8A002  Marine systems, equipment, “parts” and “components,” as follows (see List of Items Controlled).

* * * * *

List of Items Controlled

* * * * *

Related Controls: (1) See also 8A092 and for underwater communications systems, see Category 5, Part I—Telecommunications.

(2) See also 8A092 for self-contained underwater breathing apparatus that is not controlled by 8A002 or released for control by the 8A002.a Note. (3) For electronic imaging systems “specially designed” or modified for underwater use incorporating image intensifier tubes specified by 6A002.a.2.a or 6A002.a.2.b, see 6A003.b.3.

(4) For electronic imaging systems “specially designed” or modified for underwater use incorporating “focal plane arrays” specified by 6A002.a.3.g, see 6A003.b.4.c. (5) Section 744.9 imposes a license requirement on commodities described in 8A002.d.1.c or d.2 if being exported, reexported, or transferred (in-country) for use by a military end-user or for incorporation into an item controlled by ECCN 0A919.

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Kevin J. Wolf,
Assistant Secretary of Commerce for Export Administration.

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DEPARTMENT OF STATE

22 CFR Part 121

[Public Notice: 9110]

RIN 1400–AD32

Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII

AGENCY: Department of State.

ACTION: Proposed rule.

SUMMARY: As part of the President’s Export Control Reform effort, the Department of State proposes to amend the International Traffic in Arms Regulations (ITAR) (22 CFR parts 120–130). The items subject to the jurisdiction of the ITAR, i.e., “defense articles,” are identified on the ITAR’s U.S. Munitions List (USML) (22 CFR 121.1). With few exceptions, items not subject to the export control jurisdiction of the ITAR are subject to the jurisdiction of the Export Administration Regulations (“EAR,” 15 CFR parts 730–774, which includes the Commerce Control List (CCL) in Supplement No. 1 to Part 774), administered by the Bureau of Industry and Security (BIS), U.S. Department of Commerce. Both the ITAR and the EAR impose license requirements on exports and reexports. Items not subject to the ITAR or to the exclusive licensing jurisdiction of any other set of regulations are subject to the EAR. The revisions contained in this rule are part of the Department of State’s retrospective plan under E.O. 13563 completed on August 17, 2011. The Department of State’s full plan can be accessed at http://www.state.gov/documents/organization/181028.pdf.

Revision of Category XII

This proposed rule revises USML Category XII, covering fire control, range finder, optical and guidance and control equipment, to advance the national security objectives set forth above and to more accurately describe the articles within the category, in order to establish a “bright line” between the USML and the CCL for the control of these articles.

Paragraph (a) is revised to add subparagraphs (1) through (9) to more clearly describe the articles controlled in (a).

Paragraph (a)(4) is added for fire control systems and equipment.

Paragraph (a)(5) is added for weapons sights and weapons aiming or imaging systems, with certain infrared focal plane arrays, image intensifier tubes, ballistic computers, or lasers.

Paragraph (a)(6) is added for electro-optical missile or ordnance tracking or guidance systems.

Paragraph (a)(7) is added for electro-optical systems or equipment that automatically detect and locate weapons launch or fire.

Paragraph (a)(8) is added for certain remote wind sensing systems or equipment for enhanced targeting.

Paragraph (a)(9) is added for certain helmet mounted display (HMD) systems.

Paragraph (b) is revised to add subparagraphs (1) through (14) to more clearly describe the articles controlled in (b).

Paragraph (b)(1) is added for laser target designators or coded target markers.

Paragraph (b)(2) is added for certain infrared laser aiming or target illumination systems.

Paragraph (b)(3) is added for certain laser range finders.

Paragraph (b)(4) is added for certain targeting or target location systems.

Paragraph (b)(5) is added for optical augmentation systems.

Paragraph (b)(6) is added for certain light detection and ranging (LIDAR), laser detection and ranging (LADAR), or range-gated systems and includes a carve out for certain LIDAR systems for civil or automotive applications.

Paragraph (b)(7) is added for certain synthetic aperture LIDAR or LADAR systems.
Paragraph (b)(8) is added for LIDAR, LADAR, or other laser range-gated identified in subparagraphs (i)–(vi).

Paragraph (b)(9) is added for certain lasers for electronic combat systems controlled in Category XI(a)(4).

Paragraph (b)(10) is added for certain tunable semiconductor lasers.

Paragraph (b)(11) is added for certain non-tunable single transverse mode semiconductor lasers.

Paragraph (b)(12) is added for certain non-tunable multiple transverse mode semiconductor lasers.

Paragraph (b)(13) is added for laser stacked arrays identified in subparagraphs (i)–(iv).

Paragraph (b)(14) is added for developmental lasers funded by the Department of Defense.

Paragraph (c) is revised to add subparagraphs (1) through (21) to more clearly describe the articles controlled in (c).

Paragraph (c)(1) is added for certain second and third generations image intensifier tube (IITs).

Paragraph (c)(2) is added for certain photon detector, microbolometer detector, or multispectral detector infrared focal plane arrays (IRFPAs).

Paragraph (c)(3) is added for certain one-dimensional photon detector IRFPAs in a permanent encapsulated sensor assembly.

Paragraph (c)(4) is added for certain two-dimensional photon detector IRFPAs in a permanent encapsulated sensor assembly.

Paragraph (c)(5) is added for certain microbolometer IRFPAs in a permanent encapsulated sensor assembly.

Paragraph (c)(6) is added for multispectral IRFPAs in a permanent encapsulated sensor assembly.

Paragraph (c)(7) is added for certain charge multiplication focal plane arrays.

Paragraph (c)(8) is added for certain charge multiplication focal plane arrays in a permanent encapsulated sensor assembly.

Paragraph (c)(9) is added for certain integrated IRFPA dewar cooler assemblies (IDCAs).

