



**COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION
TO THE DEPARTMENT OF COMMERCE,
BUREAU OF INDUSTRY AND SECURITY
REGARDING SPACECRAFT SYSTEMS AND RELATED ITEMS
THE PRESIDENT DETERMINES NO LONGER WARRANT CONTROL
UNDER THE UNITED STATES MUNITIONS LIST**

The Satellite Industry Association (SIA), on behalf of its member companies,¹ hereby files its comments concerning the proposed treatment of spacecraft systems and related items that the President determines no longer warrant control under the United States Munitions List (USML) Category XV under the Commerce Control List (CCL), in response to the U.S. Department of Commerce, Bureau of Industry and Security's notice of proposed rulemaking.² SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, spacecraft and component manufacturers, launch service providers, and ground equipment suppliers. Since its creation nearly two decades ago, SIA has become the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business.

¹ SIA Executive Members include: Artel, LLC; The Boeing Company; The DIRECTV Group; EchoStar Satellite Services LLC; Harris CapRock Communications; Hughes Network Systems, LLC; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; LightSquared; Lockheed Martin Corporation.; Northrop Grumman Corporation; Rockwell Collins Government Systems; SES Americom, Inc.; and SSL. SIA Associate Members include: AIS Engineering, Inc.; Astrium Services Government, Inc.; ATK Inc.; Cisco; Cobham SATCOM Land Systems; Comtech EF Data Corp.; DRS Technologies, Inc.; Encompass Government Solutions; Eutelsat, Inc.; Globecom Systems, Inc.; Inmarsat, Inc.; ITT Exelis; Marshall Communications Corporation.; MTN Government Services; NewSat America, Inc.; O3b Networks; Orbital Sciences Corporation; Panasonic Avionics Corporation; Spacecom, Ltd.; Row 44; Spacenet Inc.; TeleCommunication Systems, Inc.; Telesat Canada; The SI Organization, Inc.; TrustComm, Inc.; Ultisat, Inc.; ViaSat, Inc., and XTAR, LLC. Additional information about SIA can be found at <http://www.sia.org>.

² See Export Administration Regulations (EAR): Control of Spacecraft Systems and Related Items the President Determines No Longer Warrant Control Under the United States Munitions List (USML), Proposed Rule, 78 Fed. Reg. 31,431-31,443 (May 24, 2013) (to be codified in 15 C.F.R. pts. 734, 736, 740, 742, 748, 758, 772, and 774).

SIA applauds the Administration's comprehensive proposal to right-size the rules that govern exports of satellites and their parts and components. SIA has long supported rigorous, effective, predictable, and transparent U.S. export control policies and practices, and is pleased to see reform brought to a system that has had the unforeseen consequence of disadvantaging U.S. spacecraft and component manufacturers in the global marketplace. We support U.S. space leadership and competitiveness as a key national security objective, and we look forward to the speedy implementation of new regulations that will aid the competitiveness and health of the U.S. space industrial base.

According to SIA's 2013 State of the Satellite Industry Report³, global satellite manufacturing revenues reached \$14.6 billion in 2012. The U.S. market share as measured by revenues was 56 percent in 2012, and has fluctuated between 30 percent and 60 percent over the past 5 years. It is notable, however, that 61 percent of U.S. satellite manufacturing revenues was derived from U.S. government business, and thus the 60 percent overall market share figure does not necessarily indicate U.S. companies' ability to win contracts open to international competition. The SIA State of the Satellite Industry Report also speaks to other indicators that help characterize the health of the U.S. space industrial base. As prior iterations of the report have documented⁴, U.S. private sector satellite manufacturing employment peaked in 2006 at 32,368, but by the third quarter of 2012 had fallen to 24,274, a decline of 25 percent. The aggregate downward trend in overall satellite manufacturing employment is consistent with widespread anecdotal indications that U.S. space manufacturing companies have been going out of business, ceasing or reducing production runs of space-qualified products, or otherwise exiting the market. SIA and its members look to reform of the U.S. export control framework for satellites and related items as a crucial action in support of the entire satellite industry. Reform will provide particular value to companies in the space supply chain that will no longer be shut out of major European and allied markets due to the actual complications and stigma associated with the International Traffic in Arms Regulations (ITAR).

SIA strongly supports and welcomes the proposals made by the Department of Commerce to reform the export control system for satellites and related items. The proposed rules represent a substantial improvement over the existing export control system for satellites and related items. After undertaking a thorough review of the proposed rules, SIA has identified several areas in which modifications would enhance the regulations' focus on the technologies of greatest concern, provide additional clarity,

³ See Satellite Industry Association, 2013 State of the Satellite Industry Report, June 2013, http://www.sia.org/wp-content/uploads/2013/06/2013_SSIR_Final.pdf.

⁴ State of the Satellite Industry Reports from previous years are available at: <http://www.sia.org/state-of-the-satellite-industry-report/>.

and enhance the intended benefits of reform for the U.S. satellite sector and overall U.S. space industrial base.

