

File Ref. : TRA CR 1506/2

LEGISLATIVE COUNCIL BRIEF

Import and Export Ordinance
(Chapter 60)

IMPORT AND EXPORT (STRATEGIC COMMODITIES) REGULATIONS (AMENDMENT OF SCHEDULE 1) ORDER 2017

INTRODUCTION

The Director-General of Trade and Industry (DGTI) has made the Import and Export (Strategic Commodities) Regulations (Amendment of Schedule 1) Order 2017 (“the Order”) to amend Schedule 1 to the Import and Export (Strategic Commodities) Regulations (Cap. 60, sub. leg. G) (“the Regulations”) to reflect the changes adopted by international Annex A non-proliferation regimes. The Order is at Annex A.

JUSTIFICATIONS

2. The Regulations empower the Government to impose licensing control on the import, export, transshipment, and in some cases, transit of strategic commodities. The licensing system is administered by the Trade and Industry Department (TID) and enforced by the Customs and Excise Department.

3. Schedule 1 to the Regulations sets out the strategic commodities under control, which include materials, equipment, software and technology capable of being used for both industrial and military purposes. Schedule 1 has been drawn up on the basis of the control lists adopted by various international non-proliferation regimes and convention, including the Wassenaar Arrangement, the Australia Group,

the Missile Technology Control Regime, the Nuclear Suppliers Group and the Chemical Weapons Convention. Under section 6B of the Import and Export Ordinance (Cap. 60), DGTI may, by order published in the Gazette, add or remove an article or class of articles to or from Schedule 1.

4. DGTI from time to time amends the list of strategic commodities under control in Schedule 1 to the Regulations having regard to changes to the control lists adopted by the various international regimes and convention. The last amendment of Schedule 1 came into effect in April 2015.

The Order

5. The Order amends Schedule 1 to the Regulations to reflect the changes to the control lists of strategic commodities adopted by some international regimes which have come into effect after the last amendment of Schedule 1 in 2015. In tandem with technological developments, the amendments relax the control over items in certain categories of dual-use strategic commodities, notably the categories of electronics, computers, as well as telecommunications and information security products. At the same time, new control is imposed on certain categories of dual-use strategic commodities, including the categories of sensors and lasers, navigation and avionics, and nuclear materials, facilities and equipment. We also take the opportunity to make minor textual amendments concerning the description of some items as set out in Schedule 1 for the sake of consistency and clarity. These textual amendments do not affect the substance of the control list. A summary of the major amendments are set out at Annex B.

Annex B

6. In Hong Kong, electronics, computers, as well as telecommunications and information security products are commonly traded strategic commodities, whereas the trading activities of other categories are insignificant. Hence, after the Order has come into effect, the trade will be relieved of the requirement to obtain licences from TID for the import and/or export of some of these commonly traded goods. This will be welcomed by the business community.

LEGISLATIVE TIMETABLE

7. The Order will be gazetted on 24 March 2017 and tabled at the Legislative Council on 29 March 2017.

8. We plan to bring the Order into effect on 3 July 2017 upon gazettal of a commencement notice on 26 May 2017. This will enable the trade to benefit from the relaxation of control at the earliest opportunity.

IMPLICATIONS OF THE PROPOSAL

Annex C

9. The Order has economic implications as set out in Annex C. The Order is in conformity with the Basic Law, including the provisions concerning human rights. It will not affect the binding effect of the Regulations. It has no financial, civil service, productivity, environmental or sustainability implications.

PUBLIC CONSULTATION

10. The amendments made by the Order are technical in nature. Public consultation is considered not necessary. We have briefed representatives from the trade on the amendments through TID's Customer Liaison Group for Strategic Commodities and they have raised no objection to them.

PUBLICITY

11. A press release will be issued when the Order is published in the Gazette on 24 March 2017. TID will announce the revisions of the control list through a trade circular, as well as through its web portal on the day of gazettal. A spokesperson will be available for answering media enquiries.

ENQUIRIES

12. For any enquiries on this brief, please contact Ms. Vien YUEN, Principal Trade Officer of TID at 2398 5554.

Trade and Industry Department
22 March 2017

**IMPORT AND EXPORT
(STRATEGIC COMMODITIES) REGULATIONS
(AMENDMENT OF SCHEDULE 1) ORDER 2017**

A copy of the captioned order is attached.

Import and Export (Strategic Commodities) Regulations (Amendment of Schedule 1) Order 2017

(Made by the Director-General of Trade and Industry under section 6B of
the Import and Export Ordinance (Cap. 60))

1. Commencement

Subject to section 6B of the Ordinance, this Order comes into operation on a day to be appointed by the Director-General of Trade and Industry by notice published in the Gazette.

2. Import and Export (Strategic Commodities) Regulations amended

The Import and Export (Strategic Commodities) Regulations (Cap. 60 sub. leg. G) are amended as set out in section 3.

3. Schedule 1 amended (strategic commodities)

(1) Schedule 1, Munitions List, before ML1(a)—

Add

Note:

ML1 does not apply to the following:

- (a) Firearms specially designed for dummy ammunition and that are incapable of discharging a projectile;
- (b) Firearms specially designed to launch tethered projectiles having no high explosive charge or communications link, to a range of less than or equal to 500 m;
- (c) Weapons using non-centre fire cased ammunition and that are not of the fully automatic firing type;

(d) “Deactivated firearms”.

(2) Schedule 1, Munitions List—

Repeal ML1(a)

Substitute

“(a) Rifles, combination guns, handguns, machine guns, sub-machine guns and volley guns;

Note:

ML1(a) does not apply to the following:

- (1) Rifles and combination guns, manufactured earlier than 1938;
- (2) Reproductions of rifles and combination guns, the originals of which were manufactured earlier than 1890;
- (3) Handguns, machine guns and volley guns, manufactured earlier than 1890, and their reproductions;
- (4) Rifles or handguns, specially designed to discharge an inert projectile by compressed air or CO₂.”

(3) Schedule 1, Munitions List—

Repeal ML1(b)(2)

Substitute

“(2) Other smooth-bore weapons, as follows:

- (a) Fully automatic type weapons;
- (b) Semi-automatic or pump-action type weapons;

Notes:

1. ML1(b) does not apply to the following:

- (a) Smooth-bore weapons manufactured earlier than 1938;
 - (b) Reproductions of smooth-bore weapons, the originals of which were manufactured earlier than 1890;
 - (c) Smooth-bore weapons used for hunting or sporting purposes that meet both of the following descriptions:
 - (1) not specially designed for military use;
 - (2) not of the fully automatic firing type;
 - (d) Smooth-bore weapons specially designed for any of the following purposes:
 - (1) Slaughtering domestic animals;
 - (2) Tranquilizing animals;
 - (3) Seismic testing;
 - (4) Firing of industrial projectiles;
 - (5) Disrupting Improvised Explosive Devices (IEDs).

N.B.:
For disruptors, see ML4 and 1A006.
2. ML1(b)(2) does not apply to weapons specially designed to discharge an inert projectile by compressed air or CO₂.”
- (4) Schedule 1, Munitions List—
Repeal ML1(d)
Substitute
“(d) Detachable cartridge magazines, sound suppressors or moderators, special gun-mountings, optical weapons

- sights and flash suppressors, for arms specified in ML1(a), ML1(b) or ML1(c);
- Note:*
ML1(d) does not apply to optical weapons sights without electronic image processing, with a magnification of 9 times or less, where they are not specially designed or modified for military use, or incorporating any reticle specially designed for military use.”.
- (5) Schedule 1, Munitions List, ML1—
Repeal everything after ML1(d).
- (6) Schedule 1, Munitions List, ML2(a), Note 2—
Repeal paragraphs (a) and (b)
Substitute
“(a) Rifles, smooth-bore weapons and combination guns, manufactured earlier than 1938;
(b) Reproductions of rifles, smooth-bore weapons and combination guns, the originals of which were manufactured earlier than 1890;”.
- (7) Schedule 1, Munitions List, ML2(a), Note 2(c)—
Repeal
“before 1890.”
Substitute
“earlier than 1890;”.
- (8) Schedule 1, Munitions List, ML2(a), after Note 2(c)—
Add
“(d) Smooth-bore weapons used for hunting or sporting purposes that meet both of the following descriptions:

- (1) not specially designed for military use;
- (2) not of the fully automatic firing type;
- (e) Smooth-bore weapons specially designed for any of the following purposes:
 - (1) Slaughtering domestic animals;
 - (2) Tranquilizing animals;
 - (3) Seismic testing;
 - (4) Firing of industrial projectiles;
 - (5) Disrupting Improvised Explosive Devices (IEDs);

N.B.:
For disruptors, see ML4 and 1A006.
- (f) Hand-held projectile launchers specially designed to launch tethered projectiles having no high explosive charge or communications link, to a range of less than or equal to 500 m.”.
- (9) Schedule 1, Munitions List, ML2(a)—
Repeal Note 3.
- (10) Schedule 1, Munitions List, ML2(d), after “Mountings”—
Add
“and detachable cartridge magazines.”.
- (11) Schedule 1, Munitions List, ML3, Note 1, after “components”—
Add
“specified in ML3”.
- (12) Schedule 1, Munitions List, ML3—
Repeal Note 2

Substitute

- “2. ML3(a) does not apply to any of the following:
 - (a) Ammunition crimped without a projectile (blank star);
 - (b) Dummy ammunition with a pierced powder chamber;
 - (c) Other blank and dummy ammunition, not incorporating components designed for live ammunition;
 - (d) Components specially designed for blank or dummy ammunition, specified in paragraph (a), (b) or (c) of this Note.”.
- (13) Schedule 1, Munitions List, ML4—
Repeal
“specially designed for military use.”.
- (14) Schedule 1, Chinese text, Munitions List, ML4(a)—
Repeal
““焰火訊號彈””
Substitute
““煙火劑””.
- (15) Schedule 1, Munitions List, ML4(c), Note (d)(1)(a), after “Certificate”—
Add
“issued by the civil aviation authority or authorities of one or more “Participating States””.
- (16) Schedule 1, Munitions List, ML6, Nota Bene—
Repeal

“Note 7 to”.