Paragraph (c)(10) is added for gimbals with two or more axes of active stabilization having a minimum root-mean-square (RMS) stabilization better (less) than 200 microradians.

Paragraph (c)(11) is added for gimbals with two or more axes of active stabilization having a minimum root-mean-square (RMS) stabilization better (less) than 100 microradians.

Paragraph (c)(12) is added for infrared imaging camera cores identified in subparagraphs (i)–(xi). Camera cores meeting the shock tolerance criteria described in (c) (i)–(ii) are controlled on the USML whether or not they are tested to meet these criteria.

Paragraph (c)(13) is added for binoculars, bioculars, monoculars, goggles, or head- or helmet-mounted imaging systems with IITs or camera cores controlled in this category.

Paragraph (c)(14) is added for certain targeting systems.

Paragraph (c)(15) is added for infrared search and track (IRST) systems.

Paragraph (c)(16) is added for infrared imaging systems identified in subparagraphs (i)–(xi).

Paragraph (c)(17) is added for certain terahertz imaging systems.

Paragraph (c)(18) is added for near-to-eye display systems or equipment, specially designed for articles controlled in this subchapter.

Paragraph (c)(19) is added for systems or equipment that project radiometrically calibrated scenes directly into the entrance aperture of an electro-optical or infrared (EO/IR) sensor controlled in this subchapter within either the spectral band exceeding 10 nm but not exceeding 400 nm, or the spectral band exceeding 900 nm but not exceeding 30,000 nm.

Paragraph (c)(20) is added for certain systems or equipment incorporating an infrared beacon or emitter specially designed for Identification Friend or Foe (IFF) and specially designed parts and components thereof.

Paragraph (c)(21) is added for certain imaging systems funded by the Department of Defense.

A note is added to paragraph (c) to address the incorporation of these defense articles into commercial items. With minor exceptions, all bare IRFPAs are controlled in Category XII, paragraph (c)(2). However, once an IRFPA has been incorporated into a permanent encapsulated sensor assembly, it ceases to be controlled in paragraph (c)(2) because it is incorporated into a higher order assembly. The permanent encapsulated sensor assembly will be controlled in paragraphs (c)(3)–(6), if it meets the control parameters of one of those paragraphs. These control parameters are set at a level that the Department has determined excludes most commercial products. Further, once most IRFPAs and permanent encapsulated sensor assemblies are incorporated into a camera core, monocular, or binocular or other higher order system, that system will not be subject to the ITAR or require authorization from the Department for export, unless it is specifically enumerated. Most multispectral IRFPAs and IRFPAs with charge multiplication are excluded from the note and remain subject to the ITAR, even when incorporated into higher order assemblies or end-items. IRFPA, permanent encapsulated sensor assemblies, camera cores, monoculars, binoculars, and other higher order systems not enumerated on the USML are generally subject to the EAR.

Paragraph (d) is revised to move controls on Global Navigation Satellite System (GNSS) equipment from Category XV and to add subparagraphs (1) through (9) to more clearly describe the articles controlled in (d).

Paragraph (d)(1) is added for certain guidance or navigation systems.

Paragraph (d)(2) is added for certain accelerometers.

Paragraph (d)(3) is added for certain gyroscopes or angular rate sensors.

Paragraph (d)(4) is added for certain mobile relative gravimeters.

Paragraph (d)(5) is added for certain mobile gravity gradiometers.

Paragraph (d)(6) is added for Global Navigation Satellite System receiving equipment from Category XV.

Paragraph (d)(7) is added for certain GNSS anti-jam systems employing adaptive antennas.

Paragraph (d)(8) is added for certain GNSS security devices.

Paragraph (d)(9) is added for developmental guidance, navigation, or control devices, systems or equipment funded by the Department of Defense.

Paragraph (e) is revised to add subparagraphs (1) through (15) to more clearly describe the parts and components controlled in (e).

A significant aspect of this more positive, but not yet tiered, proposed USML category is that it does not contain controls on all generic parts, components, accessories, and attachments that are specifically designed or modified for a defense article, regardless of their significance to maintaining a military advantage for the United States. Rather, it contains, with a few exceptions, a positive list of specific types of parts, components, accessories, and attachments that continue to warrant control on the USML. The exceptions pertain to those parts, components, accessories, and attachments identified as ‘‘specially designed.”

Paragraph (e)(1) is added for specially designed optical sensors for electronic combat systems controlled in Category XI(a)(4).

Paragraph (e)(2) is added for certain image intensifier tube (IIT) parts and components identified in subparagraphs (i)–(vii).

Paragraph (e)(3) is added for certain wafers incorporating structures for Read-Out Integrated Circuits (ROICs)
controlled in (e)(4) or (e)(5) or for IRFPA detectors controlled in (e)(2).
Paragraph (e)(4) is added for ROICs specially designed for IRFPAs.
Paragraph (e)(5) is added for IRFPA dewar cooler assembly (IDCA) parts and components identified in subparagraphs (i)–(iv).
Paragraph (e)(6) is added for specially designed vacuum packages or other sealed enclosures for an IRFPA or IIT controlled in paragraph (c).
Paragraph (e)(7) is added for integrated IRFPA dewar cooler assembly (IDCA) parts and components identified in subparagraphs (i)–(iv).
Paragraph (e)(8) is added for specially designed IRFPA Joule-Thomson (JT) self-regulating cryostats.
Paragraph (e)(9) is added for specially designed infrared lenses, mirrors, beam splitters or combiners, filters, and treatments and coatings.
Paragraph (e)(10) is added for specially designed drive, control, signal or image processing electronics identified in subparagraphs (i)–(iii).
Paragraph (e)(11) is added for signal processing electronics identified in subparagraphs (i)–(iii).
Paragraph (e)(12) is added for specially designed near-to-eye displays.
Paragraph (e)(13) is added for specially designed resonators, receivers, transmitters, modulators, gain media, and drive electronics or frequency converters.
Paragraph (e)(14) is added for two-dimensional infrared scene projector emitter arrays (i.e., resistive arrays) that emit infrared radiation within the 900 nm to 30,000 nm wavelength range.
Paragraph (e)(15) is added for classified parts, components, accessories, attachments, and associated equipment.

