



July 6, 2015

Ms. Hillary Hess
Director
Regulatory Policy Division
Room 2099B
Bureau of Industry and Security
U.S. Department of Commerce
14th Street & Pennsylvania Ave., N.W.
Washington, D.C. 20230

Mr. Ed Peartree
Director
Office of Defense Trade Controls Policy
U.S. Department of State
2401 E Street, N.W.
Washington, D.C. 20037

Re: Revisions to the Export Administration Regulations (EAR): Control of Fire Control, Range Finder, Optical, and Guidance and Control Equipment the President Determines No Longer Warrant Control Under the United States Munitions List (USML) (*Federal Register* Notice of May 5, 2015; RIN 0694-AF75) and Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII (*Federal Register* Notice of May 5, 2015; RIN 1400-AD32)

Dear Ms. Hess and Mr. Peartree:

The Semiconductor Industry Association ("SIA") is the premier trade association representing the U.S. semiconductor industry. Founded in 1977 by five microelectronics pioneers, SIA unites over 60 companies that account for nearly 90 percent of American semiconductor production and the semiconductor industry accounts for a sizeable portion of U.S. exports.

SIA is pleased to submit the following public comments in response to the request for public comments issued by the Commerce Department's Bureau of Industry and Security ("BIS") on proposed revisions to the Export Administration Regulations ("EAR") pertaining to items the President determines no longer warrant control under United

States Munitions List (“USML”) Category XII (“Proposed EAR Revisions”),¹ and revisions to the USML Category XII (“Proposed ITAR Revisions”).²

I. Summary

As the notes to Category XII underscore, a clear and straightforward definition in the International Traffic in Arms Regulations (ITAR) of the term “directly related” is needed. SIA recommends a definition that closely adheres to the natural meaning of the words: “required and peculiarly responsible for the controlled features of the associated item.” Such a definition could utilize the definition of “required” and “peculiarly responsible” as contained in the pending Commerce Department regulatory proposal. It should be construed in a manner at least consistent with the ITAR definition of “specially designed.” Among other things, this would mean that software is not “directly related” to a defense article if the software has equivalent performance, characteristics or functionality to software that can be used in or with a civilian article.

The proposed revision to Export Control Classification Number (“ECCN”) 6A002 stating that certain “space qualified” devices are subject to ITAR control runs directly counter to the overall thrust of the President’s Export Control Reform Initiative (“ECRI”), as it would necessarily and without justification take items currently subject to EAR control and render them subject to ITAR control.

Classifying an unfinished civilian good as subject to ITAR control when the finished good is subject to EAR control is illogical and has serious adverse implications for semiconductor devices. The properties and capabilities of a focal plane array that is not in a “permanent encapsulated sensor assembly” are identical to those of a focal plane array that is in a “permanent encapsulated sensor assembly.” Any distinction between those products is based purely on form, not substance, and for that reason should not affect national security sensitivities.

The proposed rule would prohibit exporters from using License Exception STA for any item covered by several different ECCNs. Licensing flexibility that is useful to industry should not be eliminated unless there is a compelling reason to do so.

II. Proposed ITAR Changes

A. Definition of “Directly Related”

No definition of the term “directly related” currently exists in the International Traffic in Arms Regulations (“ITAR”). Moreover, SIA is disappointed that no definition of

¹ Revisions to the Export Administration Regulations (EAR): Control of Fire Control, Range Finder, Optical, and Guidance and Control Equipment the President Determines No Longer Warrant Control Under the United States Munitions List (USML), 80 Fed. Reg. 25,798 (May 5, 2015) (“Proposed EAR Revisions”).

² Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII, 80 Fed. Reg. 25,821 (May 5, 2015) (“Proposed ITAR Revisions”).

that term has been proposed by the State Department in its harmonization proposal.³ Given the importance of “directly related” in determining the types of technical data, software and defense services subject to ITAR control,⁴ a definition of “directly related” within the ITAR has been sorely needed. A clear and straightforward definition of “directly related” should be promulgated that adheres closely to the natural meaning of the words, *i.e.*, “required and peculiarly responsible for the controlled features” of the associated item.

As part of the President’s Export Control Reform Initiative (“ECRI”), several years of effort have gone into formulating a definition of “specially designed.” While the “specially designed” definition applies throughout the Commerce Control List (“CCL”) administered under the EAR, it is generally used with respect to hardware on the USML. For the same reason that a “specially designed” definition was needed to clarify ITAR controls on hardware, a counterpart and correlative definition of “directly related” -- an even more ambiguous and elastic term than “specially designed” -- is needed to clarify ITAR controls on technical data, software and services.

