturer Global Engineering to enable a process unique to SMIC. In that "dual-build" process, the ion implanting equipment was partially built in

[10] AMAT continued to ship ion implanting equipment to all other customers from the Gloucester facility and expanded production capabilities of the Gloucester facility during this time period.

Gloucester, based on an order from SMIC, and then sent to South Korea. Additionally, all of the U.S.-origin and foreign-origin parts and components needed to complete production were sent from Gloucester to AMK. In South Korea, the partially built modules of ion implanting equipment underwent further assembly and testing. The facilities modules of the ion implanting equipment of high current ion implanters did not undergo any modification in South Korea and were kept in storage. Upon completion in South Korea, the ion implanting equipment was sent from AMK to SMIC in China where, as had long been the case, the factory interface and system enclosure from Singapore were installed.

In January 2021, while still waiting on pending BIS export license applications, AMAT's leadership told SMIC's leadership that AMAT would "push [the South] Korea [dual-] build system shipment release A.S.A.P." Both companies were "committed" at the senior executive leadership level to the dual-build plan. AMAT leadership placed a "high priority" internally on the implementation of the dual-build process in South Korea.

In March 2021, in response to an order from SMIC, AMAT completed its first shipment to SMIC through the dual-build process. In this shipment, three modules of the ion implanting equipment were partially produced in Gloucester, and further assembly and testing was completed at AMK in South Korea.

The details of the dual-build process varied by shipment and over time. However, in each case, U.S.-origin and foreign-origin parts, components, and partially assembled ion implanting equipment were shipped from Gloucester to South Korea for assembly and testing to complete production of the ion implanting equipment, which was then shipped to SMIC. The Office of Export Enforcement's investigation confirmed that all U.S.-origin and foreign-origin parts needed to complete production in South Korea were typically shipped from AMAT's facility in Gloucester, Massachusetts.[11]

5. AMAT's Continued Shipments to SMIC

During this time, AMAT continued to wait on approval of the license applications that it submitted to BIS in late 2020. AMAT was aware that it would lose SMIC's business if the licenses were not approved expeditiously. The potential impact of losing SMIC's business was significant. AMAT considered whether its sales to SMIC might "bleed out" if the BIS licenses were not granted in time to prevent SMIC from changing its supply lines to AMAT's foreign competitors. In January 2021, a VSE Managing Director stated, "[t]he situation is urgent. SMIC has several of our competitors knocking on their door, telling them that they can deliver now."

AMAT faced tremendous pressure to continue to sell ion implanters to SMIC. First, the ion implanters were a "substantial" revenue stream for AMAT—losing that business meant losing $112-150 million in annual revenue, and losing all of SMIC's business meant

[11] According to AMAT's Counsel, the high-voltage power supply, which is not included in every tool, and an unspecified cable may have been shipped directly to South Korea from the foreign manufacturer or AMAT's parts inventory in South Korea, as may have other minor parts in certain discrete instances.

a total negative economic impact of more than $1 billion per year for AMAT. Second, AMAT was well aware that its foreign competitors could expeditiously produce most of the items that it sold to SMIC. Finally, AMAT recognized that a shift to a substitute supplier would not be merely temporary, it would result in the permanent loss of AMAT jobs from the loss of sales. This was an undesirable situation for AMAT and raised a risk that SMIC would accede to the "pressure to go elsewhere."

Because of AMAT's concerns about losing SMIC's business while awaiting the BIS licenses, AMAT moved forward with the dual-build process at AMK in South Korea. "Concern [was] rising that the MEU license may not materialize or at least continue for an extended delay at [the] same time that SMIC [was] looking to add tools . . . . [SMIC was] feeling pressure to go elsewhere if [AMAT could] not provide tools or a commitment." Accordingly, AMAT instructed its employees to "[m]ove forward with AMK planning as [the] #1 option/priority." SMIC also relied on AMAT to supply ion implanters. During a meeting between the two companies' leadership, SMIC "urged AMAT to ship the Implanter tools ASAP [because they were] the bottle neck for SMNC expansion."