A note is added to paragraph (e) to address the incorporation of these defense articles into commercial items.
Paragraph (f) is revised to more clearly describe the technical data and defense services controlled in paragraph (f).

Three notes are added to paragraph (f) to address technical data and defense services when incorporating defense articles into commercial items. Note 1 clarifies that technical data directly related to IITs, IRFPAs, integrated IRFPA dewar cooler assemblies and related wafers and ROICs controlled in this Category remains USML controlled, even when those defense articles are part of a system that is subject to the EAR. Note 2 enumerates certain technical data and software that are directly related to the defense articles controlled in paragraphs A, B, and C. It also includes a note to paragraph A, identifying certain technology that is not technical data. Note 3 states that certain technology for the incorporation or integration of IRFPAs and IITs in to items subject to the EAR, including into permanent encapsulated sensor assemblies, is subject to the EAR.

A new (x) paragraph has been added to USML Category XII, allowing ITAR licensing for commodities, software, and technology subject to the EAR provided those commodities, software, and technology are to be used in or with defense articles controlled in USML Category XII and are described in the purchase documentation submitted with the application.

Finally, articles common to the Missile Technology Control Regime (MTCR) Annex and the USML are to be identified on the USML with the parenthetical “(MT)” at the end of each section containing such articles. A separate proposed rule will address the sections in the ITAR that include MTCR definitions.

The following definitions explain and amplify terms used in this Category and are provided to assist exporters in understanding the scope of the proposed control.

Charge multiplication is a form of electronic image amplification, the generation of charge carriers as a result of an impact ionization gain process.

Focal plane array is a linear or two-dimensional planar layer, or combination of planar layers, of individual detector elements, with or without readout electronics, which work in the focal plane.

Note: This definition does not include a stack of single detector elements or any two, three, or four element detectors provided time delay and integration is not performed within the element.

Image intensifier tube refers to an imaging device that incorporates a photoemissive transducer (i.e., photocathode) and achieves electron image amplification in the vacuum space.

Microbolometer is a thermal imaging detector that, as a result of a temperature change in the detector caused by the absorption of infrared radiation, is used to generate a usable signal.

Multispectral refers to producing discrete outputs associated with more than one spectral band of response.

**Request for Comments**

As the U.S. Government works through the proposed revisions to the USML in Category XII, some control parameters are proposed recognizing that they will control items in normal commercial use and on the Wassenaar Arrangement’s Dual Use List. With the thought that multiple perspectives would be beneficial to the USML revision process, the Department welcomes the assistance of users of the lists and requests input on the following:

(1) A key goal of this rulemaking is to ensure the USML and the CCL together control all the items that meet Wassenaar Arrangement commitments embodied in Munitions List Categories 5, 11 and 15 (WA–ML15) and the relevant Dual Use List Categories including the IRFPAs in Category 6 (WA–DU 6.A.2). To that end, the public is asked to identify any potential lack of coverage brought about by the proposed rules for Category XII contained in this notice and the new and revised ECCNs published separately by the Department of Commerce when reviewed together.

(2) Another key goal of this rulemaking is to identify items proposed for control on the USML or the CCL that are not controlled on the Wassenaar Arrangement’s Munitions or Dual Use List. The public is asked to identify any items proposed for control on the USML that are not controlled on the Wassenaar Arrangement’s Munitions or Dual Use List.

(3) A third key goal of this rulemaking is to establish a “bright line” between the USML and the CCL for the control of these materials. The public is asked to provide specific examples of control criteria that do not clearly describe items that would be defense articles and thus do not establish a “bright line” between the USML and the CCL.

(4) Although the proposed revisions to the USML do not preclude the possibility that items in normal commercial use would or should be ITAR-controlled because, e.g., they provide the United States with a critical military or intelligence advantage, the U.S. government does not want to inadvertently control items on the ITAR that are in normal commercial use. Items that would be controlled on the USML in this proposed rule have been identified as possessing parameters or characteristics that provide a critical military or intelligence advantage. The public is thus asked to provide specific examples of items, if any, that would be controlled by the revised USML Category XII that are now in normal commercial use. The examples should demonstrate actual commercial use, not just potential or theoretical use, with supporting documents, as well as foreign availability of such items.

(5) For any criteria the public believes control items in normal commercial use, the public is asked to identify parameters or characteristics that cover...
items exclusively or primarily in military use.

(6) For any criteria the public believes control items in normal commercial use, the public is asked to identify the multilateral controls (such as the Wassenaar Arrangement’s Dual Use List), if any, for such items, and the consequences of such items being controlled on the USML.

(7) DDTC seeks public comments on each paragraph of the proposed USML Category XII. In addition, DDTC specifically seeks public comments on the following concepts that are introduced in proposed USML Category XII: A) Using integration of an IRFPA into a permanent encapsulated sensor assembly as a control parameter; B) using the incorporation of an IRFPA into an infrared imaging camera core as a control parameter and the definition of camera cores in the note to XII(c)(12); C) the weapon shock load control criterion in XII(c)(12)(iii); and D) proposed controls on specific technical data in XII(f).

Regulatory Analysis and Notices

Administrative Procedure Act

The Department of State is of the opinion that controlling the import and export of defense articles and services is a foreign affairs function of the United States Government and that rules implementing this function are exempt from sections 553 (rulemaking) and 554 (adjudications) of the Administrative Procedure Act (APA). Although the Department is of the opinion that this rule is exempt from the rulemaking provisions of the APA, the Department is publishing this rule with a 60-day provision for public comment and without prejudice to its determination that controlling the import and export of defense services is a foreign affairs function.

