Billing Code: 3510-33-P

DEPARTMENT OF COMMERCE

Bureau of Industry and Security

15 CFR Parts 738, 740, 742, 744, 772, and 774

[Docket No. 090130094-3271-01]

RIN 0694-AD58

Implementation of Understandings Reached at the 2005, 2012, and 2013 Nuclear Suppliers Group (NSG) Plenary Meetings and a 2009 NSG Intersessional Decision; Additions to the List of NSG Participating Countries

AGENCY: Bureau of Industry and Security, Commerce.

ACTION: Final rule.

SUMMARY: The Bureau of Industry and Security (BIS) is publishing this final rule to amend the Export Administration Regulations (EAR) to implement the understandings reached at the 2005 Nuclear Suppliers Group (NSG) Plenary meeting held in Oslo, Norway; the 2012 NSG

Plenary meeting held in Seattle, Washington; and the 2013 NSG Plenary meeting held in Prague, Czech Republic. This rule also implements a decision adopted under the NSG intersessional silent approval procedures in December 2009. Accordingly, this rule amends certain entries in Category 1 ("Special Materials and Related Equipment"), Category 2 ("Materials Processing"), Category 3 ("Electronics"), and Category 6 ("Sensors and Lasers") of the Commerce Control List (CCL) to reflect changes in the Annex to the NSG "Guidelines for the Transfer of Nuclear-Related Dual-Use Equipment, Materials, Software and Related Technology" (the NSG Annex) based on the understandings reached at the 2005, 2012, and 2013 NSG Plenary meetings and the aforementioned 2009 NSG intersessional decision. Consistent with the 2005 NSG understandings, this rule also amends the export licensing policies in the EAR that apply to items that require a license for nuclear nonproliferation (NP) reasons, or as a result of certain nuclear end-users or end-uses, by adding an additional factor that must be considered by BIS when it reviews license applications involving such items, end-users, and/or end-uses. The 2012 and 2013 NSG Plenary understandings are a continuation of the fundamental review of the NSG control lists that was launched at the 2010 NSG Plenary meeting in Christchurch, New Zealand. Finally, this rule amends the EAR to reflect the status of Croatia, Estonia, Iceland, Lithuania, Malta, Mexico, and Serbia as participating countries in the NSG, first, by adding these countries to the list of participating countries in the definition of "Nuclear Suppliers Group" and to Country Group A:4 (Nuclear Suppliers Group countries) and, second, by removing the license requirements for exports and reexports to these countries of certain items controlled for nuclear nonproliferation (NP) reasons.

DATES: This rule is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL

REGISTER].

ADDRESSES: Send comments regarding this collection of information, including suggestions for reducing the burden, to Jasmeet Seehra, Office of Management and Budget (OMB), by e-mail to Jasmeet_K._Seehra@omb.eop.gov, or by fax to (202) 395-7285; and to the Regulatory Policy Division, Bureau of Industry and Security, Department of Commerce, 14th Street & Pennsylvania Avenue, N.W., Room 2705, Washington, DC 20230.

FOR FURTHER INFORMATION CONTACT: Steven Clagett, Director, Nuclear and Missile Technology Controls Division, Office of Nonproliferation and Treaty Compliance, Bureau of Industry and Security, Telephone: (202) 482-3550.

SUPPLEMENTARY INFORMATION:

Background

The Bureau of Industry and Security (BIS) is amending the Export Administration Regulations (EAR) as follows: (1) to reflect the understandings reached at the NSG Plenary meeting held in Oslo, Norway, on June 23-24, 2005, the NSG Plenary meeting held in Seattle, Washington, on June 18-22, 2012, and the NSG Plenary meeting held in Prague, Czech Republic, on June 13-14, 2013; (2) to implement a 2009 NSG intersessional decision; (3) to reflect the addition of several participating governments to the Nuclear Suppliers Group (NSG); and (4) to make corrections to certain nuclear-related entries on the CCL. The NSG is a multilateral export control forum that

currently consists of 48 participating countries. The NSG maintains a list of dual-use items that could be used for nuclear proliferation activities. The list is maintained in the Annex to the NSG's "Guidelines for Transfers of Nuclear Related Dual-Use Equipment, Materials, Software, and Related Technology" (hereinafter the "NSG Annex"). NSG participating countries share a commitment to prevent nuclear proliferation and the development of nuclear-related weapons of mass destruction. In furtherance of that commitment, they have agreed to impose export controls on listed items. The NSG Guidelines and the Annex thereto are designed to ensure that nuclear trade for peaceful purposes does not contribute to the proliferation of nuclear weapons or related proliferation activities.

Updates to Reflect Additional Participating Governments to the NSG

At the NSG Plenary meeting held in Göteborg, Sweden, on May 27-28, 2004, Estonia, Lithuania, Malta, and the People's Republic of China were approved as new participating governments to the NSG. Croatia was approved as a new NSG participating government at the aforementioned 2005 NSG Plenary meeting and Iceland was approved as a new NSG participating government at the NSG Plenary meeting held in Budapest, Hungary, on June 11-12, 2009. Most recently, Mexico was approved as a new NSG participating government during the intersessional period following the NSG Plenary meeting held in Seattle, Washington, on June 18-22, 2012, and Serbia was approved in April 2013, following consultations with its government.

To reflect the status of these countries as participating governments in the NSG, this final rule amends the EAR by adding all eight countries to the definition of "Nuclear Suppliers Group" in

Section 772.1 of the EAR. This rule also amends Supplement No. 1 to part 740 of the EAR by adding all of these countries, except the People's Republic of China, to Country Group A:4 (Nuclear Suppliers Group). In addition, this rule amends the Commerce Country Chart (Supplement No. 1 to Part 738 of the EAR) by revising certain license requirements that apply to these countries to be consistent with those that apply to other participating governments in the NSG. Specifically, this rule removes certain nuclear nonproliferation (NP) license requirements for all of these countries, except the People's Republic of China. As a result of the changes made by this rule, Croatia, Estonia, Iceland, Lithuania, Malta, Mexico, and Serbia are no longer designated as NP Column 1 destinations on the Commerce Country Chart.

Consistent with the changes described above, this rule amends Section 742.3(a)(1) of the EAR to clarify that exports and reexports of items on the Commerce Control List (CCL) (Supplement No. 1 to Part 774 of the EAR) that are controlled for nuclear nonproliferation reasons to destinations indicated under NP Column 1 on the Commerce Country Chart do not require a license, based on this reason for control, to those NSG member countries that are listed under Country Group A:4 in Supplement No. 1 to part 740 of the EAR. With the addition of Croatia, Estonia, Iceland, Lithuania, Malta, Mexico, and Serbia, all of the countries whose governments participate in the NSG, except the People's Republic of China, are now listed in Country Group A:4.

2005 NSG Plenary Changes

At the 2005 NSG Plenary meeting, the participating governments agreed to the addition of

another factor for reviewing license applications to export items listed on the NSG Annex. This new factor is intended to address exports to countries that experience a significant number of export transactions in the form of transshipments. Specifically, the participating governments agreed to consider whether the country receiving an export has in place sufficient export controls to prevent an unacceptable risk of diversion or transfer to a nuclear proliferation activity. This final rule implements this NSG agreement by amending the nuclear nonproliferation licensing policies in Section 742.3(b)(1) of the EAR to add a new paragraph (b)(1)(ix), which includes the new NSG licensing factor, and to make editorial conforming changes in paragraphs (b)(1)(vii) and (b)(1)(viii)(F). In addition, this rule amends the nuclear end-user/end-use licensing review standards in Section 744.2(d) of the EAR by adding a new paragraph (d)(9), which includes the new NSG licensing factor, and by making editorial conforming changes in paragraphs (d)(7) and (d)(8)(vi).

NSG participating governments also agreed at the 2005 Plenary meeting to revise the NSG Annex to clarify that it includes in section 1.B.2.b and .c, respectively, machine tools for milling and grinding that have five or more axes, which can be coordinated simultaneously for "contouring control." This rule amends ECCN 2B201 to implement this NSG clarification by revising the "List of Items Controlled" in the ECCN to specifically identify 5-axis machine tools for milling and grinding under new paragraphs .b.3 and .c.3, respectively. Prior to the publication of this rule, ECCN 2B201 stated that it controlled milling and grinding machines with "two or more" axes, but did not specifically identify the 5-axis machine tools for milling and grinding that are controlled under this ECCN. The addition of language to ECCN 2B201 that specifically identifies certain 5-axis machine tools for grinding and milling is intended to

clarify the control parameters for this ECCN. This change does not expand the scope of these controls. Note that the positioning accuracy values identified in ECCN 2B201.a, .b, and .c are different from those stated in 1.B.2.a, .b, & .c on the NSG Annex, because the former are based on ISO 230/2 (2006), instead of ISO 230/2 (1988), which is still being used by the NSG. BIS adjusted the positioning accuracy values identified in ECCN 2B201.a, .b, and .c to ensure that there would be no discrepancy between the scope of the controls described in ECCN 2B201 and the corresponding controls indicated in 1.B.2.a, .b, & .c on the NSG Annex. Specifically, in 2B201.a and .b.1, this results in an adjustment from 6 μm to 4.5 μm. In paragraph .b of the Note to 2B201.b, the resulting adjustment is from 30 μm to 22.5 μm. In 2B201.c, the resulting adjustment is from 4 μm to 3 μm. ECCN 2B201 was updated to reflect ISO 230/2 (2006), consistent with the standard used in ECCN 2B001, by the rule (77 FR 39354, July 2, 2012) that implemented the agreements made at the 2011 Wassenaar Arrangement (WA) Plenary.

This rule also adds a new Note under ECCN 2B201, at the beginning of the "List of Items Controlled," to indicate that this ECCN does not control special purpose machine tools limited to the manufacture of gears, crankshafts or cam shafts, tools or cutters, and extruder worms. In addition, this rule adds a Technical Note, at the end of the ECCN, to clarify that 2B201.b.3 and 2B201.c.3 include machines based on a parallel linear kinematic design (e.g. hexapods) that have 5 or more axes, none of which are rotary axes.

2009 NSG Intersessional Changes

This rule amends ECCN 2B206 to conform with the changes that the NSG made to the entry

1.B.3.a on the NSG Annex as a result of a decision that was adopted under the NSG intersessional silent approval procedures in December 2009. Specifically, this rule amends the heading of 2B206.a to refer to the more inclusive term "coordinate measuring machines (CMM)," instead of "dimensional inspection machines," and revises 2B206.a.2 by updating the international standard referenced therein to read "ISO 10360-2 (2009)." However, the NSG revisions to 1.B.3.a, which are reflected in the amended text of 2B206.a.2, retain a one-dimensional length measurement error parameter and the same value for that error parameter for establishing the export control threshold.

2012 NSG Plenary Changes

At the 2012 NSG Plenary meeting, the participating governments agreed to modify controls on a number of items identified in the NSG Annex. Consistent with the 2012 plenary changes to section 3.B.4.a.3 of the NSG Annex, this rule revises ECCN 1B201.a.3 to control filament winding machines that, in addition to the characteristics described in 1B201.a.1 and .a.2, are capable of winding cylindrical tubes with an internal diameter between 75 mm and 650 mm and lengths of 300 mm or greater. Prior to the publication of this rule, ECCN 1B201.a.3 stated that controls applied to filament winding machines capable of winding cylindrical rotors of diameter between 75 mm (3 in.) and 400 mm (16 in.) and lengths of 600 mm (24 in.) or greater.

To reflect the removal of section 4.B.3 (ammonia synthesis converters or synthesis units) from the NSG Annex, this rule amends the CCL to remove ECCN 1B227, which listed these items prior to the publication of this rule. This rule also makes related conforming changes to the CCL

by amending the control language for NP Column 1 in the License Requirements section of ECCN 1E001 (“development” and “production” “technology”) and the heading of ECCN 1E201 (“use” “technology”) to reflect the removal of ECCN 1B227 from the CCL. Ammonia synthesis converters or synthesis units that are “specially designed” or prepared for heavy water production, utilizing the ammonia-hydrogen exchange process, are included on the NSG Trigger List under section 2.6 (Plants for the production or concentration of heavy water, deuterium and deuterium compounds and “specially designed” or prepared equipment therefor) and are specifically identified in Annex B (Clarification of Items on the Trigger List) under section 6.6. Such items are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110 and Appendix K to part 110).