While the State Department is proposing a long overdue amendment to the controls on software (by making software a defense article, rather than technical data), “directly related” is likely to continue to play a significant role in determining controls on technical data, software and defense services. First, any technical data “directly related” to ITAR software will necessarily be “directly related” to a defense article and thus controlled. Second, the State Department has indicated that it will add catch-all categories covering software to various USML categories⁵ and those new software catch-all categories likely will include “directly related” as a control criterion.

The term “directly related,” is applied in the proposed rulemaking for USML Category XII. Specifically,

- In proposed Note 1 to paragraph (f) of USML Category XII, the State Department states that technical data and defense services “directly related” to various defense articles controlled in other paragraphs of USML Category XII “remain subject to the ITAR even if the technical data or defense services could also apply to items subject to the EAR.”
- In proposed Note 2 to paragraph (f) of USML Category XII, the State Department states that software that converts a defense article into an item subject to the EAR or that converts an item subject to the EAR into a defense article is “directly related” to the defense article.

³ International Traffic in Arms: Revisions to Definitions of Defense Services, Technical Data, and Public Domain; Definition of Product of Fundamental Research; Electronic Transmission and Storage of Technical Data; and Related Definitions, 80 Fed Reg. 31525 (Jun. 3, 2015) (“ITAR Harmonization Definitions”)

⁴ *See, e.g.*, Temporary Modification of Category XI of the United States Munitions List, 80 Fed. Reg. 37,974, 37,975 (Jul. 2, 2015).

⁵ ITAR Harmonization Definitions at_ 31,527.

The scope attached to “directly related” in these proposed notes is detached from any plain meaning of the term.

The guidance provided in proposed Note 1 to paragraph (f) of USML Category XII indicates that technical data not “specially designed” for a defense article nonetheless is directly related to the defense article. Such an overly broad reach of “directly related” is misguided and does violence to the plain meaning of the term. If certain technical data apply equally to items subject to the EAR as to items subject to the ITAR, then the technical data necessarily, under the recently promulgated “specially designed” definition, are not “specially designed” for defense articles, and so should not be deemed “directly related” to any defense article. “Directly related” should not be taken to mean merely “capable of use with.” Both the State and Commerce Departments explicitly repudiated the “capable of” standard in their definition of “specially designed.”⁶ That over-reaching standard should not be embedded in “directly related.”

The guidance provided in proposed Note 2 to paragraph (f) of USML Category XII indicates that software is directly related to a defense article if the software converts the defense article into an item subject to the EAR. Software that converts a defense article into an item subject to the EAR necessarily infuses the article with characteristics that do not warrant control under the ITAR. Such software should not be deemed “directly related” to a defense article. “Directly related” as it pertains to software should at least have the limitations contained in the definition of “specially designed.” Currently, software is subject to both terms, compounding the uncertainty and confusion.

A definition of “directly related” is needed in order to clarify the export control status of myriad technical data used in or with both defense articles and items subject to the EAR as well as with respect to software. A definition of “directly related” should be promulgated that adheres closely to the natural meaning of the words, *i.e.*, “required and peculiarly responsible for the controlled features” of the associated item. Both “required” and “peculiarly responsible” have commonly understood definitions among the exporting public and those commonly-understood definitions should apply in this context. Alternatively, those terms could be assigned meanings similar to those currently being proposed by the State and Commerce Departments.⁷

Software or technical data that is not peculiarly responsible for the controlled feature(s) of a defense article should not be deemed “directly related” to the defense article even if the software or technical data are used in the design and production of the defense article. For example, a semiconductor producer may receive a defense customer’s own proprietary Read Only Memory (“ROM”) software code that would be used to produce a specific or custom ROM-coded version of a commercial microcontroller for its defense

⁶ Amendment to the International Traffic in Arms Regulations: Initial Implementation of Export Control Reform, 78 Fed. Reg. 22744 (Apr. 16, 2013); “Specially Designed: Definition, 77 Fed. Reg. 36410 (Jun. 19, 2012).