Regulatory Flexibility Act

Since this rule is exempt from the rulemaking provisions of 5 U.S.C. 553, it does not require analysis under the Regulatory Flexibility Act.

Unfunded Mandates Reform Act of 1995

This proposed amendment does not involve a mandate that will result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more in any year and it will not significantly or uniquely affect small governments. Therefore, no actions were deemed necessary under the provisions of the Unfunded Mandates Reform Act of 1995.

Small Business Regulatory Enforcement Fairness Act of 1996

This proposed amendment has been found not to be a major rule within the meaning of the Small Business Regulatory Enforcement Fairness Act of 1996.

Executive Orders 12372 and 13132

This proposed amendment will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 13132, it is determined that this proposed amendment does not have sufficient federalism implications to require consultations or warrant the preparation of a federalism summary impact statement. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities do not apply to this proposed amendment.

Executive Orders 12866 and 13563

Executive Orders 13563 and 12866 direct agencies to assess costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributed impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. This rule has been designated a “significant regulatory action,” although not economically significant, under section 3(f) of Executive Order 12866. Accordingly, the rule has been reviewed by the Office of Management and Budget (OMB).

Executive Order 12988

The Department of State has reviewed the proposed amendment in light of Executive Order 12988 to eliminate ambiguity, minimize litigation, establish clear legal standards, and reduce burden.

Executive Order 13175

The Department of State has determined that this rulemaking will not have tribal implications, will not impose substantial direct compliance costs on Indian tribal governments, and will not preempt tribal law. Accordingly, Executive Order 13175 does not apply to this rulemaking.

Paperwork Reduction Act

Following is a listing of approved Department of State collections that will be affected by revision of the U.S. Munitions List (USML) and the Commerce Control List pursuant to the President’s Export Control Reform (ECR) initiative. The list of collections and the description of the manner in which they will be affected pertains to revision of the USML in its entirety, not only to the categories published in this rule. In accordance with the Paperwork Reduction Act, the Department of State will request comment on these collections from all interested persons at the appropriate time. In particular, the Department will seek comment on changes to licensing burden based on implementation of regulatory changes pursuant to ECR, and on projected changes based on continued implementation of regulatory changes pursuant to ECR. The information collections are as follows:

(1) Statement of Registration, DS–2032, OMB No. 1405–0002. The Department estimates that between 3,000 and 5,000 of the currently registered persons will not need to maintain registration following full revision of the USML. This would result in a burden reduction of between 6,000 and 10,000 hours annually, based on a revised time burden of two hours to complete a Statement of Registration.

(2) Application/License for Permanent Export of Unclassified Defense Articles and Related Unclassified Technical Data, DSP–5, OMB No. 1405–0003. The Department estimates that there will be 35,000 fewer DSP–5 submissions annually following full revision of the USML. This would result in a burden reduction of 35,000 hours annually.

(3) Application/License for Temporary Import of Unclassified Defense Articles, DSP–61, OMB No. 1405–0013. The Department estimates that there will be 200 fewer DSP–61 submissions annually following full revision of the USML. This would result in a burden reduction of 100 hours annually.

(4) Application/License for Temporary Export of Unclassified Defense Articles, DSP–73, OMB No. 1405–0023. The Department estimates that there will be 800 fewer DSP–73 submissions annually following full revision of the USML. This would result in a burden reduction of 800 hours annually.

(5) Application for Amendment to License for Export or Import of Classified or Unclassified Defense Articles and Related Technical Data, DSP–6, –62, –74, –119, OMB No. 1405–
§ 121.1 The United States Munitions List.

2. Section 121.1 is amended by removing and reserving paragraph (e) in U.S. Munitions List Category VIII. 

3. Section 121.1 is amended by revising U.S. Munitions List Category XII to read as follows:

§ 121.1 The United States Munitions List.

Note to paragraph (a)(4): For controls on LIDAR, see paragraph (b)(8) of this category.

Note to paragraph (b)(6): This paragraph does not control LIDAR systems or equipment for civil automotive applications having a range limited to 200 m or less.

(7) Synthetic aperture LIDAR or LADAR systems or equipment, having a stand-off range of 100 m or greater (MT if designed or modified for rockets, missiles, SLVs, drones, or unmanned aerial vehicle systems capable of delivering at least a 500 kg payload to a range of at least 300 km).

(8) LIDAR, LADAR, or other laser range-gated systems or equipment, as follows (MT if designed or modified for rockets, missiles, SLVs, drones, or unmanned aerial vehicle systems capable of delivering at least a 500 kg payload to a range of at least 300 km): 

(i) Systems or equipment having a resolution (i.e., ground point spacing) of 0.2 m or less (better) from an altitude above ground level of greater than 16,500 ft, and incorporating or specially designed to incorporate a gimbal-mounted transmitter or beam director, and specially designed parts and components therefor; 

(ii) Aircraft systems or equipment having a laser output wavelength exceeding 1,000 nm and a detection range exceeding 500 m for an obstacle.
with a diameter or width less than or equal to 10 mm (e.g., wire, power line); (iii) Systems or equipment having an electrical bandwidth of 100 MHz or greater, and incorporating or specially designed to incorporate either a Geiger-mode detector array having at least 32 elements or a linear-mode detector array having at least 128 elements; (iv) Systems or equipment employing coherent heterodyne or coherent homodyne detection techniques, having an angular resolution of less (better) than 100 microradians and an operational carrier noise ratio (CNR) less than 10; (v) Systems or equipment that automatically classify or identify submersibles, mines, unexploded ordnance or improvised explosive devices (IEDs); or (vi) Systems or equipment specially designed for obstacle avoidance or autonomous navigation in ground vehicles controlled in Category VII; 

Note to paragraphs (b)(4) and (b)(6) through (8): “Payload” is the total mass that can be carried or delivered by the specified rocket, missile, SLV, drone or unmanned aerial vehicle that is not used to maintain flight. For definition of “range” as it pertains to rocket systems, see note 1 to paragraph (a) of USML Category IV. For definition of “range” as it pertains to aircraft systems, see note to paragraph (a) of USML Category VIII.