6. AMAT's Misunderstanding of the EAR

AMAT's Global Trade Group at the time incorrectly concluded that if an item is "substantially transformed" in a foreign country, that was sufficient for the item to qualify as foreign-made for purposes of the EAR and the item therefore would not be subject to the EAR provided that the EAR's *de minimis* and foreign direct product rules also did not apply. The Global Trade Group acknowledged that U.S.-origin MEU-controlled parts "would not be able to ship . . . from any other global location," but incorrectly concluded that the dual-build process described above passed a "substantial transformation" test. AMAT's Global Trade Group focused heavily on labor hours performed in their "substantial transformation" analysis.

Under this policy, AMAT created a checklist for its "substantial transformation" analysis, implemented automated system blocks in its export compliance system on shipments to SMIC, and would manually override the system block in its export compliance system if a shipment met the "substantial transformation" checklist criteria. That shipment would then be released, and the SMIC order would ultimately be fulfilled.

However, despite AMAT's Global Trade Group's incorrect assessment, "substantial transformation" does not appear anywhere in the EAR and is not the correct test for determining whether an item is subject to the EAR because it is an item of U.S. origin.

CONCLUSIONS

Because "substantial transformation" is a concept under the Customs regulations and is nowhere included in the EAR, AMAT's understanding—that it did not require a license for reexports from South Korea to SMIC—was incorrect.

Instead, the correct application of the EAR would have concluded that the ion implanting equipment was of U.S. origin because, based upon receipt of a SMIC order, AMAT began production in the United States, and all U.S.-origin and foreign-origin parts

necessary to complete production in South Korea were exported from Gloucester for the sole purpose of producing ion implanting equipment for SMIC.[12] Given these facts, the fact that the ion implanting equipment may have been further assembled and/or tested in South Korea is of no moment; these items were all subject to the EAR at the time they were reexported from South Korea to SMIC in China. The regulatory analysis did not change when, in order to continue selling to a single customer on the Entity List, AMAT established a process that partially moved assembly and testing activities outside the United States for specific items on which production had begun in the United States and that had been ordered by that single customer. Under those circumstances, the EAR's *de minimis* provisions were inapplicable.

Accordingly, AMAT's dual-build process resulted in reexports to SMIC without the required licenses in violation of the EAR. AMAT's understanding that the dual-build process, through "substantial transformation" of the items, resulted in foreign-made ion implanting equipment being sent to SMIC, was incorrect.

Instead, even though AMAT completed assembly and testing of the ion implanting equipment in South Korea, the end user for the ion implanting equipment was at all times SMIC and its entity-listed subsidiaries in China. Thus, the equipment as described above was subject to the EAR.[13]

BIS deems that U.S.-origin items or items physically located in the United States on which production begins in the United States are not rendered "foreign-made" when the items are exported and then undergo further assembly and testing in a foreign country when, as here, those activities outside the United States involved little or no foreign-origin parts that were shipped to the foreign location from a non-U.S. location.

Thus, upon completion of production in South Korea, the resulting ion implanting equipment remained a U.S.-origin item subject to the EAR. That the ion implanting equipment may have been tested and partially assembled while in South Korea does not alter this analysis. Because no license was obtained to authorize reexport to SMIC—despite AMAT having received the is-informed letter and SMIC being placed on the Entity List—AMAT's reexport of the ion implanting equipment from South Korea to SMIC was a prohibited reexport under the EAR. *See* 15 C.F.R. § 764.2(a). Accordingly, even though AMAT developed the dual-build process with a misunderstanding of the applicability of "substantial transformation," AMAT's dual-build process resulted in the reexport or attempted reexport of U.S.-origin items from South Korea to SMIC without the required licenses in violation of the EAR. Consequently, AMAT committed 56 violations of the EAR.

[12] To the extent that AMAT understood that parts and components exported from the United States were incorporated into a foreign-made item in South Korea, that understanding was incorrect because the actions taken in South Korea did not create a foreign-made item.

[13] *See* 15 C.F.R. §§ 734.13 and 734.14.

OTHER CONSIDERATIONS

AMAT changed its production process after receiving the September 2020 is-informed letter and after SMIC was added to the Entity List in December 2020. AMAT believed that, due to the actions by AMK and Global Engineering, the ion implanting equipment was foreign-made and not subject to the EAR pursuant to the EAR's *de minimis* rules. Those beliefs were mistaken.