- (17) Schedule 1, Munitions List—

Repeal ML6(b)(1)

Substitute

“(1) Vehicles that meet all of the following descriptions:

- (a) The vehicles are manufactured or fitted with materials or components to provide ballistic protection to level III (NIJ 0108.01, September 1985, or comparable national standard) or better;
- (b) The transmission of the vehicles provides drive to both front and rear wheels simultaneously (whether or not they are additional wheels for load bearing purposes, and whether they are driven or not);
- (c) The Gross Vehicle Weight Rating (GVWR) of the vehicles is greater than 4 500 kg;
- (d) The vehicles are designed or modified for off-road use;”.

- (18) Schedule 1, English text, Munitions List, ML6, Note 2—

Repeal

“specially designed military components”

Substitute

“components that are specially designed for military use”.

- (19) Schedule 1, Munitions List, ML6, Note 3—

Repeal

everything after “to civil”

Substitute

“vehicles designed or modified for transporting money or valuables.”.

- (20) Schedule 1, English text, Munitions List, ML6, Note 4(b)—

Repeal

“except reproductions”

Substitute

“except for reproductions”.

- (21) Schedule 1, Munitions List, ML7(c)(2)—

(a) **Repeal**

“Isopropyl) aminoethyl”

Substitute

“Isopropyl)-aminoethyl”;

(b) **Repeal**

“O-Ethyl-2-di-isopropylaminoethyl”

Substitute

“O-Ethyl O-2-di-isopropylaminoethyl”.

- (22) Schedule 1, English text, Munitions List, ML7(i)(1)—

Repeal

“ML7(b) resulting”

Substitute

“ML7(b), and resulting”.

- (23) Schedule 1, Munitions List, ML8, Technical Note 1—

Repeal

“this entry”

Substitute

“ML8”.

- (24) Schedule 1, Munitions List, ML8, Technical Note 2—
Repeal
“controlled by”
Substitute
“subject to”.
- (25) Schedule 1, Munitions List, ML8, after Technical Note 2—
Add
“3. For the purposes of ML8, particle size is the mean particle diameter on a weight or volume basis. International or equivalent national standards are to be used in sampling and determining particle size.”.
- (26) Schedule 1, Munitions List, ML8(a)(4)—
(a) **Repeal**
“2,4,6,8,10,12-Hexanitrohexaazaisowurtzitane”
Substitute
“Hexanitrohexaazaisowurtzitane”;
(b) **Repeal**
“and ML8(g)(4)”.
- (27) Schedule 1, Munitions List, ML8(a)(12)(a), after “DAAOF (“—
Add
“DAAF, DAAFox, or”.
- (28) Schedule 1, Munitions List, ML8(a)(13), after “ML8(g)(5)”—
Add
“and ML8(g)(9)”.
- (29) Schedule 1, Munitions List, ML8(a)(33)—

- Repeal**
“and having any of the following”
Substitute
“that meet any of the following descriptions”.
- (30) Schedule 1, Munitions List—
Repeal ML8(a)(34).
- (31) Schedule 1, Munitions List, at the end of ML8(a)—
Add
“(35) DNAN (2,4-dinitroanisole) (CAS 119-27-7);
(36) TEX (4,10-Dinitro-2,6,8,12-tetraoxa-4,10-diazaisowurtzitane);
(37) GUDN (Guanylurea dinitramide) FOX-12 (CAS 217464-38-5);
(38) Tetrazines as follows:
(a) BTAT (Bis(2,2,2-trinitroethyl)-3,6-diaminotetrazine);
(b) LAX-112 (3,6-diamino-1,2,4,5-tetrazine-1,4-dioxide);
(39) Energetic ionic materials melting between 343 K (70°C) and 373 K (100°C) and with detonation velocity exceeding 6 800 m/s or detonation pressure exceeding 18 GPa (180 kbar);”.
- (32) Schedule 1, Munitions List—
Repeal ML8(b)(1)
Substitute
“(1) Any solid “propellant” with a theoretical specific impulse (under standard conditions) of more than:

- (a) 240 seconds for non-metallized, non-halogenized “propellant”;
- (b) 250 seconds for non-metallized, halogenized “propellant”; *or*
- (c) 260 seconds for metallized “propellant”;
- (33) Schedule 1, Munitions List—
Repeal ML8(b)(2).
- (34) Schedule 1, Chinese text, Munitions List, ML8(c)—
Repeal
““焰火訊號彈””
Substitute
““煙火劑””.
- (35) Schedule 1, Munitions List, at the end of ML8(c)(1)—
Add
“*Note:*
Aircraft fuels specified in ML8(c)(1) are finished products, not their constituents.”.
- (36) Schedule 1, Munitions List, after ML8(c)(4)(d)—
Add
“*Note:*
ML8(c)(4)(a) does not apply to hydrazine ‘mixtures’ specially formulated for corrosion control.”.
- (37) Schedule 1, Munitions List, ML8(c)(5), after “Metal fuels”—
Add
“, fuel mixtures or “pyrotechnic” mixtures.”.
- (38) Schedule 1, Munitions List, ML8(c)(5)(a)—

- Repeal**
“and mixtures thereof, as follows”
- Substitute**
“, as follows, and ‘mixtures’ of the metals”.
- (39) Schedule 1, Chinese text, Munitions List, ML8(c)(5)(a)(1) and (2)—
Repeal
“尺碼”
Substitute
“大小”.
- (40) Schedule 1, English text, Munitions List, ML8(c)(5)(b)—
Repeal
“, which contain”
Substitute
“containing”.
- (41) Schedule 1, Chinese text, Munitions List, ML8(c)(5)(b)(1) and (2)—
Repeal
“尺碼”
Substitute
“大小”.
- (42) Schedule 1, Munitions List, after ML8(c)(5)(b)—
Add
“*Notes:*

1. ML8(c)(5) applies to explosives and fuels, whether or not the metals or alloys are encapsulated in aluminium, magnesium, zirconium, or beryllium.
2. ML8(c)(5)(b) only applies to metal fuels in particle form when they are mixed with other substances to form a mixture formulated for military purposes such as liquid “propellant” slurries, solid “propellants”, or “pyrotechnic” mixtures.
3. ML8(c)(5)(b)(2) does not apply to boron and boron carbide enriched with boron-10 (20% or more of total boron-10 content).”.

(43) Schedule 1, Munitions List, ML8(c)(6)—

Repeal

everything after “stearates”

Substitute

“(e.g., octal (CAS 637-12-7)) or palmitates;”.

(44) Schedule 1, Munitions List, ML8(c)(8)—

Repeal

“Spherical aluminum powder (CAS 7429-90-5) with a particle size of 60 µm or less,”

Substitute

“Spherical or spheroidal aluminum powder (CAS 7429-90-5) with a particle size of 60 µm or less and”.

(45) Schedule 1, Munitions List, after ML8(c)(9)—

Add

“(10) Liquid high energy density fuels not specified in ML8(c)(1), as follows:

- (a) Mixed fuels, that incorporate both solid and liquid fuels (e.g. boron slurry), having a mass-based energy density of 40 MJ/kg or greater;
- (b) Other high energy density fuels and fuel “additives” (e.g. cubane, ionic solutions, JP-7, JP-10), having a volume-based energy density of 37.5 GJ/m³ or greater, measured at 293 K (20°C) and one atmosphere (101.325 kPa) pressure;

Note:

ML8(c)(10)(b) does not apply to JP-4, JP-8, fossil refined fuels or biofuels, or fuels for engines certified for use in civil aviation.

(11) “Pyrotechnic” and pyrophoric materials as follows:

- (a) “Pyrotechnic” or pyrophoric materials specifically formulated to enhance or control the production of radiated energy in any part of the IR spectrum;
- (b) Mixtures of magnesium, polytetrafluoroethylene (PTFE) and a vinylidene difluoride-hexafluoropropylene copolymer (e.g. MTV);

(12) Fuel mixtures, “pyrotechnic” mixtures or “energetic materials”, that are not specified elsewhere in ML8, meeting all of the following descriptions:

- (a) Containing greater than 0.5% of particles of any of the following:
 - (1) Aluminium;
 - (2) Beryllium;
 - (3) Boron;
 - (4) Zirconium;
 - (5) Magnesium;

- (6) Titanium;
- (b) Particles specified in ML8(c)(12)(a) are with a size less than 200 nm in any direction;
- (c) Particles specified in ML8(c)(12)(a) are with a metal content of 60% or greater;”.
- (46) Schedule 1, Munitions List, ML8(d)(8)—
Repeal the Technical Note.
- (47) Schedule 1, Chinese text, Munitions List, ML8(e)(1)—
Repeal
“環氧丙烷”
Substitute
“氧雜環丁烷”.
- (48) Schedule 1, Munitions List, ML8(e)(2)—
Repeal
“bisazidomethyloxetane”
Substitute
“3,3-bis(azidomethyl)oxetane”.
- (49) Schedule 1, Chinese text, Munitions List, ML8(e)(7)—
Repeal
“環氧丙烷”
Substitute
“氧雜環丁烷”.
- (50) Schedule 1, Chinese text, Munitions List, ML8(e)(14)—
Repeal
“硝酸基”
Substitute

- “硝酸醯”.
- (51) Schedule 1, Chinese text, Munitions List, ML8(e)(15)—
Repeal
“聚硝酸甲基環氧乙烷”
Substitute
“聚硝酸酯甲基氧雜環丙烷”.
- (52) Schedule 1, Munitions List, ML8(e)(16)—
Repeal
“or poly-NMMO (poly [3-Nitratomethyl-3-methyloxetane])”
Substitute
“, poly-NMMO or poly(3-Nitratomethyl-3-methyloxetane)”.
- (53) Schedule 1, Munitions List, after ML8(e)(18)—
Add
“(19) 4,5 diazidomethyl-2-methyl-1,2,3-triazole (iso-DAMTR);
(20) PNO (Poly(3-nitrato oxetane));”.
- (54) Schedule 1, Chinese text, Munitions List, ML8(f)(4)(b)—
Repeal
“2,2-雙(乙基二環戊二烯基鐵)丙烷(2,2-雙-乙基二茂鐵基丙烷)”
Substitute
“卡托辛(2,2-雙-乙基二茂鐵基丙烷)”.
- (55) Schedule 1, Munitions List, ML8(f)(4)(c)—
Repeal
everything after “acids”
Substitute

