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Subject: ITAR Amendment - USML Category XV and Defense Services RIN 1400-AD33
EAR Amendment - Spacecraft RIN 0694-AF87

Public Domain Information

The proposed clarification in 22 CFR 120.9 that "defense service" means furnishing of assistance using "other than public domain information" would be usefully matched by revising 15 CFR 732.2(b)(1) to read simply: "If your technology or software is publicly available and therefore outside the scope of the EAR, you may proceed with the export or reexport." Deletion of "if you are not a U.S. person subject to General Prohibition Seven" would be consistent with all other parts of the EAR, which treat publicly available information as outside the scope of the EAR.

EAA Section 17(c)

The April 16 final rule relies on "specially designed" to comply with the Export Administration Act Section 17(c) requirement that components certified for civil aircraft by FAA are under EAR, rather than ITAR, jurisdiction. My comments on that rule recommended that the 22 CFR 120.3 list of what is not ITAR-controlled include EAA 17(c). Otherwise, use of "specially designed" wherever 17(c) might apply, now or in the future, would conflict with the objective of minimal use of "specially designed" on the USML. Despite the "operation at altitudes greater than 100 km" definition of "space qualified," proposed XV(a)(2, 3, 4, 7, 8, 9,), (b), (c), and most of the (e) sub-items might include FAA-certified items now or in the future.

Second Order Components

Proposed USML Category XV(e)(3,4,5,6,8,9,10,11,16,17,18,19) would control not only various spacecraft components but also various components of those components.

Of these, XV(e)(8,9,10,11,16,17,18,19) are modified by only the words "specially designed." This is the same formula used to identify components of lesser significance that are proposed for EAR "600 series" controls.

The definition of component as an item that is useful only when used in conjunction with an "end-item" indicates that XV(e) items are end-items with respect to second-order components but components with respect to spacecraft. This creates confusion as to how to apply the definition of "specially designed." (a)(2) and (b) of that definition apply to a "part," "component," "accessory," "attachment," or "software"; whereas (a)(1) applies otherwise.

It is, therefore, recommended that, at a minimum, "and specially designed parts and components therefor" be deleted from XV(e)(8,9,10,11,16,17,18,19) and be covered by 9A515.x. It is recommended that "specially designed" be deleted from XV(e)(3,4,5,6) if accompanying language is sufficiently precise. If not, the second order components in XV(e)(3,4,5,6) should also be completely deleted from the USML and be similarly covered by 9A515.x.

Space Qualified vs. Specially Designed

The Note to the proposed EAR definition of "space qualified" states that the terms 'designed' and 'manufactured' in this definition are synonymous with "specially designed." This statement is needlessly confusing. Its purpose may have been to be sure that all "catch-all" components being removed from USML Category XV would be covered by 9A515. But 9A515.x use of "space qualified," rather than "specially designed," seems to make the Note unnecessary for this purpose.

Moreover, the Note would have the unintended consequence of removing from EAR "500 series" control components meeting the definition of "space qualified" but also qualifying for release under the definition of "specially designed." For this reason, the statement on page 31434 that the Note does not constitute a modification of the Wassenaar definition of "space qualified" appears to be incorrect. Therefore, it is recommended that the Note be deleted from the EAR rule and that the US instead propose to Wassenaar that the definition of "space qualified" be amended by changing "Designed, manufactured, or" to "Designer intent if publicly known, or according to the manufacturer's technical specifications, or". This would be much more precise and understandable.

The proposed ITAR definition of "space qualified" does not contain such a Note. But use of "specially designed" in XV(a)(1), (a)(10), and (e)(7) would have the same unintended consequence of removing from control what is stated in these sub-items if the product qualified for release under the definition of "specially designed." It is, therefore, recommended that:

-"Are specially designed to mitigate ..." in (a)(1) be changed to "Mitigate ...";
-"specially designed to be" in (a)(10) be deleted; and
- "and specially designed for a spacecraft in paragraph (a) of this category" in (e)(7) be deleted, so that (e)(7) would then read: "Non-communications space-qualified directed energy (e.g., lasers or RF) systems."

Arms Embargoes

Only half of the countries listed in Country Group D:5 are labeled in 22 CFR 126.1 as arms embargoes (10 UN plus three unilateral - Burma, China, Sudan). Therefore, the following restrictions in the EAR proposed rule are more restrictive than apparently intended: 734.4, 736.2(b)(3), 740.2(a)(12), 740.9(a), 740.10(a)(3)(viii) and (b)(3)(i)(F), 742.4(b)(1)(ii), and 742.6(b)(1),

China Licensing Policy

The proposed 742.6(b)(1) last sentence policy of denial for “500 series” to China is more restrictive than case-by-case review to China for “600 series” per revised first and fourth sentences. Although neither “500 series” nor “600 series” would be eligible for License Exception STA per 740.2(a)(12), treating “500 series” more restrictively than “600 series” with respect to licensing policy to China is inconsistent with the reasoning for treating “500 series” more liberally than “600 series” with respect to License Exception STA restrictions to other countries.