(9) Lasers operating at a wavelength exceeding 3,000 nm that provide a modulated output for systems or equipment controlled in Category XII(a)(4); (10) Tunable semiconductor lasers having an output wavelength exceeding 1,400 nm and an output power greater than 1 W; (11) Non-tunable single transverse mode semiconductor lasers having an output wavelength exceeding 1,510 nm and either an average output power or continuous wave (CW) output power greater than 2 W; (12) Non-tunable multiple transverse mode semiconductor lasers having an output wavelength exceeding 1,900 nm and either an average output power or CW output power greater than 2 W; (13) Laser stacked arrays as follows: (i) Having an output wavelength not exceeding 1,400 nm and a peak pulsed power density greater than 3,300 W/cm²; (ii) Having an output wavelength exceeding 1,400 nm but less than 1,900 nm and a peak pulsed power density greater than 700 W/cm²; (iii) Having an output wavelength exceeding 1,900 nm and a peak pulsed power density greater than 70 W/cm²; or (iv) Having an output wavelength exceeding 1,900 nm, and either an average output power or CW output power greater than 20 W; (14) Developmental lasers and laser systems or equipment funded by the Department of Defense; 

Note 1 to paragraph (b)(14): This paragraph does not control developmental lasers and laser systems or equipment (a) in production, (b) determined to be subject to the EAR via a commodity jurisdiction determination (see § 120.4 of this subchapter), or (c) identified in the relevant Department of Defense contract or other funding authorization as being developed for both civil and military applications. 

Note 2 to paragraph (b)(14): Note 1 does not apply to defense articles enumerated on the U.S. Munitions List, whether in production or development. 

Note 3 to paragraph (b)(14): This provision is applicable to those contracts or other funding authorizations that are dated XXXX, 2016, or later. 

*(c) Infrared focal plane arrays, image intensifier tubes, night vision, electro-optic, infrared and terahertz systems, equipment and accessories, including cameras and cores, as follows: (1) Image intensifier tubes (IITs) having a peak response within the wavelength range exceeding 400 nm but not exceeding 2,050 nm and incorporating either a microchannel plate described in paragraph (e)(2)(i) or an electron lens described in paragraph (e)(2)(ii) of this category, as follows, and specially designed parts and components therefor: (i) Incorporating a multialkali photocathode having a luminous sensitivity exceeding 500 microamps per lumen (e.g., GEN 2 IITs); (ii) Incorporating a compound semiconductor photocathode having a radiant sensitivity exceeding 20 mA/W (e.g., GEN 3 IITs); (2) Photon 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; (i) Cryocoolers having a cooling source temperature below 218 K and a mean-time-to-failure (MTTF) in excess of 3000 hours; (ii) Active cold fingers; (iii) Variable or dual aperture mechanisms; or (iv) Dewars specially designed for articles controlled in paragraphs (a), (b), or (c) of this category; (10) Gimbals with two or more axes of active stabilization having a minimum root-mean-square (RMS) stabilization better (less) than 200 microradians, and specially designed for articles controlled in this subchapter; (11) Gimbals with two or more axes of active stabilization having a minimum root-mean-square (RMS) stabilization better (less) than 100 microradians; 

Note to paragraph (c)(11): This paragraph does not control gimbals containing only a non-removable camera payload operating exclusively in the visible spectrum (i.e., 400 nm to 760 nm). 

(12) Infrared imaging camera cores (e.g., modules, engines, kits), and specially designed electronics and
incorporate or are specially designed to
output of an analog or digital signal once
electronics to enable as a minimum the
controlled by this paragraph have sufficient
this category; (iv) An IDCA described in paragraph
category, or IDCA parts or components described in paragraph
element; (vi) A one-dimensional or two-
dimensional photon detector IRFPA described in paragraph
category, or greater than 328,000 detector elements; (vii) A one-dimensional photon
detector IRFPA described in paragraph
category; (viii) A two-dimensional photon
detector IRFPA described in paragraph
detector elements; (ix) A charge multiplication IRFPA
described in paragraph (c)(2) of this category having a peak
within the wavelength range exceeding 900 nm but not exceeding
nm and greater than 640 detector elements;
peak response within the wavelength range exceeding 900 nm but not exceeding
nm, and greater than 111,000 detector elements;
this category having a peak response within the wavelength range exceeding 2,500
nm but not exceeding 3,000 nm and greater than 256 detector elements;
this category; (viii) A two-dimensional photon
detector IRFPA described in paragraph
detector elements; (ix) A charge multiplication IRFPA
controlled in paragraph (c)(7) or (8) of this category.
Note to paragraph (c)(12): The articles
controlled by this paragraph have sufficient
electronics to enable as a minimum the
output of an analog or digital signal once
power is applied.

(i) Binoculars, bioculars, monoculars, goggles, or head or helmet-
mounted imaging systems or equipment (including video-based articles having a
separate near-to-eye display) that incorporate or are specially designed to incorporate any of the following, and specially designed electronics, optics, and displays therefor:

(ii) An infrared imaging camera core
controlled in paragraph (c)(12)(i)
through (xi) of this category:

Note to paragraph (c)(13): The articles
controlled in this paragraph include
binoculars, bioculars, monoculars, goggles, or
head- or helmet-mounted imaging systems or equipment (including video-based articles
having a separate near-to-eye display) that incorporate or are specially designed to incorporate an IRFPA or IIT article (e.g.,
IDCA, IRFPA assembly) and electronics separately.