- “and ferrocene carboxylic acid esters;”.
- (56) Schedule 1, Munitions List, ML8(f)(4)(e), after “derivatives”—
Add
“not specified elsewhere in ML8(f)(4)”.
- (57) Schedule 1, Munitions List, after ML8(f)(4)(e)—
Add
“(f) Ethyl ferrocene (CAS 1273-89-8);
(g) Propyl ferrocene;
(h) Pentyl ferrocene (CAS 1274-00-6);
(i) Dicyclopentyl ferrocene;
(j) Dicyclohexyl ferrocene;
(k) Diethyl ferrocene (CAS 1273-97-8);
(l) Dipropyl ferrocene;
(m) Dibutyl ferrocene (CAS 1274-08-4);
(n) Dihexyl ferrocene (CAS 93894-59-8);
(o) Acetyl ferrocene (CAS 1271-55-2)/1,1'-diacetyl ferrocene (CAS 1273-94-5);”.
- (58) Schedule 1, English text, Munitions List, ML8(f)(16)—
Repeal
“Polycyanodifluoroamin oethyleneoxide”
Substitute
“Polycyanodifluoroaminoethyleneoxide”.
- (59) Schedule 1, Munitions List, ML8(f)(17)—
Repeal everything before the Note
Substitute

- “(17) Bonding agents as follows:
(a) 1,1',1''-trimesoyl-tris(2-ethylaziridine) (HX-868, BITA) (CAS 7722-73-8);
(b) Polyfunctional aziridine amides with isophthalic, trimesic, isocyanuric or trimethyladipic backbone also having a 2-methyl or 2-ethyl aziridine group;”.
- (60) Schedule 1, Munitions List, ML8(f)(17), Note—
Repeal
“ML8(f)(17)”
Substitute
“ML8(f)(17)(b)”.
- (61) Schedule 1, Munitions List, ML8(f)(17), Note 1—
Repeal
“1,1'-Isophthaloyl-bis(2-methylaziridine)”
Substitute
“1,1'-Isophthaloyl-bis(2-methylaziridine)”.
- (62) Schedule 1, Chinese text, Munitions List, ML8(f)(17), Note 3—
Repeal
“吡丙啶”
Substitute
“氮丙啶”.
- (63) Schedule 1, Chinese text, Munitions List, ML8(f)(19)—
Repeal
“尺碼”
Substitute

- “大小”.
- (64) Schedule 1, Munitions List, ML8(f)(20)—
Repeal
“(HX-879)”.
- (65) Schedule 1, Munitions List, ML8(f)(21)—
Repeal
“(HX-878)”.
- (66) Schedule 1, Munitions List, after ML8(f)(22)—
Add
“(23) TEPB (Tris (ethoxyphenyl) bismuth) (CAS 90591-48-3);”.
- (67) Schedule 1, Munitions List, ML8(g), Nota Bene—
Repeal
“controlled”
Substitute
“specified”.
- (68) Schedule 1, Munitions List, ML8(g)(1)—
Repeal
“(bischloromethyloxetane) (CAS 142173-26-0)”
Substitute
“(3,3-bis(chloromethyl)oxetane) (CAS 78-71-7)”.
- (69) Schedule 1, Munitions List—
Repeal ML8(g)(3)
Substitute
“(3) Hexaazaisowurtzitane derivatives including HBIW (hexabenzylhexaazaisowurtzitane) (CAS 124782-15-6)

- (see also ML8(a)(4)) and TAIW
(tetraacetyldibenzylhexaazaisowurtzitane) (CAS
182763-60-6) (see also ML8(a)(4));”.
- (70) Schedule 1, Munitions List—
Repeal ML8(g)(4).
- (71) Schedule 1, Munitions List, after ML8(g)(8)—
Add
“(9) DADN (1,5-diacetyl-3,7-dinitro-1,3,5,7-tetraaza-
cyclooctane) (see also ML8(a)(13));”.
- (72) Schedule 1, Munitions List, ML8—
Repeal Notes 1, 2, 3, 4 and 5.
- (73) Schedule 1, Munitions List, ML8, Note 6—
Repeal
“mentioned in ML8(a) or powdered metals in ML8(c)”
Substitute
“specified in ML8(a) or powdered metals specified in
ML8(c)”.
- (74) Schedule 1, Munitions List, ML8, Note 6—
Repeal paragraph (w)
Substitute
“(w) Diethyldiphenylurea (CAS 85-98-3);
dimethyldiphenylurea (CAS 611-92-7);
methylethyldiphenylurea [Centralites];”.
- (75) Schedule 1, Munitions List, ML8—
Renumber Note 6 as Note 1.
- (76) Schedule 1, Munitions List, ML8—
Repeal Notes 7 and 8.

(77) Schedule 1, Munitions List, ML8, after Note 1—

Add

“2. ML8 does not apply to ammonium perchlorate (ML8(d)(2)), NTO (ML8(a)(18)) or catocene (ML8(f)(4)(b)) that meets all of the following descriptions:

- (a) Specially shaped and formulated for civil-use gas generation devices;
- (b) Compounded or mixed, with non-active thermoset binders or plasticizers and having a mass of less than 250 g;
- (c) Having a maximum of 80% ammonium perchlorate (ML8(d)(2)) in mass of active material;
- (d) Having less than or equal to 4 g of NTO (ML8(a)(18));
- (e) Having less than or equal to 1 g of catocene (ML8(f)(4)(b)).”.

(78) Schedule 1, Munitions List, ML9(a)(2)(a)—

Repeal everything before the Technical Note

Substitute

“(a) Automatic weapons specified in ML1, or weapons specified in ML2, ML4, ML12 or ML19, or ‘mountings’ or hard points for weapons having a calibre of 12.7 mm or greater;”.

(79) Schedule 1, Munitions List, ML9(g), after “use”—

Add

“, and components for those bearings”.

(80) Schedule 1, Munitions List—

Repeal ML10(e), (f) and (g)

Substitute

- “(e) Airborne refuelling equipment specially designed or modified for the “aircraft” specified in ML10(a) or the unmanned aircraft specified in ML10(c), and specially designed components for such equipment;
- (f) ‘Ground equipment’ specially designed for “aircraft” specified in ML10(a) or aero-engines specified in ML10(d);

Technical Note:

‘Ground equipment’ includes pressure refuelling equipment and equipment specially designed to facilitate operations in confined areas.

- (g) Aircrew life support equipment, aircrew safety equipment and other devices for emergency escape, not specified in ML10(a), designed for “aircraft” specified in ML10(a);

Note:

ML10(g) does not control aircrew helmets that do not incorporate, or have mountings or fittings for, equipment specified in the Munitions List.

N.B.:

For helmets see also ML13(c).”.

(81) Schedule 1, Chinese text, Munitions List, ML10(h)(1)—

Repeal

“別處”

Substitute

“內的其他條文”.

- (82) Schedule 1, Munitions List, ML10, Note 1(c)—
Repeal
“in a “participating state””
Substitute
“or authorities of one or more “Participating States””.
- (83) Schedule 1, Munitions List, ML10, Note 2(a)—
Repeal
everything before “for use”
Substitute
“(a) Aero-engines designed or modified for military use that have been certified for civil use by the civil aviation authority or authorities of one or more “Participating States””.
- (84) Schedule 1, Munitions List, ML10, Note 3—
Repeal
everything before “to those”
Substitute
“3. For the purposes of ML10(a) and ML10(d), specially designed components and related equipment for non-military “aircraft” or aero-engines modified for military use refer only”.
- (85) Schedule 1, English text, Munitions List, ML10, Note 5, after “that”—
Add
“meets all of the following descriptions”.
- (86) Schedule 1, Munitions List, ML10, Note 5—
Repeal paragraph (b)

- Substitute**
“(b) Do not incorporate any item specified in the Munitions List, unless the item is required to meet the safety or airworthiness standards of the civil aviation authority or authorities of one or more “Participating States””.
- (87) Schedule 1, Munitions List, ML10, Note 5(c)—
Repeal
“the weapon is”.
- (88) Schedule 1, Munitions List, ML11—
Repeal everything before ML11(a)
Substitute
“ML11 Electronic equipment, “spacecraft” and components, not specified elsewhere in the Munitions List, as follows”.
- (89) Schedule 1, Munitions List, ML11(a), after “military use”—
Add
“and specially designed components for the equipment”.
- (90) Schedule 1, Munitions List, ML11(b), after “equipment”—
Add
“and specially designed components for the jamming equipment”.
- (91) Schedule 1, Munitions List, after ML11(b)—
Add
“(c) “Spacecraft” specially designed or modified for military use, and “spacecraft” components specially designed for military use;”.

- (92) Schedule 1, Munitions List, ML12, Note 1(b), after “energy storage”——
Add
“(e.g. high energy storage capacitors)”.
- (93) Schedule 1, Munitions List, ML12, at the end of Note 1(b)——
Add
“*N.B.*:
See also 3A001(e)(2) on the Dual-use Goods List for high energy storage capacitors.”.
- (94) Schedule 1, English text, Munitions List, ML13——
Repeal
“equipment and constructions”
Substitute
“equipment, constructions”.
- (95) Schedule 1, Munitions List, ML13(a)——
Repeal
“Armoured”
Substitute
“Metallic or non-metallic armoured”.
- (96) Schedule 1, Munitions List, ML17——
Repeal
“libraries”
Substitute
““libraries””.
- (97) Schedule 1, Munitions List——
Repeal ML17(a)

- Substitute**
“(a) Diving and underwater swimming apparatus, specially designed or modified for military use, as follows:
(1) Self-contained diving rebreathers, closed or semi-closed circuit;
(2) Underwater swimming apparatus specially designed for use with the diving apparatus specified in ML17(a)(1);
N.B.:
See also 8A002(q) of the Dual-use Goods List.”.
- (98) Schedule 1, Munitions List——
Repeal ML17(f)
Substitute
“(f) “Libraries” specially designed or modified for military use with systems, equipment or components, specified in the Munitions List;”.
- (99) Schedule 1, Chinese text, Munitions List, ML17(h)——
Repeal
“在軍需物品清單內的別處受”
Substitute
“受在軍需物品清單內的其他條文”.
- (100) Schedule 1, Chinese text, Munitions List, ML17(m)——
Repeal
“在軍需物品清單的別處受”
Substitute
“受在軍需物品清單內的其他條文”.
- (101) Schedule 1, Chinese text, Munitions List, ML17(p)——

- Repeal**
“的別處”
- Substitute**
“內的其他條文”.
- (102) Schedule 1, English text, Munitions List, ML17—
- Repeal**
“*Technical Notes.*”
- Substitute**
“*Technical Note.*”.
- (103) Schedule 1, Munitions List, ML17—
- Repeal Technical Note 1.**
- (104) Schedule 1, Munitions List, ML17, Technical Note 2—
- Repeal**
“2. For the purpose”
- Substitute**
“For the purpose”.
- (105) Schedule 1, Munitions List, ML18—
- Repeal everything before ML18(a)**
- Substitute**
“ML18 ‘Production’ equipment and components, as follows:”.
- (106) Schedule 1, Munitions List, ML18(a)—
- Repeal**
“production” (wherever appearing)
- Substitute**
“‘production’”.