SIA urges the Department to ensure that the revised export control system for satellites and related items does not establish a “double licensing” requirement for certain items, where both a Commerce Department and a State Department license would be required for export. (In SIA’s comments on the proposed provisions to USML Category XV⁵, we note one limited exception to this position in the unique case of hosted payloads.) In general, “double licensing” requirements run contrary to the goal of streamlining and simplifying the existing system. One step that would help avoid the establishment of a “double licensing” requirement would be to clarify the application of the see-through rule to items listed under the revised USML Category XV. There are several items proposed for control under USML Category XV which, depending on their interpretations, may capture components that are incorporated into numerous satellites proposed for control under Commerce Control List (CCL) Export Control Classification Number (ECCN) 9A515. Clarification on how the see-through rule would apply in cases such as these would help reduce confusion within the commercial satellite industry while also easing the burden placed on licensing officers in the Departments of State and Commerce. SIA recommends treating such USML-controlled components that are incorporated into completed spacecraft prior to export as under Commerce jurisdiction.

SIA notes that there is precedent for accommodating this request. For a period of time in the 1990s, when commercial communications satellites were controlled under paragraph .a of CCL ECCN 9A004, there was a technical note to this paragraph that clarified the application of the see-through rule with respect to CCL-controlled satellites which incorporated USML-controlled components. The note stated that:

“Commercial communications satellites are subject to Commerce licensing jurisdiction even if they include the individual munitions list systems, components, or parts identified in Category XV(f) of the USML. In all other cases, these systems, components, or parts remain on the USML...”⁶

SIA believes that components integrated into completed spacecraft prior to export pose little or no national security risk independent of the spacecraft itself. Individual components cannot easily be accessed once integrated into spacecraft, and when these spacecraft are physically exported, they are destined for a launch site. Therefore, SIA believes that the re-establishment of such a technical note with respect to specific items

⁵ See Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XV and Definition of “Defense Service,” Proposed Rule, 78 Fed. Reg. 31,444-31,451 (May 24, 2013) (to be codified in 22 C.F.R. pts. 120, 121, and 124).

⁶ Commercial Communications Satellites and Hot Section Technology for the Development, Production or Overhaul of Commercial Aircraft Engines, 61 Fed. Reg. 54,540-54,544 (Oct. 21, 1996) (to be codified at 15 C.F.R. pt. 774).

listed under paragraph (e) of USML Category XV, CCL ECCN 9A515, or both, would be a clear and simple way of addressing the issue of double licensing that would not pose a national security risk.

SIA also strongly recommends the creation of a CCL licensing practice or policy by which a satellite manufacturer or operator could obtain a single cradle-to-grave program license that would cover all manufacturer-client interactions, beginning with marketing and sales activities and including contract discussions, delivery negotiations, and on-orbit support. Even if a separate license for launch services would also be required, a single license covering all other activities would be invaluable.

In addition, SIA urges the Department to ensure that the definitions that apply to the new ECCNs are clarified in order to avoid accidental noncompliance and to promote consistent application of the rules so as to accomplish the goals of the regulations. As discussed in further detail below, SIA is deeply concerned about the proposed definitions of and controls for “technology” in ECCN 9E515. If these definitions and controls are not modified and clarified, they could have the effect of requiring a license for each individual technical exchange that occurs over the lifetime of a satellite project (*e.g.*, design, manufacture, operation, and de-orbit). This would be extremely burdensome and time-consuming for both companies and regulators, and would be contrary to the Department’s overall goal of improving and streamlining the export controls on satellite items. We urge the Department to consider how its proposals intersect with the satellite market and with common business practices, as well as the potential damage that could be caused by unclear standards for compliance. Clear rules that are consistent with typical business practices will help promote compliance while also enhancing the U.S. industry’s international competitiveness.

In the following technical discussion, SIA also offers a number of additional modifications, comments, and questions to the proposed rule in order to ensure that the future regulatory environment is as clear and effective as possible. The proposals from the Federal Register notice have been reproduced in the indented, italicized paragraphs, with SIA’s comments in the subsequent paragraph(s). SIA’s recommended edits to the proposed rule are depicted in red within the italicized paragraphs, with a justification for these recommendations included in the subsequent paragraph(s).

Technical Discussion

§ 734.4 De minimis U.S. content.

(a) * * *

(6) *There is no de minimis level for foreign-made items that incorporate U.S.-origin "500 series" or "600 series" items when destined to a country listed in Country Group D:5 of Supplement No. 1 to part 740 of the EAR.*

The term "destined to a country" in this paragraph is unclear. Does this phrase refer to the end-user country, or does it also include the country of any party in temporary contact with the item while it is transiting one of these countries? For example, if a commercial communications satellite incorporating a U.S. component controlled under ECCN 9A515.x were to transit through, be handled by a national of (e.g., in a transport container), or be launched from a country listed in Group D:5, would a de minimis rule of 0% be applicable? Additionally, to encourage clarity and promote ease of access to the updated rules, SIA requests that Country Group D:5 be incorporated into the copy of part 740 of the Export Administration Regulations (EAR) available on the Commerce Department's website.

§ 740.2 Restrictions on all License Exceptions.