Consistent with the 2012 NSG Plenary changes to section 2.B.2 in the NSG Annex, this rule amends ECCN 1B233.b to revise the controls on lithium isotope separation equipment. Specifically, ECCN 1B233.b is amended to specify that it controls lithium isotope separation equipment based on the lithium-mercury amalgam process. ECCN 1B233 also is amended by adding controls, under new paragraphs .c and .d, on ion exchange systems and chemical exchange systems, respectively, that are “specially designed” for lithium isotope separation and on “specially designed” parts for such systems. BIS has export licensing jurisdiction over the equipment and systems described in ECCN 1B233.b, .c, or .d, but the facilities and plants described in ECCN 1B233.a are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). However, certain lithium isotope separation equipment and components for the plasma separation process (PSP) that are described in 1B233.b through .d are also directly applicable to uranium isotope separation and are subject to

the export licensing authority of the Nuclear Regulatory Commission. This rule amends the Related Controls paragraph in the List of Items Controlled by ECCN 1B233 to include a statement to this effect.

In addition, this rule amends ECCN 1C216 to reflect a change to the controls on maraging steel described in section 2.C.11 of the NSG Annex. Specifically, ECCN 1C216 is amended to control maraging steel capable of an ultimate tensile strength of 1,950 MPa or more at 293 K (20 °C). Prior to the publication of this rule, ECCN 1C216 controlled maraging steel capable of an ultimate tensile strength of 2,050 MPa or more at 293 K (20 °C).

This rule also amends ECCN 2B230 to reflect the 2012 NSG plenary changes to section 3.A.7 (Pressure transducers) on the NSG Annex. Specifically, the heading of ECCN 2B230 is amended to indicate that this entry controls all types of pressure transducers that are capable of measuring absolute pressures and have all of the characteristics identified in 2B230.a through .c. Paragraph .a of ECCN 2B230 is amended to add pressure sensing elements made of, or protected by, aluminum oxide (alumina or sapphire) or fully fluorinated hydrocarbon polymers. A new paragraph .b is added to include seals essential for sealing the pressure sensing element, and in direct contact with the process medium, that are made of, or protected by, aluminum, aluminum alloy, aluminum oxide (alumina or sapphire), nickel, nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers. Newly redesignated paragraph .c (which was paragraph .b prior to the publication of this rule) is amended in subparagraph .c.2 to specify a full scale of 13 kPa or greater and an accuracy of better than ± 130 Pa when measuring at 13 kPa. In addition, the Related Definitions paragraph in the List of Items Controlled is amended to indicate

that, for purposes of ECCN 2B230, "pressure transducers" are devices that convert pressure measurements into a signal. Prior to the publication of this rule, the definition specified the conversion of pressure measurements into an electrical signal.

This rule adds a new ECCN 2B233 to control certain bellows-sealed scroll-type compressors and bellows-sealed scroll-type vacuum pumps, consistent with the 2012 NSG Plenary decision to add such compressors and pumps to the NSG Annex under new section 3.A.9. Specifically, this new ECCN controls bellows-sealed scroll-type compressors and bellows-sealed scroll-type vacuum pumps capable of an inlet volume flow rate of 50 m^3/h or greater and a pressure ratio of 2:1 or greater with all surfaces that come in contact with the process gas made from any of the following: aluminum or aluminum alloy, aluminum oxide, stainless steel, nickel or nickel alloy, phosphor bronze, or fluoropolymers. Because new ECCN 2B233 and ECCN 2B231 both control certain vacuum pumps, the Related Controls paragraph in each ECCN cross-references the other ECCN. These Related Controls paragraphs also cross-reference vacuum pumps subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110) that are "specially designed" or prepared for the separation of uranium isotopes. This rule also makes related conforming changes to the CCL by amending the control language for NP Column 1 in the License Requirements section of ECCN 2E001 ("development" "technology") and ECCN 2E002 ("production" "technology") and by amending the heading of ECCN 2E201 ("use" "technology") to reflect the addition of ECCN 2B233 to the CCL.

This rule amends ECCN 3A225 to revise controls on frequency changers and generators to reflect the 2012 NSG Plenary changes to section 3.A.1 on the NSG Annex. Specifically, this

rule amends ECCN 3A225 to control frequency changers or generators that are usable as a variable frequency or fixed frequency motor drive, have a multiphase output providing a power of 40 VA or greater, operate at a frequency of 600 Hz or more, and have a frequency control better (less) than 0.2%. This rule also adds two new Notes to ECCN 3A225. The first Note indicates that ECCN 3A225 controls frequency changers intended for use in specific industrial machinery and/or consumer goods (machine tools, vehicles, etc.) only if the frequency changers can meet the performance characteristics described in ECCN 3A225 when removed from the machinery and/or goods. This Note, however, does not exclude from control under ECCN 3A225 any frequency changer described therein that is the principal element of a non-controlled item and that can feasibly be removed or used for other purposes. The second new Note recommends that, when determining whether a particular frequency changer meets or exceeds the performance characteristics described in ECCN 3A225, both hardware and "software" performance constraints must be considered. This rule also adds two new Technical Notes to ECCN 3A225. The first Technical Note indicates that the frequency changers controlled by ECCN 3A225 are also known as converters or inverters (this Technical Note was included in the NSG Annex prior to the 2012 NSG Plenary, but was not previously included in ECCN 3A225). The second Technical Note, which was added to the NSG Annex as part of the 2012 NSG Plenary changes, indicates that the performance characteristics described in ECCN 3A225 also may be met by certain equipment marketed as: generators, electronic test equipment, AC power supplies, variable speed motor drives, variable speed drives (VSDs), variable frequency drives (VFDs), adjustable frequency drives (AFDs), or adjustable speed drives (ASDs).

This rule also amends the CCL to control certain "software" related to the equipment described

in ECCN 3A225. ECCN 3D201 is added to control "software" "specially designed" for the "use" of equipment described in ECCN 3A225 and ECCN 3D202 is added to control "software" "specially designed" to enhance or release the performance characteristics of frequency changers or generators to meet or exceed the level of the performance characteristics described in ECCN 3A225. New ECCN 3D202 controls both of the following: (1) "software" or encryption keys/codes "specially designed" to enhance or release the performance characteristics of equipment that is not controlled by ECCN 3A225, so that such equipment meets or exceeds the performance characteristics of equipment controlled by that ECCN; and (2) "software" "specially designed" to enhance or release the performance characteristics of equipment that is controlled by ECCN 3A225. The controls in new ECCN 3D202 reflect the 2012 NSG Plenary changes to the "software" controls described in section 3.D of the NSG Annex (specifically, the addition of new 3.D.2 and 3.D.3).

Consistent with the addition of new ECCNs 3D201 and 3D202 to the CCL (as described above) and with the controls in 3.E.1 on the NSG Annex, this rule also adds a new ECCN 3E202 to control "technology" for the "development," "production," or "use" of "software" controlled by ECCN 3D201 or 3D202.

This rule amends ECCN 6A005, consistent with the 2012 NSG Plenary changes to 3.A.2 on the NSG Annex. First, 3.A.2.a.2 (copper vapor lasers) was revised to lower the specified "average output power" from "equal to or greater than 40 W" to "equal to or greater than 30 W." Second, a new 3.A.2.j was added to control certain pulsed carbon monoxide lasers. In response to these NSG changes and to further clarify the scope of the NP controls in ECCN 6A005, this rule

revises the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section of ECCN 6A005 to indicate that NP controls apply to lasers controlled by 6A005.a.2, a.3, a.4, b.2.b, b.3, b.4, b.6.c, c.1.b, c.2.b, d.2, d.3.c, or d.4.c that meet or exceed the technical parameters described in ECCN 6A205. Note that the "License Requirements Note" (NP controls on "lasers" controlled by 6A005) in the License Requirements section of ECCN 6A005 was removed by the Wassenaar Arrangement 2013 Plenary Agreements Implementation rule that BIS published in the *Federal Register* on August 4, 2014.

This rule amends ECCN 6A205 (which controls "lasers," "laser" amplifiers and oscillators, other than those controlled by 6A005, but excludes items subject to the export licensing authority of the Nuclear Regulatory Commission) by revising the "Items" paragraph in the List of Items Controlled section to conform, entirely, with the controls described in 3.A.2 on the NSG Annex. Specifically, copper vapor lasers, alexandrite lasers, and pulsed excimer lasers, as described in 3.A.2 on the NSG Annex, are now listed in ECCN 6A205; however, most of these lasers continue to be controlled for NS (national security) reasons, as well as NP and AT (anti-terrorism) reasons, under ECCN 6A005. In addition, this rule amends ECCN 6A205 to list the lasers in the order in which they appear in 3.A.2 on the NSG Annex. This rule also adds a new paragraph .j to ECCN 6A205 to reflect the 2012 NSG Plenary changes to section 3.A.2 on the NSG Annex (specifically, the addition of 3.A.2.j). New ECCN 6A205.j controls pulsed carbon monoxide lasers operating at wavelengths between 5,000 and 6,000 nm that have a repetition rate greater than 250 Hz, an average output power greater than 200 W, and a pulse width of less than 200 ns. A new Note to ECCN 6A205.j indicates that these controls do not capture the higher power (typically 1 to 5 kW) industrial CO lasers that are used in applications such as cutting and

welding, because such lasers are either continuous wave or are pulsed with a pulse width greater than 200 ns.

2013 NSG Plenary Changes

At the 2013 NSG Plenary meeting, the participating governments agreed to modify controls on a number of items identified in the NSG Annex. Consistent with the 2013 plenary changes to section 4.B.2.d of the NSG Annex, this rule revises 1B228.d to control hydrogen-cryogenic distillation columns with an internal diameter of 30 cm or greater and "effective lengths" of 4 m or greater. Prior to the publication of this rule, 1B228.d controlled hydrogen-cryogenic distillation columns with an internal diameter of 1 m or greater and "effective lengths" of 5 m or greater. In addition, this rule amends the "Related Definitions" paragraph in the List of Items Controlled section of ECCN 1B228 to include a definition of the term "effective length." For purposes of this ECCN, "effective length" means the active height of packing material in a packed-type column, or the active height of internal contactor plates in a plate-type column.

Consistent with the addition of 5.B.7 to the NSG Annex, this rule adds new ECCN 1B234 to the CCL to control certain high explosive containment vessels, chambers, containers, and other similar containment devices designed for the testing of high explosives or explosive devices. New ECCN 1B234 controls any such equipment, not enumerated in ECCN 1B608 or in USML Category IV or V on the ITAR (see 22 CFR parts 120 through 130), that: (1) is designed to fully contain an explosion equivalent to 2 kg of TNT or greater; and (2) has design elements or features enabling real time or delayed transfer of diagnostic or measurement information. In

addition, this rule makes conforming amendments to ECCNs 1E001 and 1E201 to reflect the addition of new ECCN 1B234. Specifically, ECCN 1E001 is amended by revising the NP Column 1 paragraph in the License Requirements section to indicate that this ECCN contains NP controls on "development" and "production" "technology" for equipment described in new ECCN 1B234 (note that AT controls apply to all items in 1E001). ECCN 1E201 is amended by revising the heading of the ECCN to indicate that 1E201 controls "technology" for the "use" of equipment described in new ECCN 1B234.

This rule also amends ECCN 1C236 to reflect the 2013 NSG Plenary changes to 2.C.19 in the NSG Annex, which included: (1) revising the heading of 2.C.19 to indicate that this paragraph applies to radionuclides that are "appropriate for making neutron sources based on alpha-n reaction;" and (2) identifying specific types of radionuclides to which 2.C.19 applies. Specifically, this rule revises the heading of ECCN 1C236 to indicate that this ECCN controls radionuclides appropriate for making neutron sources based on alpha-n reaction and products or devices containing such radionuclides. This rule also revises the "Items" paragraph in the List of Items Controlled section of ECCN 1C236. First, new 1C236.a.1 identifies the twenty-one radionuclides that are controlled under this ECCN, all of which are "appropriate for making neutron sources based on alpha-n reaction." Second, new 1C236.a.2 states that the radionuclides identified in 1C236.a.1 are controlled by ECCN 1C236 only if they are in one of the following forms identified in 1C236.a.2.a through .a.2.c: (1) elemental; (2) compounds having a total activity of 37 GBq (1 curie) per kg or greater; or (3) mixtures having a total activity of 37 GBq (1 curie) per kg or greater. Third, 1C236.b, as revised, indicates that ECCN 1C236 also controls products or devices containing radionuclides identified in new 1C236.a.1 in any of the forms

described in new 1C236.a.2. In structural terms, the control language that was included in 1C236.a, .b, and .c, prior to the publication of this rule, has been folded into new 1C236.a.2.a through .a.2.c, respectively; the control language that was in 1C236.d has been moved to revised 1C236.b; and new 1C236.a.1 has been added to list the specific radionuclides that are controlled under this ECCN (all of which must be in one of the forms identified in 1C236.a.2.a through .a.2.c).