- (107) Schedule 1, Chinese text, Munitions List, ML18, Note 1(i)—
- Repeal**
“尺碼”.
- (108) Schedule 1, Munitions List—
- Repeal ML21(a)**
- Substitute**
“(a) “Software” specially designed or modified for any of the following:
- (1) “Development”, “production”, operation or maintenance of equipment specified in the Munitions List;
- (2) “Development” or “production” of materials specified in the Munitions List;
- (3) “Development”, “production”, operation or maintenance of “software” specified in the Munitions List;”.
- (109) Schedule 1, Munitions List—
- Repeal ML22(a)**
- Substitute**
“(a) “Technology”, other than that specified in ML22(b), that is “required” for the “development”, “production”, installation, operation, maintenance (checking), repair, overhaul or refurbishing of items specified in the Munitions List;”.
- (110) Schedule 1, Munitions List—
- Repeal ML22(b)(3) and (4).**
- (111) Schedule 1, Munitions List, ML22(b), Note 1—
- Repeal**

everything after ““production””

Substitute

“, installation, operation, maintenance (checking), repair, overhaul or refurbishing of items specified in the Munitions List remains under control even when applicable to any item that is not specified in the Munitions List.”.

- (112) Schedule 1, Munitions List, ML22(b), Note 2—

Repeal

“control “technology” as follows”

Substitute

“apply to”.

- (113) Schedule 1, Munitions List, ML22(b), Note 2(a)—

Repeal

“Which is the minimum necessary for the installation, operation, maintenance (checking) and”

Substitute

““Technology” that is the minimum necessary for the installation, operation, maintenance (checking) or”.

- (114) Schedule 1, English text, Munitions List, ML22(b), Note 2(b)—

Repeal

“Which”

Substitute

““Technology” that”.

- (115) Schedule 1, English text, Munitions List, ML22(b), Note 2(c)—

Repeal

“For”

Substitute

““Technology” for”.

- (116) Schedule 1, Dual-use Goods List, General Software Note—

Repeal

“The Lists do not control “software” which is either”

Substitute

“Categories 0 to 9 do not control “software” that meets any of the following descriptions”.

- (117) Schedule 1, Dual-use Goods List, General Software Note, entry (1)—

Repeal

“Generally”

Substitute

““Software” that is generally”.

- (118) Schedule 1, Dual-use Goods List, General Software Note, entry (1)(b)—

Repeal

“or”.

- (119) Schedule 1, Dual-use Goods List, General Software Note, entry (1)(b), Nota Bene—

Repeal

“controlled by Category 5—Part 2”

Substitute

“specified in Category 5—Part 2 (“Information Security”)”.

- (120) Schedule 1, Dual-use Goods List, General Software Note, entry (2)—

Repeal

““In the public domain”.”

Substitute

““Software” that is “in the public domain”;”.

- (121) Schedule 1, Dual-use Goods List, General Software Note, after entry (2)—

Add

- “(3) The “object code” that is the minimum necessary for the installation, operation, maintenance (checking) or repair of items whose export has been authorized.

N.B.:

Entry (3) of the General Software Note does not release “software” specified in Category 5—Part 2 (“Information Security”).”.

- (122) Schedule 1, Dual-use Goods List, Category 0, 0A001(e)—

Repeal

everything after “contain”

Substitute

“both fuel elements and the primary coolant in a “nuclear reactor”;”.

- (123) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0A001(f)

Substitute

- “(f) Zirconium metal tubes or zirconium alloy tubes (or assemblies of tubes) specially designed or prepared for

use as fuel cladding in a “nuclear reactor”, and in quantities exceeding 10 kg;

N.B.:

For zirconium pressure tubes, see 0A001(e) and for calandria tubes, see 0A001(h).”.

- (124) Schedule 1, Dual-use Goods List, Category 0, 0A001(g), after “pumps”—

Add

“or circulators”.

- (125) Schedule 1, Dual-use Goods List, Category 0, 0A001(h), after “fuel channels,”—

Add

“calandria tubes,”.

- (126) Schedule 1, Dual-use Goods List, Category 0, 0A001(h), Note, before “*Note:*”—

Add

“*Technical*”.

- (127) Schedule 1, English text, Dual-use Goods List, Category 0, 0A001(h), Technical Note—

Repeal

“instrumentations”

Substitute

“instrumentation”.

- (128) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0A001(i)

Substitute

- “(i) Heat exchangers as follows:

- (1) Steam generators specially designed or prepared for use in the primary, or intermediate, coolant circuit of a “nuclear reactor”;
- (2) Other heat exchangers specially designed or prepared for use in the primary coolant circuit of a “nuclear reactor”;

Note:

0A001(i) does not control heat exchangers for the supporting systems of the reactor (e.g. the emergency cooling system or the decay heat cooling system).”.

- (129) Schedule 1, Dual-use Goods List, Category 0, 0A001(j)---

Repeal

“detection and measuring instruments”

Substitute

“detectors”.

- (130) Schedule 1, Dual-use Goods List, Category 0, after 0A001(j)---

Add

- “(k) ‘External thermal shields’ specially designed or prepared for use in a “nuclear reactor” for the reduction of heat loss and also for the protection of containment vessel;

Technical Note:

In 0A001(k), ‘external thermal shields’ means major structures placed over the reactor vessel that reduce heat loss from the reactor and reduce temperature within the containment vessel.”.

- (131) Schedule 1, Dual-use Goods List, Category 0, 0B001---

Repeal

“uranium” and”

Substitute

“uranium” or”.

- (132) Schedule 1, Dual-use Goods List, Category 0, 0B001(a)---

Repeal

“and”

Substitute

“or”.

- (133) Schedule 1, Dual-use Goods List, Category 0, 0B001(a)(6)---

Repeal

“(AVLIS)”.

- (134) Schedule 1, Dual-use Goods List, Category 0, 0B001(a)(7)---

Repeal

“(MLIS)”.

- (135) Schedule 1, Dual-use Goods List, Category 0, before 0B001(b)(1)---

Add

Technical Note:

In 0B001(b), ‘high strength-to-density ratio material’ means any of the following items:

- (a) Maraging steel capable of an ultimate tensile strength of 1.95 GPa or more;
- (b) Aluminium alloys capable of an ultimate tensile strength of 0.46 GPa or more;
- (c) “Fibrous or filamentary materials” with a “specific modulus” of more than 3.18×10^6 m and a “specific tensile strength” greater than 7.62×10^4 m.”.

- (136) Schedule 1, Dual-use Goods List, Category 0, 0B001(b)(3), (4), (5) and (6)—

Repeal

“400”

Substitute

“650”.

- (137) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0B001(b)(7)

Substitute

“(7) Magnetic suspension bearings as follows:

- (a) Bearing assemblies consisting of an annular magnet suspended within a housing made of or protected by “materials resistant to corrosion by UF₆” containing a damping medium and having the magnet coupling with a pole piece or second magnet fitted to the top cap of the rotor;

- (b) Active magnetic bearings specially designed or prepared for use with gas centrifuges;”.

- (138) Schedule 1, Dual-use Goods List, Category 0, 0B001(b)(10)—

Repeal

everything after “vacuum”

Substitute

“at a frequency of 600 Hz or more and a power of 40 Volt-Amps or more;”.

- (139) Schedule 1, Dual-use Goods List, Category 0, 0B001(b)(11)—

- (a) **Repeal**

“Centrifuge housing/recipients”

Substitute

“Centrifuge housing or centrifuge recipients”;

- (b) **Repeal**

everything after “ends”

Substitute

“that are parallel to each other and perpendicular to the longitudinal axis of cylinder to within 0.05 degrees or less;”.

- (140) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0B001(b)(12)

Substitute

“(12) Scoops consisting of specially designed or prepared tubes for the extraction of UF₆ gas from within the rotor tube by a Pitot tube action and capable of being fixed to the central gas extraction system;”.

- (141) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0B001(b)(13)(a) and (b)

Substitute

“(a) A multiphase frequency output of 600 Hz or greater;

(b) High stability (with frequency control better than 0.2%);”.

- (142) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0B001(b)(13)(c) and (d).

- (143) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0B001(b)(14)

Substitute

- “(14) Shut-off and control valves as follows:
- (a) Shut-off valves specially designed or prepared to act on the feed, product or tails from UF₆ gaseous streams of an individual gas centrifuge;
 - (b) Bellows-sealed valves, shut-off or control, made of or protected by “materials resistant to corrosion by UF₆”, with an inside diameter of 10 mm to 160 mm, specially designed or prepared for use in main or auxiliary systems of gas centrifuge enrichment plants;”.
- (144) Schedule 1, Dual-use Goods List, Category 0, 0B001(b)—
Repeal the Note.
- (145) Schedule 1, Dual-use Goods List, Category 0, 0B001(c)(3)—
Repeal
everything before “made of”
Substitute
“(3) Compressors or gas blowers with a suction volume capacity of 1 m³/min or more of UF₆ that discharge pressure up to 500 kPa, have a pressure ratio of 10:1 or less, and are”.
- (146) Schedule 1, Dual-use Goods List, Category 0—
Repeal 0B001(c)(5) and (6)
Substitute
“(5) Heat exchangers made of or protected by “materials resistant to corrosion by UF₆”, and designed for a leakage pressure rate of less than 10 Pa per hour under a pressure differential of 100 kPa;

- (6) Bellows-sealed valves, manual or automated, shut-off or control, made of or protected by “materials resistant to corrosion by UF₆”;
- (147) Schedule 1, Dual-use Goods List, Category 0—
Repeal 0B001(d)(2)
Substitute
“(2) Cylindrical or conical tubes (vortex tubes), made of or protected by “materials resistant to corrosion by UF₆”, with one or more tangential inlets;”.
- (148) Schedule 1, Dual-use Goods List, Category 0, 0B001(d)(3)—
Repeal
“(positive displacement, centrifugal and axial flow types) or gas blowers with a suction volume capacity of 2 m³/min,”
Substitute
“or gas blowers”.
- (149) Schedule 1, Dual-use Goods List, Category 0, 0B001(d)(5)—
Repeal
“Aerodynamic separation”
Substitute
“Separation”.
- (150) Schedule 1, Dual-use Goods List, Category 0—
Repeal 0B001(d)(6)
Substitute
“(6) Bellows-sealed valves, manual or automated, shut-off or control, made of or protected by “materials resistant to corrosion by UF₆”, with a diameter of 40 mm or more;”.