~~Paragraph (a)(7) "Space-qualified" items. Commodities defined in 3A001.b.8 (Traveling Wave Tube Amplifiers (TWTAs) exceeding 18 GHz), 6A002.a.1, 6A008.j.1, or 6A998.b; "software" for commodities defined in 3A001.b.8 (Traveling Wave Tube Amplifiers (TWTAs) exceeding 18 GHz), 6A002.a.1, 6A008.j.1, or 6A998.b and controlled under ECCNs 3D001 (Traveling Wave Tube Amplifiers (TWTAs) exceeding 18 GHz), 6D001, 6D002, 6D991; and "technology" for commodities defined in ECCNs 3A001.b.8 (Traveling Wave Tube Amplifiers (TWTAs) exceeding 18 GHz), 6A002.a.1, 6A008.j.1, or 6A998.b and controlled under ECCNs 3E001, 6E001, 6E002, 6E101, 6E991.~~

While proposals relating to EAR § 740.2(a)(7) were not included in the proposed rule, SIA believes that this section should be deleted. The original reason for the inclusion of paragraph (a)(7) was to ensure compliance with the legal requirements for the export of satellites and related items that had been in effect up until the National Defense Authorization Act for Fiscal Year 2013 (2013 NDAA) was enacted. In effect, paragraph (a)(7) bars the use of license exceptions for certain "space-qualified" commodities that had been listed under other ECCNs prior to the passage of the 2013 NDAA. Given that the Department stated in the proposed rule that "Most '500 series' items would be eligible for several license exceptions, including STA," SIA believes that the restrictions on the use of license exceptions imposed by paragraph (a)(7) are no longer appropriate, and should be eliminated. In addition to standardizing the controls on satellites and related items across various ECCNs, this reform would help clarify the items for which the use of license exceptions is approved, which would help promote compliance.

§ 740.2 Restrictions on all License Exceptions.

Paragraph (a)(17) “ “500 series” items that are controlled for missile technology (MT) reasons may not be exported, reexported, or transferred (in-country) under License Exception STA (§ 740.20 of the EAR). Items controlled under ECCNs 9D515.b through .g and 9E515.b are not eligible for license exceptions except for License Exception GOV (§ 740.11(b)(2) of the EAR)”

SIA observes that the distinction in ECCN 9E515 between paragraphs .a and .b will have a strong bearing on how frequently this section will be applicable. Specifically, if the bulk of the technology controlled under ECCN 9E515 is considered to be controlled under paragraph .b of that ECCN, paragraph (a)(17) will place unnecessary restrictions on the use of License Exception STA for many of the technical exchanges that take place between spacecraft manufacturers and their suppliers and customers. SIA below proposes edits to and raises questions about the proposed definitions for paragraphs .a and .b of ECCN 9E515, but notes that the restriction on the use of license exception STA for items controlled by paragraph .b of that ECCN is one of the satellite industry’s most significant concerns about the entire proposed rule.

§ 772.1 Definitions of terms as used in the Export Administration Regulations (EAR).

500 series. ECCNs in the “xY5zz” format on the Commerce Control List (CCL) that control “dual use” “spacecraft” and related items on the CCL that were previously controlled on the United States Munitions List. The “5” indicates the entry is a “spacecraft” entry on the CCL. The “x” represents the CCL category and “Y” the CCL product group. The “500 series” constitutes the “spacecraft” ECCNs within the larger CCL. The “500 series” does not include items designated in ECCNs 0A521, 0B521, 0C521, 0D521, or 0E521.

** * * * **

“Space-qualified”. (Cat 3, 6, and 9) Designed, manufactured, or qualified through successful testing, for operation at altitudes greater than 100 km above the surface of the Earth.

Note: A determination that a specific item is “space qualified” by virtue of testing does not mean that other items in the same production run or model series are “space qualified” if not individually tested.

Note: The terms ‘designed’ and ‘manufactured’ in this definition are synonymous with “specially designed.” Thus, for example, an item that is “specially designed” for a spacecraft is deemed to be ‘designed’ or ‘manufactured’ for operation at altitudes greater than 100 km and an item that is not “specially designed” for a spacecraft is not deemed to have been so ‘designed’ or ‘manufactured.’

Note: A “part,” “component,” “accessory,” “attachment,” or “software” that would otherwise meet the definition of “space qualified” is not “space qualified” if it:

- (1) Has been identified to be in an ECCN paragraph that does not contain “space qualified” as a control parameter or as an EAR99 item in a commodity jurisdiction (CJ) determination or interagency-cleared commodity classification (CCATS) pursuant to § 748.3(e); or,*

- (2) Is, regardless of 'form' or 'fit,' a fastener (e.g., screw, bolt, nut, nut plate, stud, insert, clip, rivet, pin), washer, spacer, insulator, grommet, bushing, spring, wire, solder; or,
- (3) Has the same function, performance capabilities, and the same or 'equivalent' form and fit, as a commodity or software used in or with an item that:
- (i) Is or was in "production" (i.e., not in "development"); and
- (ii) Is either not 'enumerated' on the CCL or USML, or is described in an ECCN controlled only for Anti-Terrorism (AT) reasons; or,
- (4) Was or is being developed with "knowledge" that it would be for use in or with commodities or software (i) described in an ECCN and (ii) also commodities or software either not 'enumerated' on the CCL or the USML (e.g., EAR99 commodities or software) or commodities or software described in an ECCN controlled only for Anti-Terrorism (AT) reasons; or,
- (5) Was or is being developed as a general purpose commodity or software, i.e., with no "knowledge" for use in or with a particular commodity or type of commodity; or
- (6) Was or is being developed with "knowledge" that it would be for use in or with commodities or software described (i) in an ECCN controlled for AT-only reasons and also EAR99 commodities or software; or (ii) exclusively for use in or with EAR99 commodities or software.