To be clear, the violations in this charging letter are based on the reexport of U.S.-origin items subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(2), as described above. *See also* 15 C.F.R. § 732.2(b)-(c) (detailing steps 2-3 of the EAR Scope analysis). The following discussion, addressing why the EAR's *de minimis* provisions were inapplicable to AMAT's activities in this case, is purely informative.[14]

The EAR contemplate and allow for manufacturing processes that involve the incorporation of U.S.-origin controlled content into foreign-made items. Section 734.3(a)(3), Section 734.4, and Supp. No. 2 to Part 734 of the EAR describe the steps exporters are to undertake in carrying out a *de minimis* analysis to assess whether a foreign-made item is subject to the EAR. This analysis applies only to foreign-made items.

Pursuant to 15 C.F.R. § 734.3(a)(3), foreign-made commodities are subject to the EAR under certain circumstances. This includes foreign-made commodities that incorporate controlled U.S.-origin commodities,[15] but only if the controlled U.S.-origin commodities exceed the applicable *de minimis* levels specified in the EAR. *Id.* In most cases, foreign-made commodities that incorporate more than 25% controlled U.S.-origin content are subject to the EAR. *See* 15 C.F.R. § 734.4(d).

Generally, depending upon the classification of the U.S.-origin controlled commodities and the destination of the foreign-made item,[16] if an item contains less than the specified percentage of controlled U.S.-origin content, it is not subject to the EAR nor to any license requirements that may apply.[17] However, this general rule applies ***if and only***

[14] As is clear from 15 C.F.R. § 732.2(b)(3), if an exporter is exporting items from a foreign country, they should proceed to Step 3 (§ 732.2(c)). If that item is of U.S. origin, the U.S. exporter should skip to Step 7 in § 732.3(b). Accordingly, AMAT should never have proceeded to Step 4 in § 732.2(d).

[15] Labor costs are not a relevant consideration for purposes of the applicable *de minimis* analysis discussed here, which takes into consideration only controlled U.S.-origin content. Nor would labor costs in any way affect whether an item is subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(1)-(2), as these provisions are based solely on an item's location or country of origin.

[16] There are some exceptions to this general framework. *Compare* 22 C.F.R. § 120.11(c) (defense articles remain subject to the International Traffic in Arms Regulations following incorporation or integration into any item not described on the U.S. Munitions List, unless specifically provided otherwise), *with* 15 C.F.R. § 734.4(a) (EAR specify that only certain items are ineligible for *de minimis* treatment).

[17] As noted above, this rule does not apply to items that are already subject to the EAR pursuant to 15 C.F.R. § 734.3(a)(1)-(2).

if: 1) the U.S.-origin commodities are not otherwise excluded from eligibility for *de minimis* treatment and 2) incorporation in fact occurs.

The facts described above demonstrate that AMAT's activities did not render the ion implanting equipment a foreign-made item eligible for *de minimis* treatment.

"U.S.-origin controlled content is considered 'incorporated' for *de minimis* purposes if the U.S.-origin controlled item is: Essential to the functioning of the foreign equipment; customarily included in sales of the foreign equipment; and reexported with the foreign produced item." 15 C.F.R. Part 734, Supp. 2, note to paragraph (a)(1). All three of these criteria must be met in order for the EAR's *de minimis* provisions to apply.

As described above, because production began in the United States and all or virtually all parts were exported from the United States, AMAT's activities in South Korea did not create foreign-produced items for the functioning of which U.S.-origin components were essential, nor were there sales of foreign-produced items which customarily included U.S.-origin components, or foreign-produced items with which U.S.-origin components were reexported.

Rather, what occurred in South Korea can be described as the combination of U.S.-origin and non-U.S.-origin content typically sent from the United States and assembled into already partially assembled U.S.-origin items, with little or no content sourced from outside the U.S. with which the U.S.-origin content was incorporated, and so no foreign-made item resulted. Therefore, because no foreign-made equipment existed, there were no grounds to consider whether U.S.-origin controlled content was incorporated into a foreign-made item. Because no foreign-made item was created in South Korea, no incorporation of U.S.-origin controlled content into a foreign-made item occurred. Accordingly, such controlled content was not eligible for *de minimis* treatment. *See* 15 C.F.R. Part 734, Supp. 2, note to paragraph (a)(1). Therefore, there is no need to perform any step of the incorporation analysis detailed above.