⁷ Revisions to Definitions in the Export Administration Regulations, 80 Fed. Reg. 31,505, 31,519 (Jun. 3, 2015); ITAR Harmonization Definitions at 31,535-36

customer. Such custom ROM-coded microcontrollers are “specially designed” for the defense customer’s ITAR-controlled equipment, and the customer’s proprietary software ROM code should be deemed “directly related” to the customer’s defense article because that software is peculiarly responsible for the controlled features of both the “specially designed” microcontrollers and the defense article. In contrast, other software or technical data used to produce the ROM-coded devices should not be considered “directly related” to those devices or the defense article because those other software and technical data, while used in the design and production of the custom ROM- coded devices, are not peculiarly responsible for the controlled feature of either the “specially designed” devices or the defense article. Instead, that other software and technical data relate to the commercial microcontroller underlying the ROM-coded device produced for the defense customer and so do not warrant designation as being “directly related” to a defense article. The only software that is directly related to the defense article (the ROM-coded microcontroller) in this example is the defense customer’s proprietary software code.

Lastly, it should be made clear that software is not “directly related” to a defense article if the software has equivalent performance, characteristics or functionality to software that can be used in or with a civilian article. Such software is too broadly related to defense and civilian articles to be *directly* related to a defense article.

B. Proposed USML Category XII(c)(2)

As currently drafted, proposed USML Category XII(c)(2) will cover (among other things):

{P}hoton detector, microbolometer detector, or multispectral detector infrared focal plane arrays (IRFPAs) having a peak response within the wavelength range exceeding 900 nm but not exceeding 30,000 nm and not integrated into a permanent encapsulated sensor assembly, and detector elements therefor.⁸

No limit is placed on the number of detector elements included in microbolometer IRFPAs covered by this proposed USML category. In contrast, proposed USML Category XII(c)(5), which pertains to microbolometer IRFPAs integrated into a permanent encapsulated sensor assembly, covers only those microbolometer IRFPAs having greater than 328,000 detector elements.⁹

Microbolometer IRFPAs with fewer than 328,000 detector elements commonly are being used in civilian end uses. In particular, original equipment manufacturers (“OEMs”) are developing cameras to meet automotive manufacturers’ ever-increasing demand for automotive systems that enhance driving safety, and such cameras frequently include microbolometer IRFPAs with fewer than 328,000 detector elements, but peak responses within the wavelength range between 900 nm and 30,000 nm. It would be inappropriate

⁸ Proposed ITAR Revisions at 25,826.

⁹ Id.

and counterproductive to U.S. economic competitiveness¹⁰ for the State Department to impose ITAR controls on microbolometer IRFPAs that are used in civilian end uses. Moreover, there is no valid justification for the State Department to limit the scope of controls on microbolometer IRFPAs incorporated into permanent encapsulated sensor assemblies in a different manner than it limits the scope of controls on microbolometer IRFPAs not incorporated into permanent encapsulated sensor assemblies. The properties and capabilities of a focal plane array that is not in a permanent encapsulated sensor assembly are identical to those of a focal plane array that is in a permanent encapsulated sensor assembly. Any distinction between those products is based purely on form, not substance, and for that reason should not affect national security sensitivities.

Accordingly, the State Department should revise proposed USML Category XII(c)(2) as follows:

{P}hoton detector, microbolometer detector, or multispectral detector infrared focal plane arrays (IRFPAs) having a peak response within the wavelength range exceeding 900 nm but not exceeding 30,000 nm **and greater than 328,000 detector elements**, and not integrated into a permanent encapsulated sensor assembly, and detector elements therefor

Such a revision would largely, if not entirely, eliminate the capture by this USML category of devices for civilian end uses, and so would comport with the stated intent of the U.S. government.

C. Proposed USML Category XII(c)(7)

As currently drafted, proposed USML Category XII(c)(7) will cover:

Charge multiplication focal plane arrays having greater than 1,600 elements in any dimension and having a maximum radiant sensitivity exceeding 50 mA/W for any wavelength exceeding 760 nm but not exceeding 900 nm, and avalanche detectors therefor¹¹

This level of control would sweep in image sensors that are incorporated in high volume civil applications such as automobile onboard day/night cameras for road safety, electronic toll collection for Intelligent Traffic Systems, digital pathology solutions in the medical field, scientific instruments used in astronomy and microscopy, and surveillance cameras used in parking lots or inside banks. As sensor prices continue to decline and complementary technologies (such as the “Internet of Things”) increase the value of sensors, the volumes for these civil applications will increase exponentially.