SIA observes that the definition of "space qualified" does not include the equivalent of paragraph (b) in the definition of "specially designed." This paragraph describes a number of instances in which: "a "part," "component," "accessory," "attachment," or "software" that would be controlled by paragraph (a) is not "specially designed"." This paragraph is of vital importance to the definition of "specially designed" because it provides what the Department described as a "catch-and-release" function for numerous items of no national security significance, such as screws and bolts, that otherwise would have been covered by the definition of "specially designed." SIA strongly recommends that the language in paragraph (b) of the definition of "specially designed" be adapted for application to the definition of "space qualified." One possible adaptation of this "catch-and-release" paragraph to the definition of "space qualified" is provided above.

- 24. In Supplement No. 1 to Part 774, Category 3, revise the MT paragraph of the License Requirements section and the Related Controls paragraphs (1) and (2) and add a new sentence to the beginning of the Related Definitions paragraph of Export Control Classification Number (ECCN) 3A001 to read as follows:

Supplement No. 1 to Part 774—The Commerce Control List

* * * * *

3A001 Electronic "components" and "specially designed" "parts" and "components" therefor, as follows (see List of Items Controlled).

License Requirements

| | |
|--|--------------------|
| <p><i>MT applies to 3A001.a.1.a for 'microcircuits' "usable in" "missiles" for protecting "missiles" against nuclear effects (e.g. Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects) and to 3A001.a.5.a when "designed or modified" for military use, hermetically sealed and rated for operation in the temperature range from below - 54 °C to above +125 °C.</i></p> | <p>MT Column 1</p> |
|--|--------------------|

List of Items Controlled

*Related Controls: (1) See Category XV of the USML for certain "space qualified" electronics "subject to the ITAR" (see 22 CFR parts 120 through 130). (2) See also 3A101, 3A201, 3A991, and 9A515. * * **

Related Definitions: 'Microcircuit' means a device in which a number of passive or active elements are considered as indivisibly associated on or within a continuous structure to perform the function of a circuit.

* * *

SIA requests clarification on the status of paragraphs (3) and (4) of the Related Controls section of ECCN 3A001 as it currently exists. Specifically, it appears that the original paragraphs (1) and (2) (related to TWTAs, solar cells, radiation-hardened circuits, and other specially designed parts) are intended to be replaced by the new language in the proposed rule. However, as it is not explicitly stated that paragraphs (3) and (4) remain in place, confirmation that this is indeed the case would be helpful.

SIA also requests clarification on which CCL ECCN will house the solar concentrators, power conditioners and/or controllers, bearing and power transfer assemblies, and deployment hardware / systems for solar arrays currently controlled under Category XV(e). Under the new proposed regulations, will these items be controlled under 9A515.x or 3A001? Additionally, clarification on which of these two ECCNs will house completed solar arrays with integrated deployment systems would be helpful.

■ 38. *In Supplement No. 1 to Part 774, Category 7, revise the Related Controls paragraph of Export Control Classification Number (ECCN) 7A004 to read as follows: 7A004 'Star trackers' and components therefor, as follows (see List of Items Controlled).*

List of Items Controlled

Related Controls: 1) See USML Category XV for certain 'Star trackers' that are "subject to the ITAR" (see 22 CFR parts 120 through 130).

* * * * *

SIA requests clarification on which CCL ECCN will house “space-qualified” star trackers. Is ECCN 7A004 intended to cover all ‘Star trackers’ that are not controlled under USML Category XV, or are “space-qualified” ‘Star trackers’ that had previously been controlled on the USML going to be transferred to ECCN 9A515.x?

■ 39. In Supplement No. 1 to Part 774, Category 7, revise the Related Controls paragraph of Export Control Classification Number (ECCN) 7A104 to read as follows: **7A104 Gyro-astro compasses and other devices, other than those controlled by 7A004, which derive position or orientation by means of automatically tracking celestial bodies or satellites and specially designed components therefor.**

* * * * *

List of Items Controlled

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*Related Controls: (1) See USML Categories IV and XV for certain ‘Star trackers’ that are “subject to the ITAR” (see 22 CFR parts 120 through 130). (2). * * **

* * * * *

SIA requests clarification on which CCL ECCN will house “space-qualified” gyro-astro compasses and devices. Is ECCN 7A104 intended to cover all gyro-astro compasses and devices that are not controlled under USML Category XV, or are “space-qualified” gyro-astro compasses and devices that had previously been controlled on the USML going to be transferred to ECCN 9A515.x?

■ 41. In Supplement No. 1 to Part 774, between the entries for ECCNs 9A120 and 9A980, add new entry for ECCN 9A515 to read as follows:

9A515 “Spacecraft” and related commodities, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, RS, AT

| Control(s) | Country chart |
|--|--------------------|
| <i>NS applies to entire entry</i> | <i>NS Column 1</i> |
| <i>RS applies to entire entry</i> | <i>RS Column 1</i> |
| <i>MT applies to 9A515.d when “usable in” “missiles” for protecting “missiles” against nuclear effects (e.g. Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects).</i> | <i>MT Column 1</i> |
| <i>AT applies to entire entry</i> | <i>AT Column 1</i> |

License Exceptions

LVS: \$1500

GBS: N/A

CIV: N/A

STA: Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 9A515.