Missile Technology

In XV(c) heading, add at end “(also see EAR ECCNs 7A005 and 7A105)”
In XV(c)(1), add “(MT if designed or modified for airborne applications)”
(To conform with MTCR 11.A.3.b.2)
In XV(c)(3) add “(MT if designed or modified for airborne applications)”
(To conform with MTCR 11.A.3.b.3)
In XV(c)(4) change “with” to “in”; after “for use in” insert “rockets or”; and add at end “(MT)”
(To conform with MTCR 11.A.3.a)
In Note 2 to paragraph XV(c)(4) at end of first sentence, change “this paragraph (c)(4)” to “the first part of the heading of XV(c)”
In 7A005 heading after “equipment” insert “, not controlled by USML XV(c),”
In 7A005 delete License Requirements that these items are subject to DOS DDTC export licensing authority.
In 7A005 Related Controls change “Categories XI and XV” to “Category XV(c)”
Revise 7A105 to read:
“Receiving equipment for Global Navigation Satellite Systems (GNSS,: e.g., GPS, GLONASS or Galileo), designed or modified for airborne applications and capable of providing navigation information at speeds in excess of 600 m/s (1,165 nautical miles/hour)
MT applies to entire entry MT Column 1
Related Controls: See also USML XV(c) and 7A005."
(To conform with MTCR 11.A.3.b.1

In XV(e)(16), change “(MT)” to “(MT, also see EAR ECCNs 7A004 and 7A104)
In XII(d), delete “astrocompasses and star trackers and”
In 7A004 heading after “‘star traclers’” insert “not controlled by USML XV(e)(16)”
In 7A004 delete Related Controls (1) re USML XV star trackers
In 7A104 heading change “other than those controlled by 7A004" to “not controlled by USML XV(e)(16) or 7A004"
In 7A104 delete Related Controls (1) re USML XV star trackers
(To conform with MTCR 9.A.2)

In XV(e)(19) change “specially designed parts and components” to “equipment designed or modified”

In XV(e)(19) add at end “(MT)”
In 9A116 add at end “USML Category XV(e)(19)”
(To conform with MTCR 2.A.1.b.)

In XV(f), change “(MT for technical data and defense services related to articles designated as such.)” to “(MT for software specially designed for “use” of XV(c)(1,3,4) or specially designed or modified for “use” of XV(e)(16) or XV(e)(19)(iii) and for technology for the “development,” “production,” or “use” of XV(c)(1,3,4), (e)(16), or (e)(19) not controlled by 9E515 for 9B515 for USML Category XV or for 9D515 for 9B515 for USML Category XV”
(To conform with MTCR 11.D.2 and 11.E.1 for 11.A.3, 9.D.1 and 9.E.1 for 9.A.2, and 2.D.4 for 2.A.1.b.iii and 2.E.1 for 2.A.l.b)

In 9A515.revise MT applies to read: “MT applies to 9A515.d when also described in 3A101.a”
In 3A001.a.1 add “not controlled by 9A515.d”
In 3A001 revise MT applies to read: “MT applies to 3A001.a.1.a when also described in 3A101.a or to 3A001.a.5.a when also described in 3A101.c"
Revise 3A101 heading to read: “Electronic equipment, devices, and components, not controlled by 9A515.d , 3A001.a.1, or 3A001.a.5.a, as follows (see List of Items Controlled):”
Revise Items to read:

“a. “Radiation hardened” “microcircuits” usable in protecting rocket systems and unmanned aerial vehicles against nuclear effects (e.g., Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects) and usable for “missiles” or UAVs having a “payload” of at least 500 kg and a “range” of at least 300 km.

b. Accelerators capable of delivering electromagnetic radiation produced by bremsstrahlung from accelerated electrons of 2 MeV or greater, and equipment containing those accelerators, usable for rockets or UAVs having a “range” of at least 300 km; individual rocket stages usable in those rockets or UAVs controlled by USML IV(d)(1); re-entry vehicles and equipment controlled by USML XV(e)(19) or IV(h)(6); solid propellant rocket motors, hybrid rocket motors (see below re IV(d)(2,3)), or liquid propellant rocket engines usable in those rockets or UAVs having a total impulse capacity of 8.41 x 105 Ns or greater controlled by USML IV(d)(2,3); ‘Guidance sets’ usable in “missiles” or UAVs having “payloads” of at least 500 kg and “range” of at least 300 km capable of achieving system accuracy of 3.33% or less of the “range”controlled by USML XII(d) (see below re XIII(d)); thrust vector control subsystems usable in “missiles” or UAVs having “payloads” of at least 500 kg and “range” of at least 300 km controlled by 9A106.c; or weapon or warhead safing, arming, fuzing, and firing mechanisms usable in “missiles” or UAVs having “payloads” of at least 500 kg and “range” of at least 300 km controlled by USML IV(h)(9)