¹⁰ U.S. developers of microbolometers IRFPAs for automotive OEMs compete directly and intensely with European developers of microbolometers IRFPAs having the same characteristics and performance capabilities, none of which are subject to European military export controls.

¹¹ ITAR Revisions at 25826.

In addition, there is both foreign competition from image sensors meeting the proposed control parameters but not subject to similar controls, and competing technology that serves these markets but is not covered under the proposed control parameters.

Given the rapidly growing commercial applications for low light imaging sensors and alternative technologies in the market, charge multiplication focal plane arrays should remain on the EAR and not be moved to the ITAR. Alternatively, if charge multiple focal plane arrays are to be controlled in a new USML Category XII(c)(7), that USML category should be revised as follows:

Charge multiplication focal plane arrays having ~~greater than 1,600 elements in any dimension and having~~ a maximum radiant sensitivity exceeding ~~50~~ **250** mA/W for any wavelength exceeding 760 nm but not exceeding 900 nm, **and average radiant sensitivity exceeding 175 mA/W within the same spectral region of interest** and avalanche detectors therefor

Such a revision would largely eliminate the capture by this USML category of devices for civilian end uses, and so would comport with the stated intent of the U.S. government.

III. Proposed EAR Changes

A. ECCN 6A002

1. Related Controls Note

Among the proposed revisions to Export Control Classification Number (“ECCN”) 6A002 is a new *Related Controls* discussion, part (1) (b) of which states that “space qualified” solid-state detectors, “space qualified” imaging sensors and “space qualified cryocoolers defined in 6A002.a.1, 6A002.b.2.b.1 and 6A002.d.1, respectively, are subject to ITAR control.¹² That proposed change runs directly counter to the overall thrust of the President’s Export Control Reform Initiative (“ECRI”), as it would necessarily and unambiguously take items currently subject to EAR control and render those items subject to ITAR control. No justification is provided for doing so.

To be clear, no modification is proposed to the definitions contained in 6A002.a.1, 6A002.b.2.b.1 and 6A002.d.1. Instead, items currently within those ECCNs would simply be moved to the ITAR. SIA understands that re-classifying products clearly and unambiguously subject to the EAR to the U.S. Munitions List (“USML”) is contrary to the purpose of the ECRI.

¹² Proposed EAR Revisions at 25,811.

2. Note 3 to 6A002.a.3

Among the proposed revisions to 6A002.a.3 is a new Note 3 stating that non-“space qualified” focal plane arrays that are not in a “permanent encapsulated sensor assembly” subject to the EAR are “subject to the ITAR.”¹³ The term “permanent encapsulated sensor assembly” is defined as

{A} permanent encapsulated sensor assembly (e.g. sealed enclosure, vacuum package) containing an infra-red focal plane array (IRFPA) that prevents direct access to the IRFPA, disassembly of the sensor assembly, and removal of the IRFPA without destruction or damage to the IRFPA.¹⁴

This proposed EAR revision would subject unfinished and semi-finished goods to ITAR control, notwithstanding that if the goods were finished they would not be subject to ITAR control.

This approach -- classifying an unfinished civilian good as subject to ITAR control when the finished good is subject to EAR control -- is illogical and has serious adverse implications for semiconductor devices. As noted above, the properties and capabilities of a focal plane array that is not in a “permanent encapsulated sensor assembly” are identical to those of a focal plane array that is in a “permanent encapsulated sensor assembly.” Any distinction between those products is based purely on form, not substance, and for that reason should not affect national security sensitivities.

Accordingly, BIS should remove Note 3 to ECCN 6A002.a.3.

B. License Exception STA

If implemented, the proposed rule would prohibit exporters from using License Exception STA for any item covered by several different ECCNs.¹⁵ No justification is provided for this proposed limitation on the use of License Exception STA. Licensing flexibility that is useful to industry should not be eliminated unless there is a compelling reason to do so.

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¹³ Proposed EAR Revisions at 25,812.

¹⁴ Proposed EAR Revisions at 25,810.

¹⁵ EAR Revisions at 25,800-01, 25,809

SIA appreciates the opportunity to comment on the Proposed Revisions and looks forward to continuing its cooperation with the U.S. Government on export control reform. Please feel free to contact the undersigned or Joe Pasetti, Director of Government Affairs at SIA, if you have questions regarding these comments.



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