List of Items Controlled

Unit: End items in number; "parts," "components," "accessories," and "attachments" in \$ value

Related Controls: Spacecraft, launch vehicles and related articles that are enumerated in the USML, and technical data (including "software") directly related thereto, launch services, and launch failure analysis for items in 9A515.a, are "subject to the ITAR." A license is required under the ITAR for a "U.S. person" to provide "defense services" to a foreign person for a "spacecraft" to be launched from outside the United States, even if that "spacecraft" may be exported under License Exception STA. See 22 CFR 120.9. All other "spacecraft," as enumerated below and defined in section 772.1, are subject to the controls of this ECCN. See also ECCNs 3A001, 3A002, 3A991, 3A992, 6A002, 6A004, 6A008, and 6A998 for specific

"space-qualified" items and 9A004 for the International Space Station.

Related Definitions: N/A.

Items:

a. "Spacecraft," including satellites, manned or unmanned space vehicles, whether designated developmental, experimental, research or scientific, not enumerated in USML Category XV.

Note: ECCN 9A515.a includes commercial communications satellites, remote sensing satellites not identified in USML Category XV, satellites not otherwise enumerated in USML Category XV, planetary rovers, and planetary and interplanetary probes.

b. Ground control systems and training simulators "specially designed" for telemetry, tracking, and control of the "spacecraft" in paragraph 9A515.a.

c. [Reserved]

d. Microelectronic circuits rated, certified, or otherwise specified or described as meeting or exceeding all the following characteristics and that are "specially designed" for defense articles, "600 series" items, or items controlled by 9A515:

(1) A total dose of 5×10^5 Rads (Si) (5×10^3 Gy (Si));

(2) A dose rate upset threshold of 5×10^8 Rads (Si)/sec (5×10^6 Gy (Si)/sec);

(3) A neutron dose of 1×10^{14} n/cm² (1 MeV equivalent);

(4) An uncorrected single event upset sensitivity of 1×10^{-10} errors/bit/day or less, for the CREME-MC geosynchronous orbit, Solar Minimum Environment for heavy ion flux; and

(5) An uncorrected single event upset sensitivity of 1×10^{-3} errors/part or less for a fluence of 1×10^7 protons/cm² for proton energy greater than 50 MeV.

Note 1: Application specific integrated circuits (ASICs) “specially designed” for defense articles are controlled by Category XI(c) of the USML regardless of characteristics.

Note 2: See 9A515.x for controls on “space qualified” microelectronic circuits that are not rated certified, or otherwise specified or described as meeting or exceeding the characteristics in paragraph .d.

Note 3: See 3A001.a for controls radiation hardened microelectronic circuits “subject to the EAR” that are not controlled by 9A515.d or 9A515.x.

Note 4: Microelectronic circuits that are “specially designed” for defense articles on the USML or for “600 series” items are controlled under 3A611.x.

e. through w. [Reserved]

x. “Parts,” “components,” “accessories” and “attachments” that are “space qualified” and not enumerated or controlled in the USML, elsewhere within ECCN 9A515, or an ECCN containing “space-qualified” as a control criterion, i.e., 3A001.b.1, 3A001.e.4, 3A002.a.3, 3A002.g.1, 3A991.o, 3A992.b.3, 6A002.a.1, 6A002.b.2, 6A002.d.1, 6A002.e, 6A004.c and .d, 6A008.j.1, or 6A998.b.

Note 1: “Parts,” “components,” “accessories,” and “attachments” specified in USML subcategory XV(e) or enumerated in other USML categories are subject to the controls of that paragraph or category.

SIA recommends editing the note to paragraph .a of ECCN 9A515, which lists several types of satellites and spacecraft that are controlled under this paragraph. Based on SIA’s review of the proposed rule for USML Category XV, there are other types of satellites (e.g. amateur radio satellites, weather satellites, and technology demonstration satellites) are not proposed for control on the USML but are also not listed specifically in the note to this paragraph. SIA recommends that this note be edited to include a phrase such as “satellites not otherwise enumerated in USML Category XV” to make clear that any satellites not specifically listed under USML Category XV are controlled under ECCN 9A515.a.

SIA also requests the insertion of a note to ECCN 9A515 that would make clear that non-U.S. origin items that meet the definitions for this ECCN that are transferred to the United States would not be subject to the EAR, and therefore would not require a license in order to be re-transferred outside the United States. (As we discuss below, a similar note should be applied to ECCNs 9D515 and 9E515). Without such a note, international customers of U.S. companies would be reluctant to use U.S. facilities for design verification or simple transshipment of components, which would create an unnecessary trade barrier while providing no national security function. Today, when U.S. prime manufacturers purchase space qualified components from non-U.S. companies, if the components are defective, the U.S. company must acquire a license in order to return it to its original manufacturer. This administrative requirement introduces disruptions into what is typically a tight and highly scripted spacecraft manufacturing schedule with limited margin for error. These disruptions can be particularly problematic for long-lead items for which replacement parts may not be

readily available. The insertion of a note exempting non-U.S. origin items from EAR control would help to address this situation.

The addition of such a note would also provide value and clarity to satellite operators, who typically have multiple satellite operation centers that are used to provide redundant and reliable satellite control and monitoring functions. Temporary or short-term ground control stations or network hubs are also occasionally required either for the launch and early orbit phase (LEOP) of a new satellite, or to satisfy local presence requirements established by foreign governments as a prerequisite for acquiring a license to provide satellite services in a country. Ground equipment is frequently transferred between various temporary and permanent facilities, and the insertion of a note exempting these intra-company equipment transfers from the EAR would help avoid the creation of burdensome and unnecessary licensing requirements.