Consistent with the addition of 2.C.20 to the NSG Annex, this rule adds new ECCN 1C241 to the CCL to control rhenium and alloys containing rhenium (i.e., alloys with 90% by weight or more of rhenium or alloys with 90% by weight or more of any combination of rhenium and tungsten) that: (1) are in forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 mm and 300 mm; and (2) have a mass greater than 20 kg. In addition, this rule makes conforming amendments to ECCNs 1E001 and 1E201 to reflect the addition of new ECCN 1C241. Specifically, ECCN 1E001 is amended by revising the NP Column 1 paragraph in the License Requirements section to indicate that this ECCN contains NP controls on "development" and "production" "technology" for rhenium and alloys containing rhenium described in new ECCN 1C241 (note that AT controls apply to all items in 1E001). In addition, ECCN 1E201 is amended by revising the heading of the ECCN to indicate that 1E201 controls "technology" for the "use" of rhenium and alloys containing rhenium described in new ECCN 1C241.

This rule amends ECCN 2A225 to reflect the 2013 NSG Plenary changes to 2.A.1.a in the NSG Annex. Specifically, ECCN 2A225.a.1 is amended to clarify that the volume controlled is

described in "liters." This rule also amends 2A225.b.1 and .c.1 to make the same clarification, consistent with the control language in 2.A.1.b.1 and .c.1 in the NSG Annex (these NSG Annex paragraphs already specified "liters" prior to the 2013 NSG Plenary changes). In addition, this rule amends the heading of ECCN 2A225.a.2 to: (1) specify that "an overall impurity level of 2% or less by weight" applies; and (2) add the phrase, "combination of the following materials." Based on these changes, crucibles controlled under ECCN 2A225.a must: (1) have a volume of between 150 cm^3 and 8,000 cm^3 (8 liters); and (2) be made of, or coated with, any of the materials identified in 2A225.a.2.a through a.2.i, or combination of these materials, having an overall impurity level of 2% or less by weight.

This rule amends the heading of ECCN 2B232 to reflect the 2013 NSG Plenary changes to 5.B.2 in the NSG Annex. Specifically, the heading of ECCN 2B232 is revised to control "high-velocity gun systems (propellant, gas, coil, electromagnetic, and electrothermal types, and other advanced systems) capable of accelerating projectiles to 1.5 km/s or greater." Prior to the publication of this rule, this ECCN controlled "multistage light gas guns or other high-velocity gun systems (coil, electromagnetic, and electrothermal types, and other advanced systems) capable of accelerating projectiles to 2 km/s or greater."

This rule also amends ECCN 2D201 to reflect the 2013 NSG Plenary changes to NSG Annex entry 1.D.1, which was revised to include software "modified" for the "use" of specified equipment, as well as software "specially designed" for such "use." Consistent with these NSG changes, this rule amends the heading of ECCN 2D201 to indicate that this ECCN controls "software" "specially designed" or "modified" for the "use" of equipment controlled by 2B204,

2B206, 2B207, 2B209, 2B227, or 2B229. Prior to the publication of this rule, the ECCN heading referred to "specially designed" "software," but not "software" "modified," for the "use" of the such equipment. In addition, this rule amends the "ECCN Controls" paragraph in the List of Items Controlled section of ECCN 2D201 to indicate that "software" "specially designed" or "modified" for systems controlled by 2B206.b includes "software" for simultaneous measurements of wall thickness and contour. Prior to the publication of this rule, the "ECCN Controls" paragraph did not specifically refer to "software" "modified" for such systems.

This rule adds a new "ECCN Controls" paragraph to the List of Items Controlled section of ECCN 2D202 to indicate that this ECCN does not control part programming "software" that generates "numerical control" command codes, but does not allow direct use of equipment for machining various parts. This change is consistent with the 2013 NSG Plenary decision to add a new note that provides the same guidance with respect to 1.D.2 in the NSG Annex.

This rule amends ECCN 3A229 consistent with the 2013 NSG Plenary changes to 6.A.2, which included the following: 6.A.2.a and .b were revised; a new 6.A.2.c was added; the Technical Note defining "rise time" was removed; and the Note to 6.A.2 was revised to add descriptions of "optically driven firing sets" and "explosively driven firing sets." Specifically, 3A229.a is amended to indicate that it controls "detonator firing sets (initiation systems, firesets), including electronically-charged, explosively-driven and optically-driven firing sets" designed to drive multiple controlled detonators (prior to the publication of this rule 3A229.a referred to "explosive detonator firing sets"). In 3A229.b, this rule removes 3A229.b.2, redesignates 3A229.b.3 as new 3A229.b.2, and amends new 3A229.b.2 to specify a capability of delivering

energy in less than 15 μs "into loads of less than 40 Ω (ohms)." ECCN 3A229.b.4 is redesignated as new 3A229.b.3, with no changes. ECCN 3A229.b.5 is removed and 3A229.b.6 is redesignated as new 3A229.b.4 and amended to specify "no dimension greater than 30 cm" (the control level was 25.4 cm, prior to the publication of this rule). ECCN 3A229.b.7 is redesignated as new 3A229.b.5 and amended to specify a weight less than 30 kg (the control level was 25 kg, prior to the publication of this rule). ECCN 3A229.b.8 is redesignated as new 3A229.b.6 with no changes. This rule also amends ECCN 3A229 by adding a new 3A229.c to control micro-firing units with all of the following characteristics: (1) no dimension greater than 35 mm; (2) a voltage rating of equal to or greater than 1 kV; and (3) a capacitance of equal to or greater than 100 nF.

In addition, this rule amends the "Related Definitions" paragraph of ECCN 3A229 to read "N/A," because a definition of "rise time" is no longer required due to the removal of the 3A229.b.5 control that specified "a 'rise time' of less than 10 μs into loads of less than 40 ohms" (see description of the changes related to 3A229.b.5, above). Also, consistent with the 2013 NSG Plenary changes to the Note to 6.A.2 (as described above), this rule amends the "ECCN Controls" paragraph of ECCN 3A229 to indicate that: (1) optically driven firing sets include both those employing laser initiation and laser charging; and (2) explosively driven firing sets include both explosive ferroelectric and explosive ferromagnetic firing set types. To further clarify the EAR controls on explosive detonators, this rule also amends the "Related Controls" paragraph of ECCN 3A229 to include a reference to explosive detonator firing sets in ECCN 1A007.a that are designed to drive explosive detonators controlled by 1A007.b.

This rule amends ECCN 3A230 to reflect the 2013 NSG Plenary changes to 5.B.6 in the NSG Annex. Specifically, the heading of ECCN 3A230 is revised to indicate that this ECCN controls not only high-speed pulse generators, but also the "pulse heads" for such generators. In addition, the "Related Definitions" paragraph, in the List of Items Controlled for ECCN 3A230, is amended to add a definition of "pulse heads," as this term is used in the amended heading of ECCN 3A230.

This rule also amends ECCN 3A231 to reflect the 2013 NSG Plenary changes to 6.A.5.b in the NSG Annex. Specifically, ECCN 3A231.b is amended to indicate that controlled neutron generator systems must utilize electrostatic acceleration to induce either: (1) a tritium-deuterium nuclear reaction; or (2) a deuterium-deuterium nuclear reaction capable of an output of 3×10^9 neutrons/s or greater. Prior to the publication of this final rule, ECCN 3A231.b specified only a tritium-deuterium nuclear reaction.

This rule amends ECCN 3A233 to reflect the following 2013 NSG Plenary changes to 3.B.6 in the NSG Annex: 3.B.6.d was revised; 3.B.6.e was removed; 3.B.6.f was redesignated as new 3.B.6.e; and three new Technical Notes were added to address the revised controls in 3.B.6.d. Specifically, this rule amends 3A233.d, consistent with the NSG revisions to 3.B.6.d, to control electron bombardment mass spectrometers with both of the following: (1) a molecular beam inlet system that injects a collimated beam of analyte molecules into a region of the ion source where the molecules are ionized by an electron beam; and (2) one or more cold traps that can be cooled to a temperature of 193 K (-80 °C) or less in order to trap analyte molecules not ionized

by the electron beam. In addition, this rule removes 3A233.e and redesignates 3A233.f as new 3A233.e, consistent with the NSG's removal of 3.B.6.e and redesignation of 3.B.6.f. This rule also adds three new Technical Notes, at end of ECCN 3A233, to indicate that: (1) ECCN 3A233.d controls mass spectrometers typically used for isotopic analysis of UF_6 gas samples; (2) electron bombardment mass spectrometers in ECCN 3A233.d are also known as electron impact mass spectrometers or electron ionization mass spectrometers; and (3) a "cold trap," as that term is used in ECCN 3A233.d.2, is a device that traps gas molecules by condensing or freezing them on cold surfaces and, for the purposes of this ECCN, a closed-loop gaseous helium cryogenic vacuum pump is not a cold trap.

Consistent with the addition of 6.A.6.a and .b to the NSG Annex, this rule adds new ECCN 3A234 to the CCL to control "striplines" that provide a "low inductance path to detonators" and have both of the following characteristics: (1) a voltage rating greater than 2 kV; and (2) an inductance of less than 20 nH. This rule also makes conforming amendments to ECCNs 3E001 and 3E201 to reflect the addition of new ECCN 3A234. Specifically, ECCN 3E001 is amended by revising the NP Column 1 paragraph in the License Requirements section to indicate that this ECCN contains NP controls on "development" and "production" "technology" for striplines described in new ECCN 3A234 (note that AT controls apply to all items in 3E001). In addition, ECCN 3E201 is amended by: (1) revising the heading of the ECCN to indicate that 3E201 controls "technology" for the "use" of striplines described in new ECCN 3A234 and (2) revising the NP Column 1 paragraph in the License Requirements section of ECCN 3E201 to indicate that this ECCN contains NP controls on such "use" "technology" (note that AT controls apply to all items in 3E201).

This rule amends ECCN 6A003, consistent with the 2013 NSG Plenary changes to NSG Annex 5.B.3, which was revised to add, in 5.B.3.a.4, b.4, and c.4, "plug-ins" for cameras described in 5.B.3.a, .b, or .c. Specifically, this rule amends the NP Column 1 controls in the License Requirements section of ECCN 6A003 to include "plug-ins" in 6A003.a.6 for cameras controlled by 6A003.a.3 or a.4.

This rule amends ECCN 6A203, consistent with the 2013 NSG Plenary changes to 5.B.3 in the NSG Annex. Specifically, this rule amends ECCN 6A203 by revising the "Items" paragraph in the List of Items Controlled section of the ECCN to control "streak cameras" under 6A203.a, "framing cameras" under 6A203.b, and "solid state or electron tube cameras under 6A203.c, as follows (in the following, "previously" means prior to the publication of this rule).

(1) Streak cameras in 6A203.a:

6A203.a.1 (contains items previously identified under 6A203.a.2);

6A203.a.2 (contains items previously identified under 6A203.b.1);

6A203.a.3 (contains items previously identified under 6A203.b.2);

6A203.a.4 (controls plug-ins, not previously identified in 6A203, for 6A203.a cameras);

6A203.a.5 (controls items previously referenced in the Note to 6A203.a);

(2) Framing cameras in 6A203.b:

6A203.b.1 (controls items previously identified under 6A203.a.1);

6A203.b.2 (controls items previously identified under 6A203.b.3);

6A203.b.3 (controls items previously identified under 6A203.b.4.d);

6A203.b.4 (controls plug-ins, not previously identified in 6A203, for 6A203.b cameras);

6A203.b.5 (controls items previously referenced in the Note to 6A203.a);

(3) Solid state or electron tube cameras in 6A203.c:

6A203.c.1 (controls solid state or electron tube cameras with a fast image gating (shutter) time of 50 ns or less);

6A203.c.2 (controls solid-state imaging devices & image intensifier tubes with a fast image gating (shutter) time of 50 ns or less – these items were previously identified under 6A203.b.4.a);

6A203.c.3 (controls electro-optical shuttering devices (Kerr or Pockels cells) with a fast image gating (shutter) time of 50 ns or less – these items were previously identified under 6A203.b.4.c);

6A203.c.4 (controls plug-ins, not previously identified in 6A203, for 6A203.c cameras).