- (151) Schedule 1, Dual-use Goods List, Category 0, 0B001(d)(7)(d)—

Repeal

“temperatures of 253 K (-20°C) or less”

Substitute

“freezing out UF₆”.

- (152) Schedule 1, Dual-use Goods List, Category 0, 0B001(e)(1), (2) and (4)—

Repeal

“fluorocarbon”

Substitute

“fluorinated hydrocarbon”.

- (153) Schedule 1, Dual-use Goods List, Category 0, 0B001(g)—

Repeal

everything after “or prepared for”

Substitute

“laser-based separation processes using atomic vapour “laser” isotope separation, as follows:

- (1) Uranium metal vaporization systems designed to achieve a delivered power of 1 kW or more on the target for use in “laser” enrichment;
- (2) Liquid or vapour uranium metal handling systems specially designed or prepared for handling molten uranium, molten uranium alloys or uranium metal vapour for use in “laser” enrichment, and specially designed components for such systems;

N.B.:

See also 2A225.

- (3) Product and tails collector assemblies for uranium metal in liquid or solid form, made of or protected by materials resistant to the heat and corrosion of uranium metal vapour or liquid, such as yttria-coated graphite or tantalum;
- (4) Separator module housings (cylindrical or rectangular vessels) for containing the uranium metal vapour source, the electron beam gun and the product and tails collectors;
- (5) “Lasers” or “laser” systems specially designed or prepared for the separation of uranium isotopes with a spectrum frequency stabilization for operation over extended periods of time;

N.B.:

See also 6A005 and 6A205.”.

- (154) Schedule 1, Dual-use Goods List, Category 0, 0B001(h)—

Repeal everything before 0B001(h)(1)

Substitute

“(h) Equipment and components, specially designed or prepared for laser-based separation processes using molecular “laser” isotope separation, as follows:”.

- (155) Schedule 1, Dual-use Goods List, Category 0—

Repeal 0B001(h)(2)

Substitute

“(2) Product or tails collector components or devices, specially designed or prepared for collecting uranium material or uranium tails material following illumination

- with “laser” light, made of “materials resistant to corrosion by UF₆”;
- (156) Schedule 1, Dual-use Goods List, Category 0, 0B001(h)(5)—
Repeal
“nitrogen or argon”
Substitute
“nitrogen, argon or other gases”.
- (157) Schedule 1, Dual-use Goods List, Category 0, 0B001(h)(5)(c)—
Repeal
“temperatures of 253 K (-20°C) or less”
Substitute
“freezing out UF₆”.
- (158) Schedule 1, Dual-use Goods List, Category 0, 0B001(h)(6)—
Repeal
“systems for the separation of uranium isotopes with a spectrum frequency stabilizer”
Substitute
“systems specially designed or prepared for the separation of uranium isotopes with a spectrum frequency stabilization”.
- (159) Schedule 1, Dual-use Goods List, Category 0—
Repeal 0B001(i)(4).
- (160) Schedule 1, Dual-use Goods List, Category 0, 0B001(i)(5)—
Repeal
“collectors”
Substitute

- “collector assemblies for uranium metal in solid form,”.
- (161) Schedule 1, Dual-use Goods List, Category 0, 0B002(e), after “designed”—
Add
“or prepared”.
- (162) Schedule 1, Dual-use Goods List, Category 0—
Repeal 0B002(f)
Substitute
“(f) Vacuum systems and pumps as follows:
(1) Vacuum manifolds, vacuum headers or vacuum pumps having a suction capacity of 5 m³/min or more;
(2) Vacuum pumps specially designed for use in UF₆ bearing atmospheres made of, or protected by, “materials resistant to corrosion by UF₆”; *or*
(3) Vacuum systems consisting of vacuum manifolds, vacuum headers and vacuum pumps, and designed for service in UF₆ bearing atmospheres;”.
- (163) Schedule 1, Dual-use Goods List, Category 0, 0B002(g)—
Repeal everything before 0B002(g)(2)
Substitute
“(g) UF₆ mass spectrometers/ion sources capable of taking on-line samples from UF₆ gas streams and meeting all of the following descriptions:
(1) Capable of measuring ions of 320 atomic mass units or greater and having a resolution of better than 1 part in 320;”.
- (164) Schedule 1, Dual-use Goods List, Category 0, 0B002(g)(2)—

Repeal

everything after “of or”

Substitute

“protected by nickel, nickel-copper alloys with a nickel content of 60% or more by weight, or nickel-chrome alloys;”

(165) Schedule 1, Dual-use Goods List, Category 0, 0B002(g)(3)—

Repeal

“and”.

(166) Schedule 1, Dual-use Goods List, Category 0, 0B002(g)(4)—

Repeal

“Collector”

Substitute

“Having a collector”.

(167) Schedule 1, Dual-use Goods List, Category 0, 0B004(b)(1)—

Repeal

everything after “towers”

Substitute

“with diameters of 1.5 m or more, capable of operating at pressures equal to or greater than 2 MPa;”.

(168) Schedule 1, Chinese text, Dual-use Goods List, Category 0, 0B004(b)(4), (5) and (7)—

Repeal

“處理”

Substitute

“過程”.

(169) Schedule 1, Dual-use Goods List, Category 0, after 0B004(b)(8)—

Add

“(9) Ammonia synthesis converters or synthesis units specially designed or prepared for heavy water production utilizing the ammonia-hydrogen exchange process;”.

(170) Schedule 1, Dual-use Goods List, Category 0, 0B005, Note—

Repeal

“Note:

A plant”

Substitute

“*Technical Note:*

Specially designed or prepared equipment”.

(171) Schedule 1, Dual-use Goods List, Category 0, 0B005, Technical Note (c)—

Repeal

“or”.

(172) Schedule 1, Dual-use Goods List, Category 0, 0B005—

Repeal Technical Note (d)

Substitute

“(d) Checks the finish treatment of the sealed fuel; or

(e) Is used for assembling reactor elements.”.

(173) Schedule 1, Dual-use Goods List, Category 0, 0B006, Note (b)—

Repeal

“, shred”.

(174) Schedule 1, Dual-use Goods List, Category 0, 0B006—

Repeal Note (d)

Substitute

“(d) Solvent extractors, such as packed or pulsed columns, mixer settlers or centrifugal contactors, resistant to the corrosive effects of nitric acid and specially designed or prepared for use in a plant for the reprocessing of irradiated “natural uranium”, “depleted uranium” or “special fissile materials”.”

(175) Schedule 1, Dual-use Goods List, Category 0, 0B006, Note (e)—

Repeal

“*Note.*”

Substitute

“*Technical Note.*”

(176) Schedule 1, Dual-use Goods List, Category 0, 0B006—

Repeal Note (f)

Substitute

“(f) Neutron measurement systems specially designed or prepared for integration and use with automated process control systems in a plant for the reprocessing of irradiated “natural uranium”, “depleted uranium” or “special fissile materials”.”

(177) Schedule 1, Dual-use Goods List, Category 0, 0C004—

Repeal everything before the Nota Bene

Substitute

“0C004 Graphite having a purity level better than 5 parts per million ‘boron equivalent’ and with a density

greater than 1.5 g/cm³ for use in a “nuclear reactor”, and in quantities exceeding 1 kg;”.

(178) Schedule 1, Dual-use Goods List, Category 0, 0C004—

Repeal Note 1

Substitute

“1. For the purpose of export control, the competent authorities of the “Participating State” in which the exporter is established will determine whether or not the exports of graphite meeting the specifications specified in 0C004 are for “nuclear reactor” use.”.

(179) Schedule 1, Dual-use Goods List, Category 0, 0C005—

Repeal

“99.9 weight percent or more and a mean particle size of less than 10 micrometres”

Substitute

“99.9% by weight or more and a particle size less than 10 µm”.

(180) Schedule 1, Dual-use Goods List, Category 1, 1A004, Nota Bene, after “See also”—

Add

“the Munitions List,”.

(181) Schedule 1, Dual-use Goods List, Category 1, 1A004(a)—

Repeal everything before the Note

Substitute

“(a) Full face masks, filter canisters and decontamination equipment for such masks and canisters, designed or modified for defence against any of the following, and

- specially designed components for such masks, canisters and equipment.”.
- (182) Schedule 1, Dual-use Goods List, Category 1, 1A004(a), after the Note—
Add
 “*Technical Note:*
 For the purposes of 1A004(a):
 (a) Full face masks are also known as gas masks;
 (b) Filter canisters include filter cartridges.”.
- (183) Schedule 1, Dual-use Goods List, Category 1, 1A004(a)(4)(b)—
Repeal
 “(2-chlorophenyl) methylene”
Substitute
 “[(2-chlorophenyl) methylene]”.
- (184) Schedule 1, Dual-use Goods List, Category 1, 1A004(a)(4)(e)—
Repeal
 “and”.
- (185) Schedule 1, Dual-use Goods List, Category 1, 1A004, Note (b)—
Repeal
 “Equipment”
Substitute
 “Occupational health or safety equipment”.
- (186) Schedule 1, Dual-use Goods List, Category 1, 1B001(b)—

- Repeal**
 “Tape-laying machines, of which the motions for positioning and laying tape, tows or sheets”
- Substitute**
 “‘Tape-laying machines’, of which the motions for positioning and laying tape”.
- (187) Schedule 1, Dual-use Goods List, Category 1, 1B001(b), after the Note—
Add
 “*Technical Note:*
 For the purposes of 1B001(b), ‘tape-laying machines’ have the ability to lay one or more ‘filament bands’ limited to widths greater than 25 mm and equal to or less than 305 mm, and to cut and restart individual ‘filament band’ courses during the laying process.”.
- (188) Schedule 1, Dual-use Goods List, Category 1, 1B001(g)—
Repeal
 “Tow-placement machines, of which the motions for positioning and laying tows or sheets”
Substitute
 “‘Tow-placement machines’, of which the motions for positioning and laying tows”.
- (189) Schedule 1, Dual-use Goods List, Category 1, at the end of 1B001(g)—
Add
 “*Technical Note:*
 For the purposes of 1B001(g), ‘tow-placement machines’ have the ability to place one or more ‘filament bands’ having

- widths equal to or less than 25 mm, and to cut and restart individual 'filament band' courses during the placement process.”.
- (190) Schedule 1, Dual-use Goods List, Category 1, 1B001—
Repeal
“*Technical Note:*
For the purposes”
Substitute
“*Technical Notes:*
1. For the purposes”.
- (191) Schedule 1, Dual-use Goods List, Category 1, 1B001, after Technical Note 1—
Add
“2. For the purposes of 1B001, 'filament band' is a single continuous width of fully or partially resin-impregnated “tape”, “tow” or fibre.”.
- (192) Schedule 1, Dual-use Goods List, Category 1, 1B102(a)—
Repeal
“spherical or atomized materials controlled by”
Substitute
“spherical, spheroidal or atomized materials specified in”.
- (193) Schedule 1, Dual-use Goods List, Category 1, 1B117(b)—
Repeal
“mixing/kneading shaft”
Substitute
““mixing or kneading shaft””.