* * * * *

Accordingly, AMAT is hereby notified that an administrative proceeding is instituted against it pursuant to Part 766 of the EAR for the purpose of obtaining an order imposing administrative sanctions,[18] including, but not limited to, any or all of the following:

[18] In situations involving alleged violations that occurred on or after August 13, 2018, the potential sanctions are specified in Section 1750(c) of ECRA.

- The maximum civil penalty allowed by law of up to the greater of $374,474 per violation,[19] or twice the value of the transaction that is the basis of the violation;

- Denial of export privileges;

- Exclusion from practice before BIS; and/or

- Any other liability, sanction, or penalty available under law.

If AMAT fails to answer the charges contained in this letter within 30 days after being served with notice of issuance of this letter, that failure will be treated as a default. *See* 15 C.F.R. §§ 766.6 and 766.7. If AMAT defaults, the Administrative Law Judge may find the charges alleged in this letter are true without a hearing or further notice to AMAT. The Under Secretary of Commerce for Industry and Security may then impose up to the maximum penalty for the charges in this letter.

AMAT is further notified that it is entitled to an agency hearing on the record if it files a written demand for one with its answer. *See* 15 C.F.R. § 766.6. AMAT is also entitled to be represented by counsel or other authorized representative who has power of attorney to represent it. *See* 15 C.F.R. §§ 766.3(a) and 766.4.

The EAR provide for settlement without a hearing. *See* 15 C.F.R. § 766.18. Should AMAT have a proposal to settle this case, AMAT should transmit it to the attorneys representing BIS named below.

AMAT is further notified that under the Small Business Regulatory Enforcement Flexibility Act, AMAT may be eligible for assistance from the Office of the National Ombudsman of the Small Business Administration in this matter. To determine eligibility and get more information, please see: http://www.sba.gov/ombudsman/.

The U.S. Coast Guard is providing administrative law judge services in connection with the matters set forth in this letter. Accordingly, AMAT's answer must be filed in accordance with the instructions in Section 766.5(a) of the EAR with:

U.S. Coast Guard ALJ Docketing Center
40 S. Gay Street
Baltimore, Maryland 21202-4022

In addition, a copy of AMAT's answer must be served on BIS at the following address:

Chief Counsel for Industry and Security
Attention: Gregory Michelsen, Adam Berry, and B. Kathryn Debrason

[19] See 50 U.S.C. § 4819 (prescribing civil monetary penalty amount for ECRA violation); 15 C.F.R. §§ 6.3(c)(6), 6.4 (adjusting civil monetary penalty amount for inflation).

Room H-3839
14th Street and Constitution Avenue, N.W.
Washington, D.C. 20230

Greg Michelsen, Adam Berry, and B. Kathryn Debrason are the attorneys representing BIS in this case; any communication that AMAT may wish to have concerning this matter should occur through them. They may be contacted by email at gmichelsen@doc.gov, aberry1@doc.gov, and kdebrason1@doc.gov respectively.

Sincerely,

John Sonderman
Principal Deputy Assistant Secretary
of Commerce for Export Enforcement