SIA also recommends the addition of a mechanism to adjust the controls applied to the items listed under ECCN 9A515 if these controls are determined not to be necessary due to technological advancements or other technical or political developments. For example, in the Final Rule published on April 16, 2013, ECCN 9A610 includes paragraph (y), which enumerates aircraft parts and components that are excluded from National Security, Regional Security and U.N. controls.⁷ The proposed ECCN 9A515 does not include a similar paragraph for low-risk parts and components, as all parts and components that are not described in another 9A515 paragraph or another ECCN fall within the “catch all” paragraph .x of ECCN 9A515. SIA recommends that the Department establish a process by which exporters can request a review of a part or component for less restrictive treatment.

SIA also has several questions about the new proposed ECCN 9A515. First, we observe that some items currently listed under other CCL ECCNs (e.g. 3A001) contain microelectronic circuits that have all of the specifications listed under 9A515.d. Does the proposed rule imply that microelectronic circuits meeting the described specifications that are currently controlled under other ECCNs will be moved into ECCN 9A515.d?

Second, with respect to notes 2 and 3 under paragraph .d of ECCN 9A515, as discussed in SIA’s comments on ECCN 3A001, it is unclear which microelectronic circuits are intended to be controlled under ECCN 3A001 as opposed to ECCN 9A515.x.

Third, will ECCN 9A515.x capture all spacecraft “parts,” “components,” “accessories,” and “attachments” not controlled under paragraph (e) of USML Category XV or listed under other specific ECCNs above? Or will other ECCNs that currently control spacecraft components (e.g. 7A004 or 7A104) continue to do so? Delineating which

⁷ Revisions to the Export Administration Regulations: Initial Implementation of Export Control Reform, Final Rule, 78 Fed. Reg. 22,660, 22,682 (April 16, 2013) (to be codified at 15 C.F.R. pt. 772).

items are controlled by each of these ECCN's would help satellite component manufacturers understand which controls apply to their products.

- 42. In Supplement No. 1 to Part 774, between the entries for ECCNs 9B117 and 9B990, add new entry for ECCN 9B515 to read as follows:

9B515 Test, inspection, and production "equipment" "specially designed" for "spacecraft" and related commodities, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT

| Control(s) | Country chart |
|----------------------------------|---------------|
| NS applies to entire entry | NS Column 1 |
| RS applies to entire entry | RS Column 1 |
| AT applies to entire entry | AT Column 1 |

License Exceptions

LVS: \$1500; \$5000 for 9B515.c.

GBS: N/A.

CIV: N/A.

STA: Paragraph (c)(2) of License Exception

STA (§ 740.20(c)(2) of the EAR) may not be used for any item in 9B515.

List of Items Controlled

Unit: N/A.

Related Controls: N/A.

Related Definitions: N/A.

Items:

a. Test, inspection, and production "equipment" "specially designed" for the "production" or "development" of commodities enumerated in ECCN 9A515 or USML Category XV.

b. "Equipment," cells, and stands "specially designed" for testing, analysis and fault isolation of commodities enumerated in ECCN 9A515, 9A004 or USML Category XV.

~~c. Environmental test chambers capable of pressures below (10⁻⁴) Torr, and "specially designed" "components" therefor.~~

It is unclear why the (10⁻⁴) Torr technical threshold has been included in the definition of ECCN 9B515(c). In general, the development of more advanced satellite designs has led to increases in design life, a feature which requires more demanding testing standards and more advanced testing equipment to validate these designs. It is therefore plausible that commercially-available environmental test chambers could approach this threshold due to natural competitive pressures and the general interest

among both satellite manufacturers and their customers in developing more reliable spacecraft. Unless there is a specific reason for the inclusion of this threshold, SIA recommends that it be removed.

- 43. In Supplement No. 1 to Part 774, between the entries for ECCNs 9D105 and 9D990, add a new entry for ECCN 9D515 to read as follows:

9D515 “Software” “specially designed” for the “development,” “production” operation, installation, maintenance, repair, overhaul, or refurbishing of “spacecraft” and related commodities, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, RS, AT.

| Control(s) | Country chart |
|----------------------------------|---------------|
| NS applies to entire entry | NS Column 1 |
| RS applies to entire entry | RS Column 1 |
| AT applies to entire entry | AT Column 1 |

License Exceptions

CIV: N/A.

TSR: N/A.

STA: (1) Paragraph (c)(1) of License Exception STA (§ 740.20(c)(1) of the EAR) may not be used for 9D515.b through .g. (2) Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any “software” in 9D515.

List of Items Controlled

Unit: \$ value.

Related Controls: “Software” directly related to articles enumerated in USML Category XV is subject to the control of USML paragraph XV(f). See also ECCNs 3D001, 6D001, 6D002, and 6D991 for controls of specific software “specially designed” for certain “space qualified” items.

Related Definitions: N/A.

Items:

- a. “Software” (other than “software” controlled in paragraphs .b through .g of this entry) “specially designed” for the “development,” “production,” operation, installation, maintenance, repair, overhaul, or refurbishing of commodities controlled by ECCN 9A515 or “equipment” controlled by 9B515.
- b. “Source code” that contains the algorithms or control principles (e.g., clock management), precise orbit determination (e.g., ephemeris, pseudo range), signal construct (e.g., pseudo-random noise (PRN) anti-spoofing) “specially designed” for items controlled by ECCN 9A515.