- (194) Schedule 1, Dual-use Goods List, Category 1, at the end of 1B117(b)—
Add
“*Note:*
In 1B117(b), the term 'mixing or kneading shaft' does not refer to deagglomerators or knife-spindles.”.
- (195) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1B201(a)(3)
Substitute
“(3) Capable of winding cylindrical tubes with an internal diameter of between 75 mm and 650 mm and lengths of 300 mm or greater;”.
- (196) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1B227.
- (197) Schedule 1, Dual-use Goods List, Category 1, 1B228(d)—
(a) **Repeal**
“1 m”
Substitute
“30 cm”;
(b) **Repeal**
“effective lengths of 5 m”
Substitute
““effective lengths' of 4 m”.
- (198) Schedule 1, Dual-use Goods List, Category 1, at the end of 1B228(d)—
Add

Technical Note:

In 1B228(d), ‘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.”.

- (199) Schedule 1, Dual-use Goods List, Category 1, 1B233, after “plants, and”—

Add

“systems and”.

- (200) Schedule 1, English text, Dual-use Goods List, Category 1, 1B233(a)—

Repeal

“plant”

Substitute

“plants”.

- (201) Schedule 1, Dual-use Goods List, Category 1, 1B233(b), after “isotopes”—

Add

“based on the lithium-mercury amalgam process”.

- (202) Schedule 1, Dual-use Goods List, Category 1, after 1B233(b)—

Add

- “(c) Ion exchange systems specially designed for lithium isotope separation, and specially designed components for such systems;
- (d) Chemical exchange systems (employing crown ethers, cryptands, or lariat ethers), specially designed for lithium isotope separation, and specially designed components for such systems;”.

- (203) Schedule 1, Dual-use Goods List, Category 1, after 1B233—

Add

“1B234 High explosive containment vessels, chambers, containers and other similar containment devices designed for the testing of high explosives or explosive devices that meet all of the following descriptions:

N.B.:

See also the Munitions List.

- (a) Designed to fully contain an explosion equivalent to 2 kg of TNT or greater;
- (b) Having design elements or features enabling real time or delayed transfer of diagnostic or measurement information;”.

- (204) Schedule 1, Dual-use Goods List, Category 1, at the end of 1C001(b)—

Add

Note:

1C001(b) does not control materials that are specially designed or formulated for any of the following applications:

- (a) Laser marking of polymers;
- (b) Laser welding of polymers.”.

- (205) Schedule 1, Dual-use Goods List, Category 1, after 1C001(c)(5)—

Add

Note:

1C001(c) does not control materials in a liquid form.”.

(206) Schedule 1, Dual-use Goods List, Category 1, 1C002(c)(2)(f)---

Repeal

“or”.

(207) Schedule 1, Dual-use Goods List, Category 1, 1C002(c)(2)(g)---

Repeal

“and”.

(208) Schedule 1, Dual-use Goods List, Category 1, after 1C002(c)(2)(g)---

Add

“(h) “Plasma atomization”.”.

(209) Schedule 1, Dual-use Goods List, Category 1, 1C007---

Repeal

“base materials”

Substitute

“powders”.

(210) Schedule 1, Dual-use Goods List, Category 1, 1C007(a)---

Repeal

“Base materials”

Substitute

“Ceramic powders”.

(211) Schedule 1, Chinese text, Dual-use Goods List, Category 1, 1C007(b)---

Repeal

“硬化鈦”

Substitute

“鈦的硼化物”.

(212) Schedule 1, Dual-use Goods List, Category 1, 1C008(a)(3), after “polyimides”---

Add

“having a ‘glass transition temperature (T_g)’ exceeding 505 K (232°C)”.

(213) Schedule 1, Dual-use Goods List, Category 1, 1C008(a), Note---

(a) **Repeal**

“includes”

Substitute

“controls”;

(b) **Repeal**

“tape and ribbon”

Substitute

“tape or ribbon”.

(214) Schedule 1, Dual-use Goods List, Category 1---

Repeal 1C008(b).

(215) Schedule 1, Dual-use Goods List, Category 1, 1C008---

Repeal the Technical Note

Substitute

“*Technical Notes:*”

1. The ‘glass transition temperature (T_g)’ for 1C008(a)(2) thermoplastic materials and 1C008(a)(4) materials is determined using the method described in ISO 11357/2 (1999) or national equivalents.

2. The ‘glass transition temperature (T_g)’ for 1C008(a)(2) thermosetting materials and 1C008(a)(3) materials is determined using the 3-point bend method described in ASTM D 7028-07 or equivalent national standard. The test is to be performed using a dry test specimen that has attained a minimum of 90% degree of cure as defined by ASTM E 2160-04 or equivalent national standard, and was cured using the combination of standard and post-cure processes that yield the highest T_g ”.
- (216) Schedule 1, Dual-use Goods List, Category 1, before 1C010(a)—
Add
“Technical Notes:
1. In calculating the “specific modulus”, “specific tensile strength” or specific weight of “fibrous or filamentary materials” for the purposes of 1C010(a), 1C010(b), 1C010(c) or 1C010(e)(1)(b), the modulus or tensile strength is to be determined using Method A described in ISO 10618 (2004) or national equivalents.
2. The assessment of “specific modulus”, “specific tensile strength” or specific weight of non-unidirectional “fibrous or filamentary materials” (for example, fabrics, random mats or braids) under 1C010 is to be based on the mechanical properties of the constituent unidirectional monofilaments (for example, monofilaments, yarns, rovings or tows) prior to processing into the non-unidirectional “fibrous or filamentary materials”.”.
- (217) Schedule 1, Dual-use Goods List, Category 1, 1C010(b)—
Repeal the Technical Note.

- (218) Schedule 1, Dual-use Goods List, Category 1, 1C010(d)(1)(b)—
Repeal
“1C008(b) to”
Substitute
“1C008(d), 1C008(e) and”.
- (219) Schedule 1, Chinese text, Dual-use Goods List, Category 1, 1C011(a)—
Repeal
“尺碼”
Substitute
“大小”.
- (220) Schedule 1, Dual-use Goods List, Category 1, 1C101—
Repeal
“and their subsystems”
Substitute
“, ‘missile’ subsystems or “unmanned aerial vehicles” specified in 9A012 or 9A112(a)”.
- (221) Schedule 1, Dual-use Goods List, Category 1, 1C111—
Repeal
“controlled by 1C011”
Substitute
“specified in 1C011”.
- (222) Schedule 1, Dual-use Goods List, Category 1, 1C111(a)(1)—
(a) After “Spherical”—
Add

- “or spheroidal”;
- (b) **Repeal**
“controlled by”
Substitute
“specified in”;
- (c) **Repeal**
“with particles of uniform diameter”
Substitute
“in particle size”;
- (d) **Repeal**
“2591:1988 or national equivalents such as JIS Z8820”
Substitute
“2591/1 (1988) or national equivalents”.
- (223) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C111(a)(2)
Substitute
“(2) Metal powders, other than those specified in the Munitions List, as follows:
(a) Metal powders of zirconium, beryllium or magnesium, or alloys of these metals, if at least 90% of the total particles by particle volume or weight are made up of particles of less than 60 µm (determined by measurement techniques such as using a sieve, laser diffraction or optical scanning), whether spherical, atomized, spheroidal, flaked or ground, consisting 97% by weight or more of any of the following:

- (1) Zirconium;
(2) Beryllium;
(3) Magnesium;
- Technical Note:*
The natural content of hafnium in the zirconium (typically 2% to 7%) is counted with the zirconium.
- (b) Metal powders of either boron or boron alloys with a boron content of 85% or more by weight, if at least 90% of the total particles by particle volume or weight are made up of particles of less than 60 µm (determined by measurement techniques such as using a sieve, laser diffraction or optical scanning), whether spherical, atomized, spheroidal, flaked or ground;
- Note:*
1C111(a)(2)(a) and 1C111(a)(2)(b) control powder mixtures with a multimodal particle distribution (e.g. mixtures of different grain sizes) if one or more modes are controlled.”.
- (224) Schedule 1, Dual-use Goods List, Category 1, 1C111(a)(4)(c), before the semicolon—
Add
“(CAS 5164-11-4)”.
- (225) Schedule 1, Dual-use Goods List, Category 1, 1C111(a)(4)(j), before the semicolon—
Add
“(CAS 13464-98-7)”.