(14) Targeting systems or equipment incorporating or specially designed to incorporate an article controlled in this category (e.g., pods, IBAS, SGFLIR, gunner TIS), and specially designed parts and components therefor;

(15) Infrared search and track (IRST)
systems or equipment that incorporate
or are specially designed to incorporate an article controlled in this category and maintain positional or angular state of a target through time, and specially designed parts and components therefor;

(16) Infrared imaging systems or
equipment (e.g., fully packaged cameras) incorporating or specially designed to incorporate an article controlled in this category, as follows, and specially designed electronics, optics, and displays therefor:

(i) Having two or more axes of active stabilization and a minimum root-mean-square (RMS) stabilization better (less) than 200 microradians;

(ii) Mobile reconnaissance, scout, or
surveillance systems or equipment providing real-time target location at ranges greater than 5 km (e.g., LRAS, CIV, HTI, SeeSpot, MMS);

(iii) Fixed-site reconnaissance, surveillance or perimeter security systems or equipment having greater than 640 detector elements in any dimension;

(iv) Combat vehicle, tactical wheeled
vehicle, naval vessel, or aircraft piloted
systems or equipment having a variable field of view or field of regard (e.g.,
electronic pan or tilt), and either an
IRFPA article controlled in this
subchapter with greater than 640
detector elements in any dimension, or
an IIT controlled in this category (e.g.,
DAS, DVE, SeaFLIR, PNVS);

Note to paragraph (c)(16)(iv): This paragraph does not control distributed aperture sensors specially designed for civil automotive lane departure warning or collision avoidance.

(v) Multispectral imaging systems or equipment that either incorporate a
multispectral IRFPA described in paragraph (c)(2) or (6) of this category, or classify or identify military or intelligence targets or characteristics;

Note to paragraph (c)(15): This
paragraph does not control imaging systems or equipment (a) in production; (b) determined to be subject to the EAR via a commodity jurisdiction determination (see §120.4 of this subchapter), or (c) identified in the relevant Department of Defense contract or other funding authorization as being developed for both civil and military applications.

Note 2 to paragraph (c)(21): Note 1 does not apply to defense articles enumerated on the U.S. Munitions List, whether in production or development.

Note 3 to paragraph (c)(21): This provision is applicable to those contracts or other funding authorizations that are dated XXXX, 2016, or later.

Note 1 to paragraph (c): A permanent encapsulated sensor assembly (e.g., sealed enclosure, vacuum package) prevents direct access to the IRFPA, disassembly of the sensor assembly, and removal of the IRFPA without destruction or damage to the IRFPA.
Note 2 to paragraph (c): The articles described in paragraphs (c)(1) through (5), (c)(7), (c)(8), and (c)(12) other than (c)(12)(ix) having greater than 640 detector elements in any dimension, and (c)(12)(x) are subject to the EAR when, prior to export, reexport, retransfer, or temporary import, they are integrated into and included as an integral part of an item subject to the EAR, and cannot be removed without destruction or damage to the article or render the item inoperable. Articles are not subject to the EAR until integrated into the item subject to the EAR. Defenses intended to be integrated, and technical data and defense services directly related thereto remain subject to the ITAR prior to integration. See paragraph (f) of this category for enumerated technical data and software, and specific information subject to the EAR.

(d) Guidance, navigation, and control systems and equipment as follows:

(1) Guidance navigation systems (e.g., inertial navigation systems, inertial measurement units, inertial reference units, attitude and heading reference systems) as follows (MT if designed or modified for rockets, missiles, SLVs, drones, or unmanned aerial vehicle systems capable of a range greater than or equal to 300 km):

(i) Having a circle of equal probability (CEP) of position error rate less (better) than 0.35 nautical miles per hour;

(ii) Having a heading error or true north determination of less (better) than 0.50 mrad secant (latitude); or

(iii) Specified to function at linear acceleration levels exceeding 25 g;

Note to paragraph (d)(1): For aircraft and unmanned aerial vehicle guidance or navigation systems, see USML Category VIII(e). For rocket or missile flight control and guidance systems (including guidance sets), see USML Category IV(h).

(2) Accelerometers having a bias stability of less (better) than 20 μg, a scale factor stability of less (better) than 20 parts per million, or capable of measuring greater than 100,000 g (MT if having a scale factor repeatability less (better) than 1250 ppm and bias repeatability less (better) than 1250 micro g or specified to function at acceleration levels greater than 100 g);

Note 1 to paragraph (d)(2): For weapon fuze accelerometers, see USML Category III(d) or IV(h).

Note 2 to paragraph (d)(2): MT designation does not include accelerometers that are designed to measure vibration or shock.

(3) Gyroscopes or angular rate sensors having an angle random walk of less (better) than 0.00125 degree per square root hour or having a bias stability less (better) than 0.00125 degrees per hour (MT if having a rated drift stability of less than 0.5 degrees (1 sigma or rms) per hour in a 1 g environment or specified to function at acceleration levels greater than 100 g);

(4) Mobile relative gravimeters, having automatic motion compensation, with an in-service accuracy of less (better) than 0.4 mGal (MT if designed or modified for airborne or marine use and having a time to steady-state registration of two minutes or less);

(5) Mobile gravity gradiometers having an accuracy of less (better) than 10 Eötvös squared per radian per second for any component of the gravity gradient tensor, and having a spatial gravity wavelength resolution of 50 m or less (MT if designed or modified for airborne or marine use);

Note to paragraph (d)(5): “Eötvös” is a unit of acceleration divided by distance that was used in conjunction with the older centimeter-gram-second system of units. The Eötvös is defined as 1/1,000,000,000 Galileo (Gal) per centimeter.