This rule also amends the CCL to control certain "software" related to the equipment described in ECCN 6A203, consistent with the 2013 NSG Plenary decision to add new 5.D.1 and 5.D.2 to the NSG Annex to control "software" "specially designed" to enhance or release the performance characteristics of high speed cameras and imaging devices, and components therefor, to meet or exceed the level of the performance characteristics in 5.B.3 (i.e., high-speed

cameras & imaging devices in ECCN 6A203 and NP-controlled equipment in ECCN 6A003). Specifically, this rule adds new ECCN 6D201 to the CCL to control "software" that is "specially designed" to enhance or release the performance characteristics of high-speed cameras and imaging devices, and components therefor, to meet or exceed the level of the performance characteristics described in ECCN 6A203, consistent with new 5.D.1 and 5.D.2 on the NSG Annex. New ECCN 6D201 controls both: (1) "software" or encryption keys/codes "specially designed" to enhance or release the performance characteristics of equipment not controlled by ECCN 6A203, or not controlled for NP reasons by ECCN 6A003, so that such equipment meets or exceeds the performance characteristics of equipment described in ECCN 6A203; and (2) "software" or encryption key codes "specially designed" to enhance or release the performance characteristics of equipment controlled by ECCN 6A203 or equipment controlled by ECCN 6A003 that meets or exceeds the performance characteristics described in ECCN 6A203.

This rule also makes conforming amendments to ECCN 6E001 to reflect the addition of new ECCN 6D201 to the CCL. Specifically, ECCN 6E001 is amended by revising the NP Column 1 paragraph in the License Requirements section to indicate that this ECCN contains NP controls on "technology" for the "development" of "software" described in new ECCN 6D201 (note that AT controls apply to all items in 6E001). In addition, this rule adds a new ECCN 6E202 to control "technology" for the "production" or "use" of "software" described in new ECCN 6D201.

This rule also amends ECCN 6A225, consistent with the 2013 NSG Plenary changes to the Note to 5.B.5.a in the NSG Annex. Specifically, this rule amends the "ECCN Controls" paragraph in

the List of Items Controlled section of ECCN 6A225 to indicate that this ECCN controls not only velocity interferometers, such as VISARs (Velocity Interferometer Systems for Any Reflector) and DLIs (Doppler Laser Interferometers), but also PDV (Photonic Doppler Velocimeters) also known as Het-V (Heterodyne Velocimeters).

Consistent with the 2013 NSG changes to 5.B.5.b in the NSG Annex, this rule amends ECCN 6A226.a to control "shock pressure gauges capable of measuring pressures greater than 10 GPa (100 kilobars), including gauges made with manganin, ytterbium, and polyvinylidene bifluoride (PVBF, PVF_2). Prior to the publication of this final rule, ECCN 6A226.a specified only "manganin gauges for pressures greater than 100 kilobars."

Corrections to ECCNs 2B006 and 2B206

This rule also makes certain corrections to ECCNs 2B006 and 2B206. ECCN 2B006 is amended to correctly state the scope of the NP controls that apply to certain items listed therein. Specifically, this rule amends the License Requirements section of ECCN 2B006 by revising the NP control(s) paragraph to indicate that NP Column 1 controls apply to those items described in ECCN 2B006.a that also meet or exceed the technical parameters in ECCN 2B206.a and to all items described in ECCN 2B006.b, except those in 2B006.b.1.d. Prior to the publication of this rule, the License Requirements section of ECCN 2B006 stated that NP Column 1 controls applied to all items described in ECCN 2B006.a, regardless of whether or not such items met or exceeded the technical parameters described in ECCN 2B206.a. As a result of this amendment to ECCN 2B006, the types of computer controlled or numerically controlled dimensional

inspection machines on the CCL that are subject to NP controls under ECCN 2B006 or 2B206 are now fully consistent with the controls described in paragraph 1.B.3.a of the NSG Annex.

Finally, this rule amends ECCN 2B206 to eliminate redundant control language by removing paragraph (c) and the Note thereto. The items that were described in ECCN 2B206.c are currently controlled under ECCN 2B006.b.2.

Although the Export Administration Act expired on August 20, 2001, the President, through Executive Order 13222 of August 17, 2001, 3 CFR, 2001 Comp., p. 783 (2002), as amended by Executive Order 13637 of March 8, 2013, 78 FR 16129 (March 13, 2013), and as extended by the Notice of August 8, 2013, 78 FR 49107 (August 12, 2013), has continued the Export Administration Regulations in effect under the International Emergency Economic Powers Act. BIS continues to carry out the provisions of the Export Administration Act, as appropriate and to the extent permitted by law, pursuant to Executive Order 13222.

Saving Clause

Shipments of items removed from eligibility for export or reexport under a license exception or without a license (i.e., under the designator "NLR") as a result of this regulatory action that were on dock for loading, on lighter, laden aboard an exporting carrier, or en route aboard a carrier to a port of export, on [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION], pursuant to actual orders for export or reexport to a foreign destination, may proceed to that destination under the previously applicable license exception or without a license (NLR) so long as they are

exported or reexported before [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION]. Any such items not actually exported or reexported before midnight, on [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION], require a license in accordance with this regulation.

"Deemed" exports of "technology" and "source code" removed from eligibility for export under a license exception or without a license (under the designator "NLR") as a result of this regulatory action may continue to be made under the previously available license exception or without a license (NLR) before [INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION]. Beginning at midnight on [INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION], such "technology" and "source code" may no longer be released, without a license, to a foreign national subject to the "deemed" export controls in the EAR when a license would be required to the home country of the foreign national in accordance with this regulation.

Rulemaking Requirements

1. Executive Orders 13563 and 12866 direct agencies to assess all 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, distributive 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" under section 3(f) of Executive Order 12866. Accordingly, the rule has been reviewed by the Office of Management and Budget.

2. Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.) (PRA), unless that collection of information displays a currently valid Office of Management and Budget (OMB) Control Number. This rule contains a collection of information subject to the requirements of the PRA. This collection has been approved by OMB under Control Number 0694-0088 (Multi-Purpose Application), which carries a burden hour estimate of 58 minutes to prepare and submit form BIS-748. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Jasmeet Seehra, Office of Management and Budget (OMB), and to the Regulatory Policy Division, Bureau of Industry and Security, Department of Commerce, as indicated in the "ADDRESSES" section of this rule.

3. This rule does not contain policies with Federalism implications as that term is defined in Executive Order 13132.

4. The provisions of the Administrative Procedure Act (5 U.S.C. 553) requiring notice of proposed rulemaking, the opportunity for public participation, and a delay in effective date, are inapplicable because this regulation involves a military and foreign affairs function of the United States (See 5 U.S.C. 553(a)(1)). Immediate implementation of these amendments is non-discretionary and fulfills the United States' international obligation to the Nuclear Suppliers Group (NSG). The NSG contributes to international security and regional stability through the

harmonization of export controls and seeks to ensure that exports do not contribute to the development of nuclear weapons. The NSG consists of 48 member countries that act on a consensus basis and the amendments set forth in this rule implement the understandings reached at the 2005, 2012, and 2013 NSG plenary meetings, a decision that was adopted under the NSG intersessional silent approval procedures in December 2009, and other changes deemed necessary to ensure consistency with the controls maintained by the NSG. Since the United States is a significant exporter of the items in this rule, immediate implementation of this provision is necessary for the NSG to achieve its purpose. Any delay in implementation will create a disruption in the movement of affected items globally because of disharmony between export control measures implemented by NSG members, resulting in tension between member countries. Export controls work best when all countries implement the same export controls in a timely and coordinated manner.

Further, no other law requires that a notice of proposed rulemaking and an opportunity for public comment be given for this final rule. Because a notice of proposed rulemaking and an opportunity for public comment are not required to be given for this rule under the Administrative Procedure Act or by any other law, the analytical requirements of the Regulatory Flexibility Act (5 U.S.C. 601 et seq.) are not applicable. Therefore, this regulation is issued in final form.

List of Subjects

15 CFR Part 738

Administrative practice and procedure, Exports, Foreign trade.

15 CFR Part 740

Administrative practice and procedure, Exports, Foreign trade, Reporting and recordkeeping requirements.

15 CFR Part 742

Exports, Foreign trade.

15 CFR Part 744

Exports, Reporting and recordkeeping requirements, Terrorism.

15 CFR Part 772

Exports.

15 CFR Part 774

Exports, Foreign trade, Reporting and recordkeeping requirements

Accordingly, Parts 738, 740, 742, 744, 772, and 774 of the Export Administration Regulations (15 CFR parts 730-774) are amended as follows:

PART 738 - [AMENDED]

1. The authority citation for 15 CFR Part 738 continues to read as follows:

Authority: 50 U.S.C. app. 2401 *et seq*.; 50 U.S.C. 1701 *et seq*.; 10 U.S.C. 7420; 10 U.S.C. 7430(e); 22 U.S.C. 287c; 22 U.S.C. 3201 *et seq*.; 22 U.S.C. 6004; 30 U.S.C. 185(s), 185(u); 42 U.S.C. 2139a; 42 U.S.C. 6212; 43 U.S.C. 1354; 15 U.S.C. 1824a; 50 U.S.C. app. 5; 22 U.S.C. 7201 *et seq*.; 22 U.S.C. 7210; E.O. 13026, 61 FR 58767, 3 CFR, 1996 Comp., p. 228; E.O. 13222, 66 FR 44025, 3 CFR, 2001 Comp., p. 783; Notice of August 8, 2013, 78 FR 49107 (August 12, 2013).

2. Supplement No. 1 to Part 738 is amended by revising the entries for “Croatia”, “Estonia”, “Iceland”, “Lithuania”, “Malta”, “Mexico”, and “Serbia” to read as follows:

Supplement No. 1 to Part 738--COMMERCE COUNTRY CHART

[Reason for control]

Countries	Chemical & Biological Weapons			Nuclear Nonproliferation		National Security		Missile Tech	Regional Stability		Firearms Convention	Crime Control			Anti-Terrorism	
	CB 1	CB 2	CB 3	NP 1	NP 2	NS 1	NS 2	MT 1	RS 1	RS 2	FC 1	CC 1	CC 2	CC 3	AT 1	AT 2
* * * * * * *																
Croatia[3]	X					X		X	X							
* * * * * * *																
Estonia[3]	X					X		X	X							
* * * * * * *																
Iceland[3]	X					X		X	X							
* * * * * * *																
Lithuania[3]	X					X		X	X							
* * * * * * *																
Malta[2,3,4]	X					X	X	X	X	X		X		X		
* * * * * * *																
Mexico	X					X		X	X		X	X		X		
* * * * * * *																
Serbia	X	X				X	X	X	X	X		X	X	X		
* * * * * * *																

PART 740 - [AMENDED]

3. The authority citation for 15 CFR Part 740 continues to read as follows:

Authority: 50 U.S.C. app. 2401 *et seq*.; 50 U.S.C. 1701 *et seq*.; 22 U.S.C. 7201 *et seq*.; E.O. 13026, 61 FR 58767, 3 CFR, 1996 Comp., p. 228; E.O. 13222, 66 FR 44025, 3 CFR, 2001 Comp., p. 783; Notice of August 8, 2013, 78 FR 49107 (August 12, 2013).