- (226) Schedule 1, Dual-use Goods List, Category 1, 1C111(a)(4)(o), before the semicolon—
Add
“(CAS 29674-96-2)”.
- (227) Schedule 1, Dual-use Goods List, Category 1, 1C111(a)(5)—
Repeal
“unmanned aerial vehicles specified in 9A012” (wherever appearing)
Substitute
““unmanned aerial vehicles” specified in 9A012 or 9A112(a)”.
- (228) Schedule 1, Dual-use Goods List, Category 1, after 1C111(a)(5)—
Add
“(6) Hydrazine replacement fuels as follows:
(a) 2-Dimethylaminoethylazide (DMAZ) (CAS 86147-04-8);”.
- (229) Schedule 1, Dual-use Goods List, Category 1, 1C111(b)(2)—
Repeal
“controlled by”
Substitute
“specified in”.
- (230) Schedule 1, Dual-use Goods List, Category 1, 1C111(b)(5), Technical Note—
Repeal
“and polyethylene glycol (PEG)”
Substitute

- “(CAS 110-63-4) and polyethylene glycol (PEG) (CAS 25322-68-3)”.
- (231) Schedule 1, Dual-use Goods List, Category 1, after 1C111(b)(5)—
Add
“(6) Polyglycidyl nitrate (PGN or poly-GLYN) (CAS 27814-48-8);”.
- (232) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(b), before “Ethyl”—
Add
“See the Munitions List for”.
- (233) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C111(c)(6)(c)
Substitute
“(c) See the Munitions List for Propyl ferrocene;”.
- (234) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(e), before “Pentyl”—
Add
“See the Munitions List for”.
- (235) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C111(c)(6)(f)
Substitute
“(f) See the Munitions List for Dicyclopentyl ferrocene;”.
- (236) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(g), before “Dicyclohexyl”—
Add
“See the Munitions List for”.

- (237) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(h), before “Diethyl”—

Add

“See the Munitions List for”.

- (238) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(i), before “Dipropyl”—

Add

“See the Munitions List for”.

- (239) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C111(c)(6)(j), (k) and (l)

Substitute

“(j) See the Munitions List for Dibutyl ferrocene;

(k) See the Munitions List for Dihexyl ferrocene;

(l) See the Munitions List for Acetyl ferrocene (CAS 1271-55-2)/1,1’-diacetyl ferrocene (CAS 1273-94-5);”.

- (240) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(o)—

Repeal

“controlled by”

Substitute

“specified in”.

- (241) Schedule 1, Dual-use Goods List, Category 1, 1C111, Note—

Repeal

“controlled by”

Substitute

“specified in”.

- (242) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C116

Substitute

“1C116 Maraging steels, useable in ‘missiles’, that meet all of the following descriptions:

N.B.:

See also 1C216.

(a) Having an ultimate tensile strength, measured at 293 K (20°C), equal to or greater than:

(1) 0.9 GPa in the solution annealed stage; *or*

(2) 1.5 GPa in the precipitation hardened stage;

(b) In any of the following forms:

(1) Sheet, plate or tubing with a wall or plate thickness equal to or less than 5.0 mm;

(2) Tubular forms with a wall thickness equal to or less than 50 mm and having an inner diameter equal to or greater than 270 mm;

Technical Notes:

1. Maraging steels are iron alloys that are:

(a) Generally characterized by high nickel, very low carbon content and the use of substitutional elements or precipitates for the strengthening and

- age-hardening of the alloys; *and*
- (b) Subjected to heat treatment cycles to facilitate the martensitic transformation process (solution annealed stage) and subsequently age hardened (precipitation hardened stage).
2. In IC116, 'missile' means complete rocket systems and "unmanned aerial vehicle" systems capable of a range exceeding 300 km."

(243) Schedule 1, Dual-use Goods List, Category 1—

(a) IC210(a)(2)—

Repeal

" 235×10^3 "

Substitute

" 23.5×10^4 ";

(b) IC210(b)(2)—

Repeal

" 76.2×10^3 "

Substitute

" 7.62×10^4 ".

(244) Schedule 1, Dual-use Goods List, Category 1, IC216—

(a) **Repeal**

"controlled by"

Substitute

"specified in";

(b) **Repeal**

"2 050 MPa or more"

Substitute

"1 950 MPa or more,".

(245) Schedule 1, Dual-use Goods List, Category 1, IC216—

Repeal Technical Note 2.

(246) Schedule 1, Dual-use Goods List, Category 1, IC216—

Repeal

Technical Notes:

1. The phase"

Substitute

Technical Note:

The phase".

(247) Schedule 1, English text, Dual-use Goods List, Category 1, IC229(b)—

Repeal

"parts per million"

Substitute

"ppm (parts per million)".

(248) Schedule 1, Dual-use Goods List, Category 1, IC234, after "foregoing"—

Add

", other than those specified in 0A001(f)".

(249) Schedule 1, Dual-use Goods List, Category 1, IC236—

Repeal

everything before ", in the"

Substitute

“1C236 ‘Radionuclides’ appropriate for making neutron sources based on alpha-n reaction, other than those specified in 0C001 and 1C012(a)”.

(250) Schedule 1, Dual-use Goods List, Category 1—

(a) 1C236(b)—

Repeal

“alpha”;

(b) 1C236(c)—

Repeal

“alpha”;

(c) 1C236, Note—

Repeal

“alpha”.

(251) Schedule 1, Dual-use Goods List, Category 1, 1C236, after the Note—

Add

“*Technical Note:*

In 1C236, ‘radionuclides’ are any of the following:

—Actinium-225 (Ac-225)

—Actinium-227 (Ac-227)

—Californium-253 (Cf-253)

—Curium-240 (Cm-240)

—Curium-241 (Cm-241)

—Curium-242 (Cm-242)

—Curium-243 (Cm-243)

—Curium-244 (Cm-244)

—Einsteinium-253 (Es-253)

—Einsteinium-254 (Es-254)

—Gadolinium-148 (Gd-148)

—Plutonium-236 (Pu-236)

—Plutonium-238 (Pu-238)

—Polonium-208 (Po-208)

—Polonium-209 (Po-209)

—Polonium-210 (Po-210)

—Radium-223 (Ra-223)

—Thorium-227 (Th-227)

—Thorium-228 (Th-228)

—Uranium-230 (U-230)

—Uranium-232 (U-232).”.

(252) Schedule 1, English text, Dual-use Goods List, Category 1, 1C240(a)(2)—

Repeal

“micrometres”

Substitute

“µm”.

(253) Schedule 1, Dual-use Goods List, Category 1, after 1C240—

Add

“1C241 Rhenium, and alloys containing 90% by weight or more of rhenium; and alloys of rhenium and tungsten containing 90% by weight or more of any combination of rhenium and tungsten (other

than that specified in 1C226), that meet all of the following descriptions:

- (a) In forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 mm and 300 mm;
- (b) A mass greater than 20 kg;”.

(254) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C350(29)

Substitute

“(29) See the Munitions List for O-Ethyl O-2-di-isopropylaminoethyl methylphosphonite (QL) (57856-11-8);”.

(255) Schedule 1, Dual-use Goods List, Category 1, 1C351—

Repeal

“pathogens, zoonoses”

Substitute

“and animal pathogens”.

(256) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C351(a)(1) to (39)

Substitute

- “(1) African horse sickness virus;
- (2) African swine fever virus;
- (3) Andes virus;
- (4) Avian influenza virus that meets any of the following descriptions:
- (a) Uncharacterized;

(b) Defined in Annex I(2) EC Directive 2005/94/EC (O.J. L. 10, 14.1.2006, p.16) as having high pathogenicity, as follows:

- (1) Type A viruses with an IVPI (intravenous pathogenicity index) in 6-week old chickens of greater than 1.2; *or*
- (2) Type A viruses of the subtypes H5 or H7 with genome sequences codified for multiple basic amino acids at the cleavage site of the haemagglutinin molecule similar to that observed for other HPAI viruses, indicating that the haemagglutinin molecule can be cleaved by a host ubiquitous protease;

- (5) Bluetongue virus;
- (6) Chapare virus;
- (7) Chikungunya virus;
- (8) Choclo virus;
- (9) Congo-Crimean haemorrhagic fever virus;
- (10) Dengue fever virus;
- (11) Dobrava-Belgrade virus;
- (12) Eastern equine encephalitis virus;
- (13) Ebola virus;
- (14) Foot and mouth disease virus;
- (15) Goat pox virus;
- (16) Guanarito virus;
- (17) Hantaan virus;
- (18) Hendra virus (Equine morbillivirus);
- (19) Herpes virus (Aujeszky’s disease);

- (20) Hog cholera virus (swine fever virus);
- (21) Japanese encephalitis virus;
- (22) Junin virus;
- (23) Kyasanur Forest virus;
- (24) Laguna Negra virus;
- (25) Lassa fever virus;
- (26) Louping ill virus;
- (27) Lujo virus;
- (28) Lumpy skin disease virus;
- (29) Lymphocytic choriomeningitis virus;
- (30) Machupo virus;
- (31) Marburg virus;
- (32) Monkey pox virus;
- (33) Murray Valley encephalitis virus;
- (34) Newcastle disease virus;
- (35) Nipah virus;
- (36) Omsk haemorrhagic fever virus;
- (37) Oropouche virus;
- (38) Peste des petits ruminants virus;
- (39) Porcine enterovirus type 9 (swine vesicular disease virus);
- (40) Powassan virus;
- (41) Rabies virus and all other members of the Lyssavirus genus;
- (42) Rift Valley fever virus;
- (43) Rinderpest virus;

- (44) Rocio virus;
- (45) Sabia virus;
- (46) Seoul virus;
- (47) Sheep pox virus;
- (48) Sin nombre virus;
- (49) St Louis encephalitis virus;
- (50) Teschen disease virus;
- (51) Tick-borne encephalitis virus (Russian Spring-Summer encephalitis virus);
- (52) Variola virus;
- (53) Venezuelan equine encephalitis virus;
- (54) Vesicular stomatitis virus;
- (55) Western equine encephalitis virus;
- (56) Yellow fever virus;”.
- (257) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C351(b).
- (258) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C351(c)(5) to (15)
Substitute
“(5) Burkholderia mallei (Pseudomonas mallei);
(6) Burkholderia pseudomallei (Pseudomonas pseudomallei);
(7) Chlamydophila psittaci (formally known as chlamydia psittaci);