(6) Global Navigation Satellite System (GNSS) receiving equipment, as follows, and specially designed parts and components therefor:

(i) Global Navigation Satellite System (GNSS) receiving equipment specially designed for military applications (MT if designed or modified for airborne applications and capable of providing navigation information at speeds in excess of 600 m/s);

(ii) Global Positioning System (GPS) receiving equipment specially designed for encryption or decryption (e.g., Y-Code, M-Code) of GPS precise positioning service (PPS) signals (MT if designed or modified for airborne applications);

(iii) GPS receiving equipment specially designed for use with a null steering antenna, an electronically steerable antenna, or including a null steering antenna designed to reduce or avoid jamming signals (MT if designed or modified for airborne applications); or

Note to paragraph (6)(iii): The articles described in this paragraph are subject to the EAR when, prior to export, reexport, retransfer, or temporary import, they are integrated into and included as an integral part of an item subject to the EAR. Articles do not become subject to the EAR until integrated into the item subject to the EAR. Export, reexport, retransfer, or temporary import of, and technical data and defense services directly related to, defense articles intended to be integrated, remain subject to the ITAR.

(iv) GPS receiving equipment specially designed for use with rockets, missiles, space launch vehicles (SLVs), drones, or unmanned air vehicle systems capable of delivering at least a 500 kg payload to a range of at least 300 km (MT);

Note to paragraph (6)(iv): “Payload” is the total mass that can be carried or delivered by the specified rocket, missile, SLV, drone or unmanned aerial vehicle that is not used to maintain flight. For definition of “range” as it pertains to rocket systems, see note 1 to paragraph (a) of USML Category IV. For definition of “range” as it pertains to aircraft systems, see note to paragraph (a) of USML Category VIII.

(7) GNSS anti-jam systems employing adaptive antennas that have a minimum of four antenna elements, add 35 dB or greater anti-jam margin, and produce nulls in the direction of jammers or high-gain beams in the direction of satellites at any ranging code frequency;

(8) GNSS security devices (e.g., Selective Availability Anti-Spoofing Modules, Security Modules, and Auxiliary Output Chips), Selective Availability Anti-Spoofing Module (SAASM), Security Module (SM) and Auxiliary Output Chip (AOC) chips; or

(9) Developmental guidance, navigation, or control devices, systems or equipment funded by the Department of Defense (MT if designed or modified for rockets, missiles, SLVs, drones, or unmanned aerial vehicle systems capable of a range equal to or greater than 300 km);

Note 1 to paragraph (d)(9): This paragraph does not control guidance, navigation, or control, systems, or equipment funded by the Department of Defense that is applicable to those contracts or other funding authorizations as being developed for both civil and military applications.

Note 2 to paragraph (d)(9): Note 1 does not apply to defense articles enumerated on the U.S. Munitions List, whether in production or development.

Note 3 to paragraph (d)(9): This provision is applicable to those contracts or other funding authorizations that are dated XXXX, 2016, or later.

Note 4 to paragraph (d)(9): For definition of “range” as it pertains to rocket systems, see note 1 to paragraph (a) of USML Category IV. For definition of “range” as it pertains to aircraft systems, see note to paragraph (a) of USML Category VIII.

(e) Parts, components, accessories, attachments, and associated equipment as follows:

(1) Optical sensors having a spectral filter for systems or equipment controlled in USML Category X(a)(4), or optical sensor assemblies that provide threat warning or tracking for systems or equipment controlled in Category...
XI(a)(4) and specially designed optics and electronics therefor;

[2] Image intensifier tube (IIT) parts and components as follows:
   (i) Microchannel plates having a hole pitch (center-to-center spacing) of 12 μm or less;
   (ii) Multialkali photocathodes (e.g., S–20 and S–25) having a luminous sensitivity exceeding 500 microamps per lumen;
   (iii) III/V compound semiconductor (e.g., GaAs or GaInAs) photocathodes and transferred electron photocathodes having a radiant sensitivity exceeding 20 mA/W;
   (iv) Electron sensing devices with detectors having a non-binned center-to-center spacing less than 100 μm, and either achieving charge multiplication within the vacuum space other than by a microchannel plate or specially designed for operation with a microchannel plate;
   (v) Phosphor screens, including output faceplates, specially designed for IIT's controlled in this category;
   (vi) Miniature autotaged power supplies providing internal sensing and control of the photocathode to increase the dynamic range of IITs controlled in this category; or
   (vii) Fiber-optic converters, couplers or tapers specially designed for IIT's controlled in this category;

(3) Wafers incorporating structures for either a ROIC controlled in paragraph (e)(4) or (5) of this category, or an IRFPA or detector elements therefor controlled in paragraph (c)(2) of this category;

(4) Read-Out Integrated Circuits (ROICs) specially designed for an IRFPA controlled in paragraph (c)(2) of this category or detector elements therefor, as follows:
   (i) One-dimensional photon detector IRFPAs having greater than 640 detector elements;
   (ii) Two-dimensional photon detector IRFPAs having greater than 256 detector elements;
   (iii) A microbolometer IRFPA having greater than 19,200 elements; or
   (iv) Multispectral IRFPA;

Note to paragraph (e)(4): ROICs are specially designed for an infrared focal plane array detector even if the detector is incorporated into an item that is not enumerated on the U.S. Munitions List.

(5) ROICs specially designed for a camera/core/packaged IRFPA subject to the controls of this subchapter;

(6) Vacuum packages or other sealed enclosures for an IRFPA or IIT controlled in paragraph (c) of this category specially designed for incorporation or integration into an article controlled in paragraphs (a), (b), or (c) of this category;

(7) Integrated IRFPA dewar cooler assembly (IDCA) parts and components, as follows:
   (i) Cryocoolers having a cooling source temperature below 218 K and a mean-time-to-failure (MTTF) in excess of 3000 hours;
   (ii) Active cold fingers;
   (iii) Variable or dual aperture mechanisms; or
   (iv) Dewars specially designed for articles controlled in paragraphs (a), (b) or (c) of this category;

(8) IRFPA Joule-Thomson (JT) self-regulating cryostats specially designed for articles controlled in this subchapter;

(9) Infrared lenses, mirrors, beam splitters or combiners, filters, and treatments and coatings, specially designed for any article controlled in this category;

(10) Drive, control, signal or image processing electronics, specially designed for articles controlled in this category;

(11) Signal processing electronics, attachments or accessories that provide:
   (i) Automatic or aided detection and recognition, classification, identification or discrimination of military or intelligence items;
   (ii) Multi-sensor fusion other than image blending; or

Note to paragraph (e)(11)(ii): Multi-sensor fusion refers to automatically combining imagery or information from two or more sensors, including at least one article controlled in this category, to improve classification, identification, or tracking of targets relative to any of the individual sensors.