4. In Supplement No. 1 to Part 740, Country Groups, Country Group A is amended by adding, in alphabetical order, new entries for "Mexico" and "Serbia" and by revising the entries for "Croatia", "Estonia", "Iceland", "Lithuania", and "Malta" to read as follows:

Supplement No. 1 to Part 740--COUNTRY GROUPS

Country Group A

Country	[A:1]	[A:2] Missile technology control regime	[A:3] Australia group	[A:4] Nuclear suppliers group	[A:5]	[A:6]
* * * * * * *						
Croatia			X	X	X	
* * * * * * *						
Estonia			X	X	X	
* * * * * * *						

Iceland		X	X	X	X	
* * * * * * *						
Lithuania			X	X	X	
* * * * * * *						
Malta			X	X		X
Mexico			X	X		
* * * * * * *						
Serbia				X		
* * * * * * *						

PART 742 - [AMENDED]

5. The authority citation for 15 CFR part 742 continues to read as follows:

Authority: 50 U.S.C. app. 2401 *et seq*.; 50 U.S.C. 1701 *et seq*.; 22 U.S.C. 3201 *et seq*.; 42 U.S.C. 2139a; 22 U.S.C. 7201 *et seq*.; 22 U.S.C. 7210; Sec. 1503, Pub. L. 108–11, 117 Stat. 559; E.O. 12058, 43 FR 20947, 3 CFR, 1978 Comp., p. 179; E.O. 12851, 58 FR 33181, 3 CFR, 1993 Comp., p. 608; E.O. 12938, 59 FR 59099, 3 CFR, 1994 Comp., p. 950; E.O. 13026, 61 FR 58767, 3 CFR, 1996 Comp., p. 228; E.O. 13222, 66 FR 44025, 3 CFR, 2001 Comp., p. 783; Presidential Determination 2003–23 of May 7, 2003, 68 FR 26459, May 16, 2003; Notice of August 8, 2013, 78 FR 49107 (August 12, 2013); Notice of November 7, 2013, 78 FR 67289 (November 12, 2013).

6. Section 742.3 is amended by revising paragraphs (a)(1), (b)(1)(vii), and (b)(1)(viii)(F) and by adding paragraph (b)(1)(ix) to read as follows:

§ 742.3 Nuclear nonproliferation.

(a) * * *

(1) If NP Column 1 of the Country Chart (Supplement No. 1 to part 738 of the EAR) is indicated in the appropriate ECCN, a license is required to all destinations, except those Nuclear Suppliers Group (NSG) member countries that are listed under Country Group A:4 in Supplement No. 1 to part 740 of the EAR.

* * * * *

(b) * * *

(1) * * *

(vii) Whether the export or reexport would present an unacceptable risk of diversion to a nuclear explosive activity or unsafeguarded nuclear fuel-cycle activity described in § 744.2(a) of the EAR;

(viii) * * *

(F) Information on the importing country's nuclear intentions and activities; and

(ix) Whether the recipient state has sufficient national export controls (as described in paragraph 3 of United Nations Security Council Resolution 1540 (2004)) to prevent an unacceptable risk of retransfer or diversion to a nuclear explosive activity or unsafeguarded nuclear fuel-cycle activity described in § 744.2(a) of the EAR.

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PART 744 - [AMENDED]

7. The authority citation for 15 CFR part 744 continues to read as follows:

Authority: 50 U.S.C. app. 2401 *et seq*.; 50 U.S.C. 1701 *et seq*.; 22 U.S.C. 3201 *et seq*.; 42 U.S.C. 2139a; 22 U.S.C. 7201 *et seq*.; 22 U.S.C. 7210; E.O. 12058, 43 FR 20947, 3 CFR, 1978 Comp., p. 179; E.O. 12851, 58 FR 33181, 3 CFR, 1993 Comp., p. 608; E.O. 12938, 59 FR 59099, 3 CFR, 1994 Comp., p. 950; E.O. 12947, 60 FR 5079, 3 CFR, 1995 Comp., p. 356; E.O. 13026, 61 FR 58767, 3 CFR, 1996 Comp., p. 228; E.O. 13099, 63 FR 45167, 3 CFR, 1998 Comp., p. 208; E.O. 13222, 66 FR 44025, 3 CFR, 2001 Comp., p. 783; E.O. 13224, 66 FR 49079, 3 CFR, 2001 Comp., p. 786; Notice of January 17, 2013, 78 FR 4303 (January 22, 2013);

Notice of August 8, 2013, 78 FR 49107 (August 12, 2013); Notice of September 18, 2013, 78 FR 58151 (September 20, 2013); Notice of November 7, 2013, 78 FR 67289 (November 12, 2013).

8. Section 744.2 is amended by revising paragraphs (d)(7) and (d)(8)(vi) and by adding paragraph (d)(9) to read as follows:

§ 744.2 Restrictions on certain nuclear end-uses.

* * * * *

(d) * * *

(7) Whether the export would present an unacceptable risk of diversion to a nuclear explosive activity or unsafeguarded nuclear fuel-cycle activity described in § 744.2(a) of the EAR;

(8) * * *

(vi) Intelligence data on the importing country's nuclear intentions and activities; and

(9) Whether the recipient state has sufficient national export controls (as described in paragraph 3 of United Nations Security Council Resolution 1540 (2004)) to prevent an

unacceptable risk of retransfer or diversion to a nuclear explosive activity or unsafeguarded nuclear fuel-cycle activity described in § 744.2(a) of the EAR.

PART 772 - [AMENDED]

9. The authority citation for 15 CFR part 772 continues to read as follows:

Authority: 50 U.S.C. app. 2401 *et seq*.; 50 U.S.C. 1701 *et seq*.; E.O. 13222, 66 FR 44025, 3 CFR, 2001 Comp., p. 783; Notice of August 8, 2013, 78 FR 49107 (August 12, 2013).

10. Section 772.1 is amended by revising the definition of "Nuclear Suppliers Group (NSG)" to read as follows:

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

* * * * *

Nuclear Suppliers Group (NSG). The United States and other nations in this multilateral control regime have agreed to guidelines for restricting the export or reexport of items with nuclear applications. Members include: Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Mexico, the Netherlands, New Zealand, Norway, People's Republic of

China, Poland, Portugal, Republic of Korea, Romania, Russia, Serbia, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States. See also § 742.3 of the EAR.

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PART 774 - [AMENDED]

11. The authority citation for 15 CFR Part 774 continues to read as follows:

Authority: 50 U.S.C. app. 2401 *et seq*.; 50 U.S.C. 1701 *et seq*.; 10 U.S.C. 7420; 10 U.S.C. 7430(e); 22 U.S.C. 287c, 22 U.S.C. 3201 *et seq*.; 22 U.S.C. 6004; 30 U.S.C. 185(s), 185(u); 42 U.S.C. 2139a; 42 U.S.C. 6212; 43 U.S.C. 1354; 15 U.S.C. 1824a; 50 U.S.C. app. 5; 22 U.S.C. 7201 *et seq*.; 22 U.S.C. 7210; E.O. 13026, 61 FR 58767, 3 CFR, 1996 Comp., p. 228; E.O. 13222, 66 FR 44025, 3 CFR, 2001 Comp., p. 783; Notice of August 8, 2013, 78 FR 49107 (August 12, 2013).

Supplement No. 1 to Part 774 - [Amended]

12. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, "Microorganisms" and "Toxins," ECCN 1B201 is amended by revising the ECCN heading and by revising paragraph a.3., in the "Items" paragraph under the List of Items Controlled section, to read as follows:

1B201 Filament winding machines (other than those controlled by ECCN 1B001 or 1B101) and related equipment, as described in this ECCN (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: * * *

Items:

a. * * *

a.3. Capable of winding cylindrical tubes with an internal diameter between 75 mm and 650 mm and lengths of 300 mm or greater;

* * * * *

13. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, “Microorganisms” and “Toxins,” ECCN 1B227 is removed.

14. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, “Microorganisms” and “Toxins,”

ECCN 1B228 is amended by revising the ECCN heading, by revising the "Related Definitions" paragraph under the List of Items Controlled section, and by revising paragraph d., in the "Items" paragraph under the List of Items Controlled section, to read as follows:

1B228 Hydrogen cryogenic distillation columns having all of the characteristics described in this ECCN (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: (1) The term "fine grain stainless steels," for purposes of this ECCN, means fine grain austenitic stainless steels with an ASTM (or equivalent standard) grain size number of 5 or greater. (2) The term "effective length," for purposes of this ECCN, means the active height of packing material in a packed-type column, or the active height of internal contactor plates in a plate-type column.

Items: * * *

d. With internal diameters of 30 cm or greater and "effective lengths" of 4 m or greater.

15. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, "Microorganisms" and "Toxins,"

ECCN 1B233 is amended by revising the ECCN heading, by revising the "Related Controls" paragraph under the List of Items Controlled section, and, in the "Items" paragraph under the List of Items Controlled section, by revising the heading of paragraph b., by revising paragraph b.1., and by adding new paragraphs c. and d., immediately following paragraph b., to read as follows:

1B233 Lithium isotope separation facilities or plants, and systems and equipment therefor (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: (1) See ECCN 1E001 ("development" and "production") and ECCN 1E201 ("use") for technology for items described in this entry. (2) Facilities and plants described in 1B233.a are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110). (3) Certain lithium isotope separation equipment and components for the plasma separation process (PSP) that are described in 1B233.b through .d are also directly applicable to uranium isotope separation and are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

* * * * *

Items:

a. * * *

b. Equipment for the separation of lithium isotopes based on the lithium-mercury amalgam process, as follows:

b.1. Packed liquid-liquid exchange columns “specially designed” for lithium amalgams;

* * * * *

c. Ion exchange systems “specially designed” for lithium isotope separation, and “specially designed” component parts therefor;

d. Chemical exchange systems (employing crown ethers, cryptands, or lariat ethers) “specially designed” for lithium isotope separation, and “specially designed” component parts therefor.

16. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, “Microorganisms” and “Toxins,” a new ECCN 1B234 is added, immediately following ECCN 1B233, to read as follows:

1B234 High explosive containment vessels, chambers, containers, and other similar containment devices, not enumerated in ECCN 1B608 or in USML Category IV or V of the ITAR, designed for the testing of high explosives or explosive devices and having both of the characteristics described in this ECCN (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A

GBS: N/A

CIV: N/A

List of Items Controlled

Related Controls: (1) Devices "specially designed" for the handling, control, activation, monitoring, detection, protection, discharge, or detonation of the articles enumerated in USML Category IV(a) and (b) are controlled by USML Category IV(c) of the ITAR (see 22 CFR parts 120 through 130). (2) See USML Category V of the ITAR (22 CFR parts 120 through 130) for devices identified therein that are "specially designed" to fully contain explosives enumerated in USML Category V. (3) Also see ECCN 1B608 for ''equipment'' ''specially designed'' for the ''development,'' ''production,'' repair, overhaul, or refurbishing of items controlled by ECCN 1C608 or USML Category V and not elsewhere specified on the USML.

Related Definitions: N/A

Items:

a. Designed to fully contain an explosion equivalent to 2 kg of TNT or greater; *and*

b. Having design elements or features enabling real time or delayed transfer of diagnostic or measurement information.

17. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, "Microorganisms" and "Toxins," ECCN 1C216 is amended by revising the ECCN heading to read as follows:

1C216 Maraging steel, other than that controlled by 1C116, "capable of" an ultimate tensile strength of 1,950 MPa or more, at 293 K (20 °C).

* * * * *

18. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, "Microorganisms" and "Toxins," ECCN 1C236 is amended by revising the ECCN heading and by revising the "ECCN Controls" paragraph and the "Items" paragraph, under the List of Items Controlled section, to read as follows:

1C236 Radionuclides appropriate for making neutron sources based on alpha-n reaction and products or devices containing such radionuclides (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: * * *

ECCN Controls: This entry does not control a product or device containing less than 3.7 GBq (100 millicuries) of activity.

Items:

a. Radionuclides identified in 1C236.a.1 in any of the forms described in 1C236.a.2:

a.1. Radionuclides, as follows, appropriate for making neutron sources based on alpha-n reactions:

a.1.a. Actinium 225;

a.1.b. Actinium 227;

a.1.c. Californium 253;

a.1.d. Curium 240;

a.1.e. Curium 241;

a.1.f. Curium 242;

a.1.g. Curium 243;

a.1.h. Curium 244;

a.1.i. Einsteinium 253;

a.1.j. Einsteinium 254;

a.1.k. Gadolinium 148;

a.1.l. Plutonium 236;

a.1.m. Plutonium 238;

a.1.n. Polonium 208;

a.1.o. Polonium 209;

a.1.p. Polonium 210;

a.1.q. Radium 223;

a.1.r. Thorium 227;

a.1.s. Thorium 228;

a.1.t. Uranium 230;

a.1.u. Uranium 232; *and*

a.2. In any of the following forms:

a.2.a. Elemental;

a.2.b. Compounds having a total activity of 37 GBq (1 curie) per kg or greater; *or*

a.2.c. Mixtures having a total activity of 37 GBq (1 curie) per kg or greater.

b. Products or devices containing radionuclides identified in 1C236.a.1 in any of the forms described in 1C236.a.2.

19. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, “Microorganisms” and “Toxins,” a

new ECCN 1C241 is added, immediately following ECCN 1C240, to read as follows:

1C241 Rhenium and alloys containing rhenium (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A

GBS: N/A

CIV: N/A

List of Items Controlled

Related Controls: N/A

Related Definitions: N/A

Items:

a. Rhenium and alloys containing rhenium, as follows, having both of the characteristics described in 1C241.b:

a.1. Alloys containing 90% by weight or more of rhenium;

a.2. Alloys containing 90% by weight or more of any combination of rhenium and

tungsten; *and*

b. Having both of the following characteristics:

b.1. In forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 mm and 300 mm; *and*

b.2. A mass greater than 20 kg.

20. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, "Microorganisms" and "Toxins," ECCN 1E001 is amended by revising the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section to read as follows:

1E001 "Technology" according to the General Technology Note for the "development" or "production" of items controlled by 1A001.b, 1A001.c, 1A002, 1A003, 1A004, 1A005, 1A006.b, 1A007, 1A008 1A101, 1B (except 1B608, 1B613 or 1B999), or 1C (except 1C355, 1C608, 1C980 to 1C984, 1C988, 1C990, 1C991, 1C995 to 1C999).

License Requirements

Reason for Control: NS, MT, NP, CB, RS, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
* * * * *	* * * * *

NP applies to "technology" for items controlled by 1A002, 1A007, 1B001, 1B101, 1B201, 1B225, 1B226, 1B228 to 1B234, 1C002, 1C010, 1C111, 1C116, 1C202, 1C210, 1C216, 1C225 to 1C237, or 1C239 to 1C241 for NP reasons	NP Column 1
* * * * *	* * * * *

* * * * *

21. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 1 -- Special Materials and Related Equipment, Chemicals, "Microorganisms" and "Toxins," ECCN 1E201 is amended by revising the ECCN heading to read as follows:

1E201 "Technology" according to the General Technology Note for the "use" of items controlled by 1A002, 1A007, 1A202, 1A225 to 1A227, 1B201, 1B225, 1B226, 1B228 to 1B232, 1B233.b, 1B234, 1C002.b.3 and b.4, 1C010.a, 1C010.b, 1C010.e.1, 1C202, 1C210, 1C216, 1C225 to 1C237, 1C239 to 1C241 or 1D201.

* * * * *

22. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2A225 is amended by revising the heading of the ECCN and, in the "Items" paragraph under the List of Items Controlled section, by revising paragraph a.1., by revising the introductory text of paragraph a.2., by revising paragraph b.1., and by revising paragraph c.1. to read as follows:

2A225 Crucibles made of materials resistant to liquid actinide metals (see List of Items Controlled).

* * * * *

List of Items Controlled

* * * * *

Items:

a. * * *

a.1. A volume of between 150 cm^3 (150 ml) and 8,000 cm^3 (8 liters); *and*

a.2. Made of, or coated with, any of the following materials, or combination of the following materials, having an overall impurity level of 2% or less by weight:

* * * * *

b. * * *

b.1. A volume of between 50 cm^3 (50 ml) and 2,000 cm^3 (2 liters); *and*

* * * * *

c. * * *

c.1. A volume of between 50 cm^3 (50 ml) and 2,000 cm^3 (2 liters);

* * * * *

23. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2B006 is amended by revising the License Requirements section to read as follows:

2B006 Dimensional inspection or measuring systems, equipment, and "electronic assemblies", as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NS applies to entire entry	NS Column 2

NP applies to those items in 2B006.a that meet or exceed the technical parameters in 2B206.a and to all items in 2B006.b, except those in 2B006.b.1.d	NP Column 1
AT applies to entire entry	AT Column 1

* * * * *

24. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 --Materials Processing, ECCN 2B201 is amended by revising the ECCN heading and the List of Items Controlled section to read as follows:

2B201 Machine tools, and any combination thereof, other than those controlled by 2B001, for removing or cutting metals, ceramics or "composites," which, according to manufacturer's technical specifications, can be equipped with electronic devices for simultaneous "contouring control" in two or more axes.

* * * * *

List of Items Controlled

Related Controls: (1) See ECCNs 2D002 and 2D202 for "software" for items controlled by this entry. "Numerical control" units are controlled by their associated "software". (2) See ECCNs 2E001 ("development"), 2E002 ("production"), and 2E201 ("use") for technology for

items controlled under this entry. (3) Also see ECCNs 2B001, 2B290, and 2B991.

Related Definitions: N/A

Items:

Note: 2B201 does not control special purpose machine tools limited to the manufacture of any of the following parts:

a. Gears;

b. Crank shafts or cam shafts;

c. Tools or cutters;

d. Extruder worms;

***Technical Note*:** The identified positioning accuracy values in this entry are based on ISO 230/2 (2006), which equates to the values based on ISO 230/2 (1988) that are used by the Nuclear Supplier's Group (NSG). In 2B201.a and .b.1, this results in a change from 6 µm to 4.5 µm. In paragraph .b of the Note to 2B201.b, the resulting change is from 30 µm to 22.5 µm, In 2B201.c, the resulting change is from 4 µm to 3 µm.

a. Machine tools for turning, that have positioning accuracies according to ISO 230/2 (2006) with all compensations available better (less) than 4.5 µm along any linear axis (overall positioning) for machines capable of machining diameters greater than 35 mm;

***Note to 2B201.a*:** 2B201.a does not control bar machines (Swissturn), limited to machining only bar feed thru, if maximum bar diameter is equal to or less than 42 mm and there

is no capability of mounting chucks. Machines may have drilling and/or milling capabilities for machining parts with diameters less than 42 mm.

b. Machine tools for milling, having any of the following characteristics:

b.1. Positioning accuracies according to ISO 230/2 (2006) with "all compensations available" equal to or less (better) than 4.5 μm along any linear axis (overall positioning);

b.2. Two or more contouring rotary axes; *or*

b.3. Five or more axes which can be coordinated simultaneously for "contouring control."

***Note to 2B201.b*:** 2B201.b does not control milling machines having the following characteristics:

a. X-axis travel greater than 2 m; *and*

b. Overall positioning accuracy according to ISO 230/2 (2006) on the x-axis more (worse) than 22.5 μm.

c. Machine tools for grinding, having any of the following characteristics:

c.1. Positioning accuracies according to ISO 230/2 (2006) with "all compensations available" equal to or less (better) than 3 μm along any linear axis (overall positioning);

c.2. Two or more contouring rotary axes; *or*

c.3. Five or more axes which can be coordinated simultaneously for "contouring control."

***Note to 2B201.c*:** 2B201.c does not control the following grinding machines:

a. Cylindrical external, internal, and external-internal grinding machines having all of the following characteristics:

1. Limited to a maximum workpiece capacity of 150 mm outside diameter or length; *and*

2. Axes limited to x, z and c.

b. Jig grinders that do not have a z-axis or a w-axis with an overall positioning accuracy less (better) than 3 microns. Positioning accuracy is according to ISO 230/2 (2006).

***Technical Note*:** 2B201.b.3 and c.3 include machines based on a parallel linear kinematic design (e.g. hexapods) that have 5 or more axes none of which are rotary axes.

25. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2B206 is amended by revising "Items" paragraph, under the List of Items Controlled section, to read as follows:

2B206 Dimensional inspection machines, instruments or systems, other than those described in 2B006, as follows (see List of Items Controlled).

* * * * *

List of Items Controlled

* * * * *

Items:

a. Computer controlled or numerically controlled coordinate measuring machines (CMM) with either of the following characteristics:

a.1. Having only two axes with a maximum permissible error of length measurement along any axis (one dimension), identified as any combination of $E_{0x\ MPE}$, $E_{0y\ MPE}$ or $E_{0z\ MPE}$, equal to or less (better) than (1.25 + L/1000) μm (where L is the measured length in mm) at any point within the operating range of the machine (i.e., within the length of the axis), according to ISO 10360-2 (2009); *or*

a.2. Having three or more axes with a three dimensional (volumetric) maximum permissible error of length measurement, identified as $E_{0,\ MPE}$, equal to or less (better) than (1.7 + L/800) μm (where L is the measured length in mm) at any point within the operating range of the machine (i.e., within the length of the axis), according to ISO 10360-2 (2009).

***Technical Note*:** The $E_{0,\ MPE}$ of the most accurate configuration of the CMM specified according to ISO 10360-2 (2009) by the manufacturer (e.g., best of the following: probe, stylus length, motion parameters, environment) and with all compensations available shall be compared to the 1.7 + 1/800 μm threshold.

b. Systems for simultaneously linear-angular inspection of hemishells, having both of the following characteristics:

b.1. "Measurement uncertainty" along any linear axis equal to or less (better) than 3.5 μm per 5 mm; *and*

b.2. "Angular position deviation" equal to or less than 0.02°.

***Technical Note*:** All parameters of measurement values in this entry represent plus/minus, i.e., not total band.

***ECCN 2B206 Control Notes*:** 1. Machine tools that can be used as measuring machines are controlled by ECCN 2B206 if they meet or exceed the control parameters specified in this entry for the measuring machine function. 2. The machines described in ECCN 2B206 are controlled by this entry if they exceed the specified control threshold anywhere in their operating range.

26. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2B230 is amended by revising the ECCN heading and by revising the "Related Definitions" paragraph and the "Items" paragraph, under the List of Items Controlled section, to read as follows:

2B230 All types of "pressure transducers" capable of measuring absolute pressures and having all of the characteristics described in this ECCN (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: (1) For purposes of this entry, "pressure transducers" are devices that convert pressure measurements into a signal. (2) For purposes of this entry, "accuracy" includes non-linearity, hysteresis and repeatability at ambient temperature.

Items:

a. Pressure sensing elements made of or protected by aluminum, aluminum alloy, aluminum oxide (alumina or sapphire), nickel, nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers;

b. Seals, if any, essential for sealing the pressure sensing element, and in direct contact with the process medium, made of or protected by aluminum, aluminum alloy, aluminum oxide (alumina or sapphire), nickel, nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers; *and*

c. Either of the following characteristics:

c.1. A full scale of less 13 kPa and an "accuracy" of better than ± 1% of full scale; *or*

c.2. A full scale of 13 kPa or greater and an "accuracy" of better than ± 130 Pa when measuring at 13 kPa.

27. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2B231 is amended by revising the ECCN heading and by revising the "Related Controls" paragraph, under the List of Items Controlled section, to read as follows:

2B231 Vacuum pumps having all of the characteristics described in this ECCN (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: (1) See ECCNs 2E001 ("development"), 2E002 ("production"), and 2E201 ("use") for "technology" for items controlled under this entry. (2) Also see bellows-sealed scroll-type compressors and bellows-sealed scroll-type vacuum pumps controlled under ECCN 2B233. (3) Vacuum pumps "specially designed" or prepared for the separation of uranium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

Related Definitions: * * *

* * * * *

28. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2B232 is amended by revising the ECCN heading to read as follows:

2B232 High-velocity gun systems (propellant, gas, coil, electromagnetic, and electrothermal types, and other advanced systems) capable of accelerating projectiles to 1.5 km/s or greater.

* * * * *

29. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, add a new ECCN 2B233, immediately following ECCN 2B232, to read as follows:

2B233 Bellows-sealed scroll-type compressors and bellows-sealed scroll-type vacuum pumps having all of the characteristics described in this ECCN (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A

GBS: N/A

CIV: N/A

List of Items Controlled

Related Controls: (1) See ECCNs 2E001 ("development"), 2E002 ("production"), and 2E201 ("use") for "technology" for items controlled under this entry. (2) Also see vacuum pumps controlled under ECCN 2B231. (3) Vacuum pumps "specially designed" or prepared for the separation of uranium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

Related Definitions: N/A

Items:

a. Capable of an inlet volume flow rate of 50 m^3/h or greater;

b. Capable of a pressure ratio of 2:1 or greater; *and*

c. Having all surfaces that come in contact with the process gas made from any of the following:

c.1. Aluminum or aluminum alloy;

c.2. Aluminum oxide;

c.3. Stainless steel;

c.4. Nickel or nickel alloy;

c.5. Phosphor bronze; *or*

c.6. Fluoropolymers.