Schedule of Violations

Charge	Date of Reexport	Value	Product	Destination	Violation
1	4/13/2021	$1,300,000.00	VIISTA TRIDENT XP	SMSC	15 C.F.R. § 764.2(a)
2	11/12/2021	$2,827,500.00	VIISTA TRIDENT XP	SMSC	15 C.F.R. § 764.2(a)
3	12/27/2021	$2,610,790.00	VIISTA TRIDENT	SMSC	15 C.F.R. § 764.2(a)
4	10/29/2021	$2,610,790.00	VIISTA TRIDENT	SMSC	15 C.F.R. § 764.2(a)
5	3/23/2021	$1,755,000.00	VIISTA TRIDENT	SMSC	15 C.F.R. § 764.2(a)
6	12/30/2021	$2,452,320.00	VIISTA 900XPT	SMSC	15 C.F.R. § 764.2(a)
7	4/22/2021	$2,594,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
8	5/29/2021	$1,420,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
9	7/1/2021	$2,594,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
10	7/2/2021	$1,424,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
11	9/10/2021	$1,437,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
12	1/25/2022	$1,437,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
13	10/12/2021	$2,213,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
14	7/26/2021	$2,200,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
15	5/18/2021	$2,015,000.00	VIISTA 900XP	SMIC-TJ	15 C.F.R. § 764.2(a)
16	6/4/2021	$2,015,000.00	VIISTA 900XP	SMIC-TJ	15 C.F.R. § 764.2(a)
17	8/27/2021	$2,015,000.00	VIISTA 900XP	SMIC-TJ	15 C.F.R. § 764.2(a)
18	10/5/2021	$2,015,000.00	VIISTA 900XP	SMIC-TJ	15 C.F.R. § 764.2(a)
19	8/18/2021	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
20	8/17/2021	$1,632,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)

21	5/29/2021	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
22	7/14/2021	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
23	7/19/2021	$1,632,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
24	9/7/2021	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
25	9/25/2021	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
26	1/19/2022	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
27	10/15/2021	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
28	1/4/2022	$1,437,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
29	1/21/2022	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
30	1/28/2022	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
31	8/30/2021	$2,213,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
32	10/28/2021	$2,213,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
33	10/22/2021	$2,213,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
34	10/2/2021	$2,213,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
35	6/18/2021	$1,433,250.00	VIISTA 900XPT	SMIC-BJ	15 C.F.R. § 764.2(a)
36	10/29/2021	$1,953,250.00	VIISTA 900XP	SMIC-TJ	15 C.F.R. § 764.2(a)
37	10/26/2021	$1,953,250.00	VIISTA 900XP	SMIC-SH	15 C.F.R. § 764.2(a)
38	9/16/2021	$2,607,800.00	VIISTA TRIDENT	SMIC-SZ	15 C.F.R. § 764.2(a)
39	9/25/2021	$2,213,250.00	VIISTA 900XPT	SMIC-SZ	15 C.F.R. § 764.2(a)
40	10/21/2021	$2,473,250.00	VIISTA 900XPT	SMSC	15 C.F.R. § 764.2(a)
41	10/29/2021	$1,043,250.00	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(a)
42	3/10/2022	$2,432,300.00	VIISTA HCS	SMIC-SZ	15 C.F.R. § 764.2(a)
43	4/8/2022	$2,213,250.00	VIISTA 900XPT	SMIC-SZ	15 C.F.R. § 764.2(a)

44	4/29/2022	$2,213,250.00	VIISTA 900XPT	SMIC-SZ	15 C.F.R. § 764.2(a)
45	4/27/2022	$3,485,300.00	VIISTA TRIDENT XP	SMSC	15 C.F.R. § 764.2(a)
46	1/3/2022	$2,607,800.00	VIISTA TRIDENT	SMIC-SZ	15 C.F.R. § 764.2(a)
47	3/19/2022	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
48	3/15/2022	$2,607,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
49	4/29/2022	$1,437,800.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
50	4/22/2022	$3,298,750.00	VIISTA TRIDENT	SMNC	15 C.F.R. § 764.2(a)
51	12/27/2021	$1,953,250.00	VIISTA 900XP	SMIC-SZ	15 C.F.R. § 764.2(a)
52	1/15/2022	$1,953,250.00	VIISTA 900XP	SMIC-SZ	15 C.F.R. § 764.2(a)
53	4/12/2022	$1,563,250.00	VIISTA 900XP	SMIC-SZ	15 C.F.R. § 764.2(a)
54	6/3/2022	$2,432,300.00	VIISTA HCS	SMIC-SZ	15 C.F.R. § 764.2(a)
Total		$118,450,150.00			

Charge	Date of Export	Value	Product	Destination	Violation
55	7/18/2022	$3,900,000[20]	VIISTA 900XP	SMIC-SZ	15 C.F.R. § 764.2(c)
56	11/08/2020	$3,900,000[21]	VIISTA 900XPT	SMNC	15 C.F.R. § 764.2(c)
Total		$7,800,000			

[20] Estimated.

[21] Estimated.