c. Analog-to-digital converters, usable in “missiles” or UAVs having a “payload” of at least 500 kg and a “range” of at least 300 km, having any of the following characteristics:

c.1 Designed to meet military specifications for ruggedized equipment; or

c.2 Designed or modified for military use and being any of the following types:

c.2.a Analog-to-digital converter “microcircuits”, which are “radiation-hardened” or have all of the following characteristics:

c.2.a.1 Having a quantization corresponding to 8 bits or more when coded in the binary system;
c.2.a.2 Rated for operation in the temperature range from below - 54°C to above +125°C; and
c.2.a.3 Hermetically sealed; or
c.2.b Electrical input type analog-to-digital converter printed circuit boards or modules, having all of the following characteristics:
c.2.b.1 Having a quantization corresponding to 8 bits or more when coded in the binary system;
c.2.b.2 Rated for operation in the temperature range from below -45°C to above +55°C; and
c.2.b.3 Incorporating "microcircuits" specified in 3A101.b.2.a.
In IV(d)(2,3) add "hybrid rocket motors"
In XII(d) add 'Guidance sets' usable in "missiles" or UAVs having "payloads" of at least 500 kg and "range" of at least 300 km capable of achieving system accuracy of 3.33% or less of the "range"

(To conform with MTCR 18.A.1, 15.B.5, and 14.A.1)

In 3D101 heading add "for testing equipment in which 3A101.b accelerators must be usable"

<u>EAR/ITAR Non-MT Cross-References</u>

In 3A001 either delete Related Controls (1) or identify portions of XV and 3A001 which overlap. If the latter, after each 3A001 overlapping sub-item add "not controlled by XV (overlapping sub-item of XV) and after each XV overlapping sub-item add "See also CCL ECCN 3A001 (overlapping sub-item).

(Existing 3A001 Related Controls states DDTC jurisdiction for 3A001.b.1.a.4.c space qualified TWT helix and 3A001.e.4 space qualified solar cells if efficiency 31% or greater (e.4 efficiency is 20% or greater). No similar texts appear on the existing USML or in proposed USML XV. The EAR proposed rule explicitly excludes 3A001.b.1 and e.4 (and related 3A991.o solar cells) from 9A515.x. So there would also be no overlap with 9A515 for TWT helix and solar cells. Perhaps proposed XV(e)(3) for readout integrated circuit or (e)(4,5,6) for control electronics are perceived to overlap something in 3A001. If so, it is not clear what parts of 3A001 are seen as overlapping XV(e)(3,4,5,6).)

In XV(e)(9) add "See CCL ECCN 3A002.g for other atomic frequency standards."
In 3A002.g add "not controlled by USML XV(e)(9)" and delete first sentence of proposed 3A002 Related Controls.

(No portions of 3A002.a.3.b and 3A992.b.3 (space qualified digital instrumentation tape recorders) have ever been noted as DDTC jurisdiction.)

In 3D001 Related Controls first sentence add "except 9D515 for 9B515 for USML XV"

In 3E001 Related Controls first sentence add "except 9E515 for 9B515 for USML XV and for 9D515 for 9B515 for USML XV"

In 5A001.e add "not controlled by USML Category XI(a)(13)
In 5A001 delete Related Controls (1) re USML XI

In 6A002, delete Related Controls (1)
In 6A002.a.1.b, and a.1.c add “(controlled by USML XV(e)(3))”
In 6A002.d.1 cryocoolers add “(controlled by USML XV(e)(4))”

(Proposed XV does not control image intensifiers and proposed XV(e)(3) is limited to “space qualified” focal plane arrays whereas 6A002.a.3 is limited to non-“space qualified” focal plane arrays. The ITAR proposed rule appears to remove the existing CCL Related Controls statements that 6A002.a.2 and a.3 are DDTC jurisdiction when for military use and not part of civil equipment. There is also no indication in the two proposed rules that DDTC jurisdiction for 6A002.b.2.b.1, as now stated in 6A002 Related Controls, is intended to continue. A proposed revision of USML Category XII is not yet available for public comment.)

In 6A004, delete Related Controls (2)

(There is no indication in the two proposed rules that DDTC jurisdiction for portions of 6A004.c and .d is intended to continue.)

In 9A004 Related Controls (4) delete “and related articles” and delete “and 9B515"

(There are many articles related to spacecraft which are controlled by ECCNs other than 9A004, 9A515, or 9B515.)

In 9A515.a after “not enumerated in USML Category XV” add “or controlled by 9A004"
In 9A515.x delete 6A002.e

(Use of this sub-item was discontinued in 2008.)