- c. "Source code" "specially designed" for the integration, operation, or control (i.e., use) of items controlled by ECCN 9A515.
- d. "Source code" that contains algorithms or modules "specially designed" for system, subsystem, component, part, or accessory calibration, manipulation, or control of items controlled by ECCN 9A515.
- e. "Source code" "specially designed" for data assemblage, extrapolation, or manipulation of items controlled by ECCN 9A515.
- f. "Source code" that contains the algorithms or control laws "specially designed" for attitude, position, or flight control of items controlled in ECCN 9A515.
- g. "Source code" "specially designed" for built-in test and diagnostics for items controlled by ECCN 9A515.

SIA requests the addition of a note to ECCN 9D515 that clarifies the jurisdiction of software common to both USML and CCL satellites. The note should state that if software is not specially designed or modified for a satellite controlled under the USML, it is subject to the EAR and controlled under this ECCN. There exist a number of software packages for various satellite buses that generally must be modified to meet the requirements of satellites listed under USML Category XV. Unless specially designed or modified for such a satellite, standard software packages should be controlled under this ECCN. In SIA's view, the proposed rule does not offer sufficient clarity on this point.

SIA also requests the insertion of a note to ECCN 9D515 that would make clear that non-U.S. origin software that meets the definitions in this ECCN that is transferred to the United States would not be subject to the EAR, and therefore would not require a license in order to be re-transferred outside the United States. Without such a note, U.S. companies would face unclear export licensing requirements when engaging in collaborative software projects, or when going through iterative review processes involving international software vendors.

- 44. In Supplement No. 1 to Part 774, between the entries for ECCNs 9E102 and 9E990, add new entry for ECCN 9E515 to read as follows:

9E515 "Technology" "required" for the "development," "production," ~~operation,~~ installation, maintenance, repair, overhaul, or refurbishing of "spacecraft" and related commodities, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, RS, AT

| Control(s) | Country chart |
|--|---------------|
| NS applies to entire entry | NS Column 1 |
| MT applies to technology for items in 9A515.d controlled for MT reasons. | MT Column 1 |
| RS applies to entire entry | RS Column 1 |

License Exceptions

CIV: N/A.

TSR: N/A.

STA: (1) Paragraph (c)(1) of License Exception STA (§ 740.20(c)(1) of the EAR) may not be used for 9E515.b. (2) Paragraph (c)(2) of License Exception STA (§ 740.20(c)(2) of the EAR) may not be used for any "technology" in 9E515.

List of Items Controlled

Unit: \$ value.

Related Controls: Technical data directly related to articles enumerated in USML Category XV are subject to the control of USML paragraph XV(f). See also ECCNs 3E001, 3E003, 6E001, and 6E002 for specific "space-qualified" items.

Related Definitions: N/A.

Items:

a. ~~"Technology"~~ "required" for the "development," "production," (including build-to-print technology), ~~operation, design verification, quality control,~~ installation, maintenance, repair, overhaul or refurbishing of commodities controlled by ECCN 9A515, "equipment" controlled by 9B515, or "software" controlled by 9D515.

~~Note: "Build-to-print technology" excluded from paragraph b. is classified under 9E515.a.~~

b. ~~"Technology"~~ (other than "build-to-print technology") "required" for the ~~"development," "production," design verification, manufacturability, or quality control~~ for of items in ECCN 9A515, except items in ECCN 9A515.b.

SIA has deep concerns about the lack of clarity in this section. As noted in our comments on EAR § 740.2(a)(17), the restriction on the use of license exception STA for technology controlled by ECCN 9E515.b makes it vital to understand the distinction between paragraphs .a and .b of this ECCN. However, despite a lengthy review period, SIA members have been unable to determine which types of technology and technical data are controlled by which of these paragraphs.

SIA suggests several changes to the proposed definitions in ECCN 9E515 to more clearly differentiate paragraphs .a and .b. First, we propose the deletion of the term "operation" from paragraph .a. Certain "operation" data is currently exempted from license requirements by § 125.4(b)(5) of the ITAR. This exemption ensures that if a U.S. company acquires a license to export a product controlled on the USML, it does not also need to apply for a second license to provide basic "operation" data. If the U.S. government has determined that this exemption is appropriate for defense articles which are subject to the ITAR, the same exemption should apply to the less sensitive items which are subject to the EAR, including spacecraft and related commodities. For these reasons, SIA strongly opposes the proposal to require a license for "operation" data for items controlled under ECCNs 9A515, 9B515, and 9D515, and suggests the

deletion of this term from both the title of ECCN 9E515 and from the text of paragraph .a. In the event that the Department decides that “operation” data should be controlled under paragraph .a of this ECCN, an exception for basic operations, maintenance, and training information similar to the one provided by § 125.4(b)(5) of the ITAR should be added in a note to the paragraph. This would ensure that shifting the export control jurisdiction of certain satellites and related items does not yield the unintended consequence of controlling *more* technical data than was controlled when all satellites were subject to the ITAR.

Second, SIA proposes to remove the terms “development” and “production” from paragraph .b, due to their prior listing under paragraph .a. Listing the same defined terms in two paragraphs for which different licensing policies apply would make it extremely difficult to determine what the licensing requirement would be for any given transaction involving technology (*i.e.*, virtually all transactions). Therefore, this redundancy should be eliminated.