(12) Near-to-eye displays specially designed for articles controlled in this category;

(13) Resonators, receivers, transmitters, modulators, gain media, and drive electronics or frequency converters specially designed for laser systems or equipment controlled in this category;

(14) Two-dimensional infrared scene projector emitter arrays (i.e., resistive arrays) that emit infrared radiation within the 900 nm to 30,000 nm wavelength range; or

(15) Any part, component, accessory, attachment, or associated equipment, that:
   (i) Is "classified";
   (ii) Contains "classified" software;
   (iii) Is manufactured using "classified" production data; or
   (iv) Is being developed using "classified" information.

Note to paragraph (e)(15): "Classified" means classified pursuant to Executive Order 13526, or predecessor order, and a security classification guide developed pursuant thereto or equivalent, or to the corresponding classification rules of another government.

Note to paragraph (e): The articles described in this paragraph are subject to the EAR when, prior to export, reexport, retransfer, or temporary import, they are integrated into and included as an integral part of an item subject to the EAR, and cannot be removed without destruction or damage to the article or render the item inoperable. Articles are not subject to the EAR until integrated into the item subject to the EAR. Defense articles intended to be integrated, and technical data and defense services directly related thereto, remain subject to the ITAR prior to integration. See paragraph (f) of this category for enumerated technical data and software, and specific information subject to the EAR.

*(f) Technical data (as defined in § 120.10 of this subchapter) and defense services (as defined in § 120.9 of this subchapter) directly related to the defense articles enumerated in paragraphs (a) through (e) of this category. (See § 125.4 of this subchapter for exemptions.) (MT for technical data and defense services related to articles designated as such.)

Note 1 to paragraph (f): Technical data and defense services directly related to image intensifier tubes and specially designed parts and components therefor controlled in paragraph (c)(1) of this category, infrared focal plane arrays (IRFPAs) and detector elements therefor controlled in paragraph (c)(2) of this category, integrated IRFPA dewar cooler assemblies (IDCAs) controlled in paragraph (c)(9) of this category, wafers incorporating IRFPA or ROIC structures controlled in paragraph (e)(5) of this category, and specially designed readout integrated circuits (ROICs) controlled in paragraphs (e)(4) and (5) of this category, remain subject to the ITAR even if the technical data or defense services could also apply to items subject to the EAR.

Note 2 to paragraph (f): Software and technical data include:

A. Design or manufacturing process descriptions (e.g., steps, sequences, conditions, parameters) for lasers described in paragraphs (b)(6) and (b)(9) through (13) of this category, IITs controlled in paragraph (c)(1) of this category and their parts and components controlled in paragraph (e)(2) of this category (including tube sealing techniques, interface techniques within the vacuum space for photocathodes, microchannel plates, phosphor screens, input glass-window faceplates, input or output fiber optics (e.g., inverter), IRFPAs and detector elements therefor controlled in paragraph (c)(2) of this category, integrated IRFPA dewar cooler assemblies (IDCAs) controlled in paragraph (e)(9) of this category, wafers incorporating structures for an IRFPA and detector elements therefor controlled in paragraph (c)(2) or structures for ROICs controlled in paragraph (e)(4) or (5)
of this category, and specially designed ROICs controlled in paragraphs (e)(4) and (5) of this category (including bonding or mating (e.g., hybridization of IRFPA detectors and ROICs), production or optimization of IRFPAs or ROICs at cryogenic temperatures, junction formation, passivation).

Note to paragraph A of note 2 to paragraph (f): Technical data does not include information directly related to basic operating instructions, testing results, incorporating or integrating IRFPAs into higher level packaged assemblies not enumerated in this category, or external interface control documentation associated with such assemblies or assemblies subject to the EAR, provided such information does not include design methodology, engineering analysis, or manufacturing know-how for a USML controlled IRFPA.

B. Software that converts an article controlled in this category into an item subject to the EAR or an item subject to the EAR into an article controlled in this category is directly related to the defense article controlled in this category. When a defense article has been converted into an item subject to the EAR through software, the presence of the software that prevents the item from meeting or exceeding a USML control parameter does not make the item subject to the ITAR.

C. EO/IR simulation or projection system software that replicates via simulation either the output data or information provided by any article controlled in this category, a radiometrically calibrated spectral signature of any article controlled in this subchapter, volumetric effects of plumes or military operational obscurants, or countermeasure effects.

Note 3 to paragraph (f): Technology for incorporating or integrating IRFPAs into permanent encapsulated sensor assemblies subject to the EAR, or integrating such assemblies into an item subject to the EAR, and integrating IITs into an item subject to the EAR, including integrating items subject to the EAR into foreign military commodities outside the United States, is subject to the EAR.

(g)–(w) [Reserved]
(x) Commodities, software, and technology subject to the EAR (see §120.42 of this subchapter) used in or with defense articles controlled in this category.

Note to paragraph (x): Use of this paragraph is limited to license applications for defense articles controlled in this category where the purchase documentation includes commodities, software, or technology subject to the EAR (see §123.1(b) of this subchapter).

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§121.1 [Amended]

4. Section 121.1 is amended by removing and reserving paragraph (c) in U.S. Munitions List Category XV.

Rose E. Gottemoeller,
Under Secretary, Arms Control and International Security, Department of State.

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