Technical Notes: 1. In a scroll compressor or vacuum pump, crescent-shaped pockets of gas are trapped between one or more pairs of intermeshed spiral vanes, or scrolls, one of which moves while the other remains stationary. The moving scroll orbits the stationary scroll; it does not rotate. As the moving scroll orbits the stationary scroll, the gas pockets diminish in size (i.e., they are compressed) as they move toward the outlet port of the machine.

2. In a bellows-sealed scroll compressor or vacuum pump, the process gas is totally isolated from the lubricated parts of the pump and from the external atmosphere by a metal bellows. One end of the bellows is attached to the moving scroll and the other end is attached to the stationary housing of the pump.

3. Fluoropolymers include, but are not limited to, the following materials:

a. Polytetrafluoroethylene (PTFE);

b. Fluorinated Ethylene Propylene (FEP);

c. Perfluoroalkoxy (PFA);

d. Polychlorotrifluoroethylene (PCTFE); and

e. Vinylidene fluoride-hexafluoropropylene copolymer.

30. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2D201 is amended by revising the ECCN heading and by revising the "ECCN Controls" paragraph, under the List of Items Controlled section, to read as follows:

2D201 "Software" "specially designed" or modified for the "use" of equipment controlled by 2B204, 2B206, 2B207, 2B209, 2B227, or 2B229.

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: * * *

ECCN Controls: "Software" "specially designed" or modified for systems controlled by 2B206.b includes "software" for simultaneous measurements of wall thickness and contour.

* * * * *

31. In Supplement No. 1 to Part 774 (the Commerce Control List), Category

2 -- Materials Processing, ECCN 2D202 is amended by adding an "ECCN Controls" paragraph, between the "Related Definitions" paragraph and the "Items" paragraph under the List of Items Controlled section, to read as follows:

2D202 "Software" "specially designed" or modified for the "development", "production" or "use" of equipment controlled by 2B201.

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: * * *

ECCN Controls: ECCN 2D202 does not control part programming "software" that generates "numerical control" command codes, but does not allow direct use of equipment for machining various parts.

* * * * *

32. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2E001 is amended by revising the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section to read as follows:

2E001 "Technology" according to the General Technology Note for the "development" of equipment or "software" controlled by 2A (except 2A983, 2A984, 2A991, or 2A994), 2B

(except 2B991, 2B993, 2B996, 2B997, or 2B998), or 2D (except 2D983, 2D984, 2D991, 2D992, or 2D994).

License Requirements

Reason for Control: * * *

Control(s)	Country Chart (See Supp. No. 1 to part 738)
* * * * *	* * * * *
NP applies to "technology" for items controlled by 2A225, 2A226, 2B001, 2B004, 2B006, 2B007, 2B009, 2B104, 2B109, 2B116, 2B201, 2B204, 2B206, 2B207, 2B209, 2B225 to 2B233, 2D001, 2D002, 2D101, 2D201 or 2D202 for NP reasons	NP Column 1
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* * * * *

33. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2E002 is amended by revising the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section to read as follows:

2E002 "Technology" according to the General Technology Note for the "production" of equipment controlled by 2A (except 2A983, 2A984, 2A991, or 2A994), or 2B (except 2B991, 2B993, 2B996, 2B997, or 2B998).

License Requirements

Reason for Control: * * *

Control(s)	Country Chart (See Supp. No. 1 to part 738)
* * * * *	* * * * *
NP applies to "technology" for equipment controlled by 2A225, 2A226, 2B001, 2B004, 2B006, 2B007, 2B009, 2B104, 2B109, 2B116, 2B201, 2B204, 2B206, 2B207, 2B209, 2B225 to 2B233 for NP reasons	NP Column 1
* * * * *	* * * * *

* * * * *

34. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 2 -- Materials Processing, ECCN 2E201 is amended by revising the ECCN heading to read as

follows:

2E201 "Technology" according to the General Technology Note for the "use" of equipment or "software" controlled by 2A225, 2A226, 2B001, 2B006, 2B007.b, 2B007.c, 2B201, 2B204, 2B206, 2B207, 2B209, 2B225 to 2B233, 2D002, 2D201 or 2D202 for NP reasons.

* * * * *

35. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, ECCN 3A225 is amended by revising the ECCN heading and by revising the "Related Controls" paragraph and the "Items" paragraph, under the List of Items Controlled section, to read as follows:

3A225 Frequency changers (a.k.a. converters or inverters) and generators, except those subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110), that are usable as a variable frequency or fixed frequency motor drive and have all of the characteristics described in this ECCN (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: (1) See ECCN 3D201 for "software" "specially designed" for the

"use" of equipment described in this entry. (2) See ECCN 3D202 for "software" "specially designed" to enhance or release the performance characteristics of frequency changers or generators to meet or exceed the level of the performance characteristics described in this entry. (3) See ECCNs 3E001 ("development" and "production") and 3E201 ("use") for "technology" for items controlled under this entry. (4) Frequency changers (a.k.a. converters or inverters) "specially designed" or prepared for use in separating uranium isotopes are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

* * * * *

Items:

a. Multiphase output providing a power of 40 VA or greater;

b. Operating at a frequency of 600 Hz or more; *and*

c. Frequency control better (less) than 0.2%.

***Notes*:** 1. This ECCN controls frequency changers intended for use in specific industrial machinery and/or consumer goods (machine tools, vehicles, etc.) only if the frequency changers can meet the performance characteristics described in this entry when removed from the machinery and/or goods. This Note does not exclude from control under this entry any frequency changer described herein that is the principal element of a non-controlled item and can feasibly be removed or used for other purposes.

2. To determine whether a particular frequency changer meets or exceeds the

performance characteristics described in this entry, both hardware and "software" performance constraints must be considered.

***Technical Notes*:** 1. Frequency changers controlled by this ECCN are also known as converters or inverters.

2. The performance characteristics described in this ECCN also may be met by certain equipment marketed as: generators, electronic test equipment, AC power supplies, variable speed motor drives, variable speed drives (VSDs), variable frequency drives (VFDs), adjustable frequency drives (AFDs), or adjustable speed drives (ASDs).

36. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, ECCN 3A229 is amended by revising the ECCN heading and, under the List of Items Controlled section, by revising the "Related Controls" paragraph, by revising the "Related Definitions" paragraph, by revising the "ECCN Controls" paragraph, and by revising the "Items" paragraph, to read as follows:

3A229 Firing sets and equivalent high-current pulse generators for detonators controlled by 3A232 (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: (1) See ECCNs 3E001 and 1E001 ("development" and "production") and 3E201 and 1E201 ("use") for technology for items controlled under this entry. (2) See

1A007.a for explosive detonator firing sets designed to drive explosive detonators controlled by 1A007.b. (3) High explosives and related equipment for military use are "subject to the ITAR" (see 22 CFR parts 120 through 130).

Related Definitions: N/A

ECCN Controls: (1) Optically driven firing sets include both those employing laser initiation and laser charging. (2) Explosively driven firing sets include booth explosive ferroelectric and explosive ferromagnetic firing set types. (3) 3A229.b includes xenon flash-lamp drivers.

Items:

a. Detonator firing sets (initiation systems, firesets), including electronically-charged, explosively-driven and optically-driven firing sets designed to drive multiple controlled detonators controlled by 3A232;

b. Modular electrical pulse generators (pulsers) having all of the following characteristics:

b.1. Designed for portable, mobile, or ruggedized use;

b.2. Capable of delivering their energy in less than 15 μs into loads of less than 40 Ω (ohms);

b.3. Having an output greater than 100 A;

b.4. No dimension greater than 30 cm;

b.5. Weight less than 30 kg; *and*

b.6. Specified for use over an extended temperature range 223 K (−50 °C) to 373 K (100 °C) or specified as suitable for aerospace applications.

c. Micro-firing units having all of the following characteristics:

c.1. No dimension greater than 35 mm;

c.2. Voltage rating of equal to or greater than 1 kV; *and*

c.3. Capacitance of equal to or greater than 100 nF.

37. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, ECCN 3A230 is amended by revising the ECCN heading and by revising the "Related Definitions" paragraph, under the List of Items Controlled section, to read as follows:

3A230 High-speed pulse generators, and pulse heads therefor, having both of the following characteristics (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: 1. In 3A230.b, the term "pulse transition time" is defined as the time interval between 10% and 90% voltage amplitude. 2. Pulse heads are impulse forming networks designed to accept a voltage step function and shape it into a variety of pulse forms that can include rectangular, triangular, step, impulse, exponential, or monocycle types. Pulse heads can be an integral part of the pulse generator, they can be a plug-in module to the device or they can

be an externally connected device.

* * * * *

38. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, ECCN 3A231 is amended by revising the ECCN heading and by revising paragraph b., in the "Items" paragraph under the List of Items Controlled section, to read as follows:

3A231 Neutron generator systems, including tubes, having both of the characteristics described in this ECCN (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: * * *

Items: * * *

b. Utilizing electrostatic acceleration to induce:

b.1. A tritium-deuterium nuclear reaction; *or*

b.2. A deuterium-deuterium nuclear reaction and capable of an output of 3×10^9 neutrons/s or greater.

39. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, ECCN 3A233 is amended, in the "Items" paragraph under the List of Items Controlled section, by revising paragraph d., by removing paragraph e., by redesignating paragraph f. as new paragraph e., and by adding three Technical Notes at the end of the entry to read as follows:

3A233 Mass spectrometers, capable of measuring ions of 230 atomic mass units or greater and having a resolution of better than 2 parts in 230, and ion sources therefor, excluding items that are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definitions: * * *

Items: * * *

d. Electron bombardment mass spectrometers having both of the following features:

d.1. A molecular beam inlet system that injects a collimated beam of analyte molecules into a region of the ion source where the molecules are ionized by an electron beam; *and*

d.2. One or more cold traps that can be cooled to a temperature of 193 K (-80 °C) or less in order to trap analyte molecules that are not ionized by the electron beam;

e. Mass spectrometers equipped with a microfluorination ion source designed for actinides or actinide fluorides.

***Technical Notes*:** 1. ECCN 3A233.d controls mass spectrometers that are typically used for isotopic analysis of UF_6 gas samples.

2. Electron bombardment mass spectrometers in ECCN 3A233.d are also known as electron impact mass spectrometers or electron ionization mass spectrometers.

3. In ECCN 3A233.d.2, a "cold trap" is a device that traps gas molecules by condensing or freezing them on cold surfaces. For the purposes of this ECCN, a closed-loop gaseous helium cryogenic vacuum pump is not a cold trap.

40. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, add new ECCN 3A234, immediately following ECCN 3A233, to read as follows:

3A234 Striplines to provide low inductance path to detonators with the following characteristics (see List of Items Controlled).

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

LVS: N/A

GBS: N/A

CIV: N/A

List of Items Controlled

Related Controls: N/A

Related Definitions: N/A

Items:

a. Voltage rating greater than 2 kV; *and*

b. Inductance of less than 20 nH.

41. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, add new ECCNs 3D201 and 3D202 in numerical order, immediately following ECCN 3D101, to read as follows:

3D201 "Software" "specially designed" for the "use" of equipment described in ECCN 3A225.

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

CIV: N/A

TSR: N/A

List of Items Controlled

Related Controls: See ECCN 3E202 ("development," "production," and "use") for "technology" for items controlled under this entry.

Related Definitions: N/A

Items: The list of items controlled is contained in the ECCN heading.

3D202 "Software" "specially designed" to enhance or release the performance

characteristics of frequency changers or generators to meet or exceed the level of the performance characteristics described in ECCN 3A225.

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

CIV: N/A

TSR: N/A

List of Items Controlled

Related Controls: See ECCN 3E202 ("development," "production," and "use") for "technology" for items controlled under this entry.

Related Definitions: N/A

Items:

a. "Software" or encryption keys/codes "specially designed" to enhance or release the

performance characteristics of equipment not controlled by ECCN 3A225, so that such equipment meets or exceeds the performance characteristics of equipment controlled by that ECCN.

b. "Software" "specially designed" to enhance or release the performance characteristics of equipment controlled by ECCN 3A225.

42. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, ECCN 3E001 is amended by revising the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section to read as follows:

3E001 "Technology" according to the General Technology Note for the "development" or "production" of equipment or materials controlled by 3A (except 3A292, 3A980, 3A981, 3A991 3A992, or 3A999), 3B (except 3B991 or 3B992) or 3C (except 3C992).

License Requirements

Reason for Control: * * *

Control(s)	Country Chart (See Supp. No. 1 to part 738)
* * * * *	* * * * *
NP applies to "technology" for equipment controlled by 3A001, 3A201, or 3A225 to 3A234 for NP	NP Column 1

reasons	
* * * * *	* * * * *

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43. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, ECCN 3E201 is amended by revising the ECCN heading and by revising the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section to read as follows:

3E201 "Technology" according to the General Technology Note for the "use" of equipment controlled by 3A001.e.2 or .e.3, 3A201 or 3A225 to 3A234.

License Requirements

Reason for Control: * * *

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to "technology" for equipment controlled by 3A001.e.2, or .e.3, 3A201 or 3A225 to 3A234 for NP reasons	NP Column 1
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44. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 3 Electronics, add new ECCN 3E202, immediately following ECCN 3E201, to read as follows:

3E202 "Technology" according to the General Technology Note for the "development," "production," or "use" of "software" controlled by 3D201 or 3D202.

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

CIV: N/A

TSR: N/A

List of Items Controlled

Related Controls: N/A

Related Definitions: N/A

Items: The list of items controlled is contained in the ECCN heading.

45. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, ECCN 6A003 is amended by revising the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section to read as follows:

6A003 Cameras, systems or equipment, and "components" therefor, as follows (see List of Items Controlled).

License Requirements

Reason for Control: * * *

Control(s)	Country Chart (See Supp. No. 1 to part 738)
* * * * *	* * * * *
NP applies to cameras controlled by 6A003.a.2, a.3 or a.4 and to plug-ins in 6A003.a.6 for cameras controlled by 6A003.a.3 or a.4	NP Column 1
* * * * *	* * * * *

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46. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, ECCN 6A005 is amended by revising the License Requirements section of

the ECCN to read as follows:

6A005 "Lasers," "components" and optical equipment, as follows (see List of Items Controlled), excluding items that are subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

License Requirements

Reason for Control: NS, NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NS applies to entire entry	NS Column 2
NP applies to lasers controlled by 6A005.a.2, a.3, a.4, b.2.b, b.3, b.4, b.6.c, c.1.b, c.2.b, d.2, d.3.c, or d.4.c that meet or exceed the technical parameters described in 6A205	NP Column 1
AT applies to entire entry	AT Column 1

* * * * *

47. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, ECCN 6A203 is amended by revising the ECCN heading and by revising the

"Items" paragraph, under the List of Items Controlled section, to read as follows:

6A203 High-speed cameras, imaging devices and "components" therefor, other than those controlled by 6A003 (see List of Items Controlled).

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List of Items Controlled

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Items:

a. Streak cameras and "specially designed" components therefor, as follows:

a.1. Streak cameras with writing speeds greater than 0.5 mm/μs;

a.2. Electronic streak cameras capable of 50 ns or less time resolution;

a.3. Streak tubes for cameras described in 6A203.a.2;

a.4. Plug-ins, "specially designed" for use with streak cameras having modular structures, that enable the performance characteristics described in 6A203.a.1 or .a.2;

a.5. Synchronizing electronics units, and rotor assemblies consisting of turbines, mirrors and bearings, that are "specially designed" for cameras described in 6A203.a.1.

b. Framing cameras and "specially designed" components therefor, as follows:

b.1. Framing cameras with recording rates greater than 225,000 frames per second;

b.2. Framing cameras capable of 50 ns or less frame exposure time;

b.3. Framing tubes, and solid-state imaging devices, that have a fast image gating (shutter) time of 50 ns or less and are "specially designed" for cameras described in 6A203.b.1 or .b.2;

b.4. Plug-ins, "specially designed" for use with framing cameras having modular structures, that enable the performance characteristics described in 6A203.b.1 or .b.2;

b.5. Synchronizing electronic units, and rotor assemblies consisting of turbines, mirrors and bearings, that are "specially designed" for cameras described in 6A203.b.1 or .b.2.

c. Solid-state or electron tube cameras and "specially designed" components therefor, as follows:

c.1. Solid-state cameras, or electron tube cameras, with a fast image gating (shutter) time of 50 ns or less;

c.2. Solid-state imaging devices, and image intensifiers tubes, that have a fast image gating (shutter) time of 50 ns or less and are "specially designed" for cameras described in 6A203.c.1;

c.3. Electro-optical shuttering devices (Kerr or Pockels cells) with a fast image gating (shutter) time of 50 ns or less;

c.4. Plug-ins, "specially designed" for use with cameras having modular structures, that enable the performance characteristics described in 6A203.c.1.

***Technical Note*:** High speed single frame cameras can be used alone to produce a single image of a dynamic event, or several such cameras can be combined in a sequentially-triggered system to produce multiple images of an event.

48. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, ECCN 6A205 is amended by revising the "Items" paragraph, under the List of Items Controlled section, to read as follows:

6A205 "Lasers", "laser" amplifiers and oscillators, other than those controlled by 0B001.g.5, 0B001.h.6, or 6A005, as follows (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definition: * * *

Items:

a. Copper vapor lasers having both of the following characteristics:

a.1. Operating at wavelengths between 500 nm and 600 nm; and

a.2. An average output power equal to or greater than 30 W;

b. Argon ion "lasers" having both of the following characteristics:

b.1. Operating at wavelengths between 400 nm and 515 nm; and

b.2. An average output power greater than 40 W;

c. Neodymium-doped (other than glass) lasers with an output wavelength between 1000 nm and 1100 nm having either of the following:

c.1. Pulse-excited and Q-switched with a pulse duration equal to or greater than 1 ns, and having either of the following:

c.1.a. A single-transverse mode output with an average output power greater than 40 W; *or*

c.1.b. A multiple-transverse mode output with an average output power greater than 50 W; *or*

c.2. Incorporating frequency doubling to give an output wavelength between 500nm and 550 nm with an average output power of greater than 40 W.

d. Tunable pulsed single-mode dye laser oscillators having all of the following characteristics:

d.1. Operating at wavelengths between 300 nm and 800 nm;

d.2. An average output greater than 1 W;

d.3. A repetition rate greater than 1 kHz; and

d.4. Pulse width less than 100 ns;

e. Tunable pulsed dye laser amplifiers and oscillators having all of the following characteristics:

e.1. Operating at wavelengths between 300 nm and 800 nm;

e.2. An average output greater than 30 W;

e.3. A repetition rate greater than 1 kHz; and

e.4. Pulse width less than 100 ns;

***Note to 6A205.e*:** 6A205.e does not control single mode oscillators.

f. Alexandrite lasers having all of the following characteristics:

f.1. Operating at wavelengths between 720 nm and 800 nm;

f.2. A bandwidth of 0.005 nm or less;

f.3. A repetition rate greater than 125 Hz; and

f.4. An average output power greater than 30 W;

g. Pulsed carbon dioxide "lasers" having all of the following characteristics:

g.1. Operating at wavelengths between 9,000 nm and 11,000 nm;

g.2. A repetition rate greater than 250 Hz;

g.3. An average output power greater than 500 W; and

g.4. Pulse width of less than 200 ns;

***Note to 6A205.g*:** 6A205.g does not control the higher power (typically 1 kW to 5 kW) industrial CO_2 lasers used in applications such as cutting and welding, as these latter lasers are either continuous wave or are pulsed with a pulse width greater than 200 ns.

h. Pulsed excimer lasers (XeF, XeCl, KrF) having all of the following characteristics:

h.1. Operating at wavelengths between 240 nm and 360 nm;

h.2. A repetition rate greater than 250 Hz; and

h.3. An average output power greater than 500 W;

i. Para-hydrogen Raman shifters designed to operate at 16 micrometer output wavelength and at a repetition rate greater than 250 Hz.;

j. Pulsed carbon monoxide lasers having all of the following characteristics:

j.1. Operating at wavelengths between 5,000 and 6,000 nm;

j.2. A repetition rate greater than 250 Hz;

j.3. An average output power greater than 200 W; *and*

j.4. Pulse width of less than 200 ns.

***Note to ECCN 6A205.j*:** 6A205.j does not control the higher power (typically 1 kW to 5 kW) industrial CO lasers used in applications such as cutting and welding, because such lasers are either continuous wave or are pulsed with a pulse width greater than 200 ns.

49. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, ECCN 6A225 is amended by revising the "ECCN Controls" paragraph, under the List of Items Controlled section, to read as follows:

6A225 Velocity interferometers for measuring velocities exceeding 1 km/s during time intervals of less than 10 microseconds.

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definition: * * *

ECCN Controls: 6A225 includes velocity interferometers, such as VISARs (Velocity Interferometer Systems for Any Reflector), DLIs (Doppler Laser Interferometers) and PDV (Photonic Doppler Velocimeters) also known as Het-V (Heterodyne Velocimeters).

* * * * *

50. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, ECCN 6A226 is amended by revising the "Items" paragraph, under the List of Items Controlled section, to read as follows:

6A226 Pressure sensors, as follows (see List of Items Controlled).

* * * * *

List of Items Controlled

Related Controls: * * *

Related Definition: * * *

Items:

a. Shock pressure gauges capable of measuring pressures greater than 10 GPa (100 kilobars), including gauges made with manganin, ytterbium, and polyvinylidene bifluoride (PVBF, PVF_2);

b. Quartz pressure transducers for pressures greater than 10 GPa (100 kilobars).

51. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, add new ECCN 6D201, immediately following ECCN 6D103, to read as follows:

6D201 "Software" "specially designed" to enhance or release the performance characteristics of high-speed cameras and imaging devices, and components therefor, to meet or exceed the level of the performance characteristics described in ECCN 6A203.

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

CIV: N/A

TSR: N/A

List of Items Controlled

Related Controls: See ECCNs 6E001 ("development") and 6E202 ("production" and "use") for "technology" for items controlled under this entry.

Related Definitions: N/A

Items:

a. "Software" or encryption keys/codes "specially designed" to enhance or release the performance characteristics of equipment not controlled by ECCN 6A203, or not controlled for NP reasons by ECCN 6A003, so that such equipment meets or exceeds the performance characteristics of equipment described in ECCN 6A203.

b. "Software" or encryption keys/codes "specially designed" to enhance or release the performance characteristics of equipment controlled by ECCN 6A203 or equipment controlled by ECCN 6A003 that meets or exceeds the performance characteristics described in ECCN 6A203.

52. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, ECCN 6E001 is amended by revising the "Control(s)" language for "Country Chart – NP Column 1" in the License Requirements section to read as follows:

6E001 "Technology" according to the General Technology Note for the "development" of equipment, materials or "software" controlled by 6A (except 6A991, 6A992, 6A994, 6A995, 6A996, 6A997, or 6A998), 6B (except 6B995), 6C (except 6C992 or 6C994), or 6D (except 6D991, 6D992, or 6D993).

License Requirements

Reason for Control: * * *

Control(s)	Country Chart (See Supp. No. 1 to part 738)
* * * * *	* * * * *
NP applies to "technology" for items controlled by 6A003, 6A005, 6A202, 6A203, 6A205, 6A225, 6A226, 6D001, or 6D201 for NP reasons	NP Column 1
* * * * *	* * * * *

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53. In Supplement No. 1 to Part 774 (the Commerce Control List), Category 6 Sensors and Lasers, add new ECCN 6E202, immediately following ECCN 6E201, to read as follows:

6E202 "Technology" according to the General Technology Note for the "production" or "use" of "software" controlled by 6D201.

License Requirements

Reason for Control: NP, AT

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 1
AT applies to entire entry	AT Column 1

List Based License Exceptions (See Part 740 for a description of all license exceptions)

CIV: N/A

TSR: N/A

List of Items Controlled

Related Controls: N/A

Related Definitions: N/A

Items: The list of items controlled is contained in the ECCN heading.

DATED: July 25, 2014

Kevin J. Wolf

Assistant Secretary

for Export Administration

[FR Doc. 2014-18064 Filed 08/06/2014 at 8:45 am; Publication Date: 08/07/2014]