Third, SIA proposes that technology for “design verification” and “quality control” be listed under paragraph .a rather than paragraph .b. While there is an understandable desire to control the export of technology that could be used to develop manufacturing facilities for satellite items, the transfer of technology used for design verification and quality control does not in and of itself convey the ability to manufacture a given item. Therefore, information used for design verification and quality control should be eligible for the use of license exception STA, much like the rest of the items controlled under the 9x515 ECCNs.

Finally, SIA proposes that technology for “manufacturability” be retained in paragraph .b, where it would not be eligible for the use of license exception STA. SIA would strongly recommend that the Department develop a definition of this term to provide additional clarity to U.S. companies. SIA is aware that the Administration has long been concerned about the export of “design methodology” and “manufacturing know-how,” and wants to ensure that all proposed exports of these technology categories are reviewed through the license application process. Therefore, SIA recommends that the Department make use of these terms in defining “manufacturability.” One possible definition of the latter term is as follows: “design decision, engineering feature, or performance requirement technology (design methodology), or technology for the translation of a detailed design into a qualified finished product (manufacturing know-how).” In light of these comments, SIA has also recommended the deletion of the quotation marks around the term “technology,” because these alterations would create a different definition for the term than the one that currently exists in the EAR. Similarly, SIA notes that if these suggestions are accepted, the definition of “development” in paragraph .a may have to be adjusted (*e.g.*, by inserting the phrase “except those stages related to manufacturability”) so that it excludes technology related to manufacturability, which would more clearly distinguish between the

spacecraft technology that is controlled by paragraphs .a and .b. Removing the quotation marks around the term development and inserting a slightly revised definition in parentheses would provide the necessary adjustment with the most clarity.

SIA offers the following general comments in support of the modifications proposed above. In general, during the lifetime of a satellite project, from the issuance of a request for proposals to the de-orbit of the satellite, there are numerous exchanges of data between satellite manufacturers and their potential or actual customers and between satellite operators and their contractors. The types of data exchanged may include sales and marketing data, performance specifications, operational data (*e.g.*, data describing on-orbit anomalies), testing data, and/or critical design reviews, among others. If SIA's proposed modifications are not accepted and other clarifying edits are not implemented, it is unclear whether this section will have the effect of requiring a license for each individual technical exchange (*i.e.*, if the bulk of this technical data will be controlled under paragraph .b), which would be unnecessary, extremely time-consuming, burdensome, and contrary to the overall goal of streamlining and updating the export controls on satellite items.

SIA requests the insertion of a note to ECCN 9E515 that would make clear that non-U.S. origin technical data that meets the definitions in this ECCN that is transferred to the United States would not be subject to the EAR, and therefore would not require a license in order to be re-transferred outside the United States. The ITAR currently includes such a license exemption in Part 125.4(b)(7), which should be carried over to the EAR along with the satellite items that the Administration has determined do not warrant control under the ITAR regime.

SIA also requests the insertion of a second note to this ECCN that explicitly states that sales and marketing data, telemetry data, and general scientific, mathematical, or engineering principles are not included in the definitions of "technology." By telemetry data, SIA is referring to the wireless transmission and reception of data used for spacecraft bus control (*e.g.*, roll, pitch, and yaw information and trajectory information) and spacecraft monitoring (*e.g.*, temperatures, voltages, currents, and other internal system information used to assess the health of the spacecraft bus, payload, and associated subsystems and components).

SIA has a few additional specific questions with respect to this ECCN. First, with respect to paragraph .a, to what technology would the phrase "for installation, maintenance, repair, overhaul or refurbishing" be applicable? Would data provided to satellite operators for post-launch operations (*e.g.*, orbit-raising) and on-orbit anomaly resolution meet this definition? The terms installation, maintenance, repair, overhaul or refurbishing seem to apply only to the ground control systems controlled under ECCN 9A515.b. If this is the case, SIA recommends that ECCN 9E515.a be re-phrased so that the phrase "installation, maintenance, repair, overhaul or refurbishing" is made to

apply only to ground control systems listed under ECCN 9A515.b, "equipment" controlled by ECCN 9B515, and "software" controlled by ECCN 9D515.

Second, the definition of the term "production" includes integration, but paragraph .a also includes the undefined term "installation." Does "installation" in this ECCN have the same definition as in the new definition of "defense service" in the USML?

Third, the definition of "build-to-print technology" includes the terms "design methodology," "engineering analysis," and "manufacturing know-how." These terms are defined under the ITAR. Will they also now be defined under the EAR? Do they have the same definitions as under the ITAR?

Finally, spacecraft Technical Assistance Agreements typically are granted with conditions barring the provision of design methodology or manufacturing know-how to foreign persons, and limiting the provision engineering analyses to some destinations. Will the same conditions be applied to licenses issued for technology controlled under ECCN 9E515?

Conclusion

Once again, SIA strongly supports and welcomes the proposals made by the Department of Commerce to reform the U.S. export control system for satellites and related items by creating new regulations under the EAR. SIA believes that with some adjustments and clarifications, the revised CCL will greatly promote the international competitiveness of the U.S. space industrial base. SIA strongly endorses these reforms, and urges the Department to publish a final rule as soon as possible.

SIA thanks the Department for the opportunity to comment on these important additions to the CCL and would welcome the chance to discuss our comments in greater detail should further clarification be required.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Patricia Cooper". The signature is written in a cursive, flowing style.

Patricia Cooper
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