- (8) *Clostridium argentinense* (formerly known as *clostridium botulinum* Type G), botulinum neurotoxin producing strains;
- (9) *Clostridium baratii*, botulinum neurotoxin producing strains;
- (10) *Clostridium botulinum*;
- (11) *Clostridium butyricum*, botulinum neurotoxin producing strains;
- (12) *Clostridium perfringens*, epsilon toxin producing types;
- (13) *Coxiella burnetii*;
- (14) *Francisella tularensis*;
- (15) *Mycoplasma capricolum* subspecies *capripneumoniae* (strain F38);
- (16) *Mycoplasma mycoides* subspecies *mycoides* SC (small colony);
- (17) *Rickettsia prowasecki*;
- (18) *Salmonella typhi*;
- (19) Shiga toxin producing *Escherichia coli* (STEC) of serogroups O26, O45, O103, O104, O111, O121, O145 and O157, and other shiga toxin producing serogroups;
Technical Note:
Shiga toxin producing *Escherichia coli* (STEC) is also known as enterohaemorrhagic *E. coli* (EHEC) or verocytotoxin producing *E. coli* (VTEC).
- (20) *Shigella dysenteriae*;
- (21) *Vibrio cholerae*;
- (22) *Yersinia pestis*;

(259) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C351(d)(1) to (19)

Substitute

- (1) Botulinum toxins;
- (2) *Clostridium perfringens* alpha, beta 1, beta 2, epsilon and iota toxins;
- (3) Conotoxin;
- (4) Ricin;
- (5) Saxitoxin;
- (6) Shiga toxin;
- (7) *Staphylococcus aureus* enterotoxins, hemolysin alpha toxin, and toxic shock syndrome toxin (formerly known as *staphylococcus enterotoxin F*);
- (8) Tetrodotoxin;
- (9) Verotoxin and shiga-like ribosome inactivating proteins;
- (10) Microcystin (Cyanginosin);
- (11) Aflatoxins;
- (12) Abrin;
- (13) Cholera toxin;
- (14) Diacetoxyscirpenol toxin;
- (15) T-2 toxin;
- (16) HT-2 toxin;
- (17) Modeccin;
- (18) Volkensin;
- (19) *Viscum Album* Lectin 1 (Viscumin);

Note:

1C351(d) does not control botulinum toxins or conotoxins in product form meeting all of the following criteria:

- (a) Are pharmaceutical formulations designed for human administration in the treatment of medical conditions;
- (b) Are pre-packaged for distribution as medical products;
- (c) Are authorized by a state authority to be marketed as medical products.”.

(260) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C352.

(261) Schedule 1, Dual-use Goods List, Category 1, 1C353(a)—

Repeal

“the pathogenicity of organisms specified in 1C351(a), 1C351(b), 1C351(c), 1C351(e), 1C352”

Substitute

“pathogenicity of organisms specified in 1C351(a), 1C351(c), 1C351(e)”.

(262) Schedule 1, Dual-use Goods List, Category 1, 1C353—

Renumber Technical Notes 1 and 2 as Technical Notes 2 and 3 respectively.

(263) Schedule 1, Dual-use Goods List, Category 1, 1C353, before Technical Note 2—

Add

“1. Genetically modified organisms include organisms in which the genetic material (nucleic acid sequences) has been altered in a way that does not occur naturally by mating or natural recombination, or both, and encompass those produced artificially in whole or in part.”.

(264) Schedule 1, Dual-use Goods List, Category 1, 1C353, Technical Note 2—

Repeal

“unmodified”

Substitute

“unmodified, or chemically synthesized in whole or in part”.

(265) Schedule 1, Dual-use Goods List, Category 1, 1C353, Technical Note 3—

Repeal

“1C351(b), 1C351(c), 1C351(e), 1C352”

Substitute

“1C351(c), 1C351(e)”.

(266) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C354(a)(1)

Substitute

“(1) Andean potato latent virus (Potato Andean latent tymovirus);”.

(267) Schedule 1, Dual-use Goods List, Category 1—

Repeal 1C354(b)(1) to (5)

Substitute

- “(1) Xanthomonas albilineans;
- (2) Xanthomonas axonopodis pv. citri (Xanthomonas campestris pv. citri A) [Xanthomonas campestris pv. citri];
- (3) Xanthomonas oryzae pv. oryzae (Pseudomonas campestris pv. oryzae);

- (4) *Clavibacter michiganensis* subsp. *sepedonicus* (*Corynebacterium michiganensis* subsp. *sepedonicum* or *Corynebacterium sepedonicum*);
- (5) *Ralstonia solanacearum*, Race 3, Biovar 2;”.
- (268) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C354(c)(1) to (6)
Substitute
“(1) *Colletotrichum kahawae* (*Colletotrichum coffeanum* var. *virulans*);
(2) *Cochliobolus miyabeanus* (*Helminthosporium oryzae*);
(3) *Microcyclus ulei* (syn. *Dothidella ulei*);
(4) *Puccinia graminis* ssp. *graminis* var. *graminis*/*Puccinia graminis* ssp. *graminis* var. *stakmanii* (*Puccinia graminis* [syn. *Puccinia graminis* f. sp. *tritici*]);
(5) *Puccinia striiformis* (syn. *Puccinia glumarum*);
(6) *Magnaporthe oryzae* (*Pyricularia oryzae*);
(7) *Peronosclerospora philippinensis* (*Peronosclerospora sacchari*);
(8) *Sclerophthora rayssiae* var. *zeae*;
(9) *Synchytrium endobioticum*;
(10) *Tilletia indica*;
(11) *Thecaphora solani*;”.
- (269) Schedule 1, Dual-use Goods List, Category 1, 1D101—
Repeal
““use” of goods controlled by 1B101, 1B102, 1B115 or 1B117 to”
Substitute

- “operation or maintenance of goods specified in 1B101, 1B102, 1B115, 1B117, 1B118 or”.
- (270) Schedule 1, Dual-use Goods List, Category 1, 1E002(c)—
Repeal
“base materials or”
Substitute
“ceramic powders or”.
- (271) Schedule 1, Dual-use Goods List, Category 1, 1E002(c)(1)—
Repeal
“Base materials”
Substitute
“Ceramic powders”.
- (272) Schedule 1, Dual-use Goods List, Category 1, 1E002(c)(1)(a)(3)—
Repeal
“or”.
- (273) Schedule 1, Dual-use Goods List, Category 1, 1E002(c)(1)(c)(2)—
(a) **Repeal**
“base materials”
Substitute
“ceramic powders”;
- (b) **Repeal**
“or”.
- (274) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1E002(c)(1)(c)(3).

- (275) Schedule 1, Dual-use Goods List, Category 1, 1E002(c)(2),
Note—
Repeal
“technology”
Substitute
““technology””.
- (276) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1E002(d).
- (277) Schedule 1, Dual-use Goods List, Category 1, 1E002(g)—
Repeal
“‘Libraries’ (parametric technical databases)”
Substitute
““Libraries””.
- (278) Schedule 1, Dual-use Goods List, Category 1, 1E002(g)—
Repeal the Technical Note.
- (279) Schedule 1, Dual-use Goods List, Category 1, 1E201—
(a) **Repeal**
“1B233”
Substitute
“1B234”;
(b) **Repeal**
“1C240”
Substitute
“1C241”.
- (280) Schedule 1, Dual-use Goods List, Category 2, 2A001—
Repeal

- “components therefor.”
Substitute
“components for such bearings and systems:
N.B.:
See also 2A101.”.
- (281) Schedule 1, Dual-use Goods List, Category 2, 2A101(b)—
Repeal
“bore”
Substitute
“outside”.
- (282) Schedule 1, Dual-use Goods List, Category 2, 2A225(a)(2)—
Repeal
“having a purity of 98% or greater”
Substitute
“or a combination of the following materials, having an overall impurity level of 2% or less”.
- (283) Schedule 1, Dual-use Goods List, Category 2, 2B, Technical Note 3—
Repeal
everything after “ISO”
Substitute
“841 (2001), Industrial automation systems and integration— Numerical Control—of machines coordinate system and Motion Nomenclature.”.
- (284) Schedule 1, Dual-use Goods List, Category 2, 2B—
Repeal Technical Note 5

Substitute

“5. ‘Stated’ “unidirectional positioning repeatability” may be used for each machine tool model as an alternative to individual machine tests and is determined as follows:

- (a) Select 5 machines of a model to be evaluated;
- (b) Measure the linear axis repeatability (R_{\uparrow} , R_{\downarrow}) according to ISO 230/2 (2014) and evaluate the “unidirectional positioning repeatability” for each axis of each machine;
- (c) Determine the arithmetic mean value of the “unidirectional positioning repeatability”-values for each axis of all the 5 machines together. These arithmetic mean values of “unidirectional positioning repeatability” (\overline{UPR}) become the stated value of each axis for the model (\overline{UPR}_x , \overline{UPR}_y , ...);
- (d) Since the Category 2 list refers to each linear axis, there will be as many ‘stated’ “unidirectional positioning repeatability” values as there are linear axes;
- (e) If any axis of a machine model not controlled by 2B001(a), 2B001(b) and 2B001(c) has a ‘stated’ “unidirectional positioning repeatability” equal to or less than the specified “unidirectional positioning repeatability” of each machine tool model plus 0.7 μm , the builder is to be required to reaffirm the accuracy level once every 18 months.”.

(285) Schedule 1, Dual-use Goods List, Category 2, 2B, Technical Note 6—

Repeal

everything after “purposes of” and before “or”

Substitute

“2B001(a), 2B001(b) and 2B001(c), measurement uncertainty for the “unidirectional positioning repeatability” of machine tools, as defined in ISO 230/2 (2014)”.

(286) Schedule 1, Dual-use Goods List, Category 2, 2B, after Technical Note 6—

Add

“7. For the purposes of 2B001(a), 2B001(b) and 2B001(c), the measurement of axes is to be made according to the test procedures in paragraph 5.3.2 of ISO 230/2 (2014). Tests for axes longer than 2 m are to be made over 2 m segments. Axes longer than 4 m require multiple tests (for example, 2 tests for axes longer than 4 m and up to 8 m, 3 tests for axes longer than 8 m and up to 12 m), each over 2 m segments that are distributed in equal intervals over the axis length. Tests segments are equally spaced along the full axis length, with any excess length equally divided at the beginning, in between, and at the end of the test segments. The smallest “unidirectional positioning repeatability”-value of all test segments is to be reported.”.

(287) Schedule 1, Dual-use Goods List, Category 2, 2B001—

Repeal everything before the Notes

Substitute

“2B001 Machine tools and any combination of machine tools, for removing or cutting metals, ceramics or “composites”, which, according to the manufacturer’s technical specification, can be equipped with electronic devices for “numerical

control”, as follows:”.

- (288) Schedule 1, Dual-use Goods List, Category 2, 2B001, Note 2(d)—

Repeal

“parts.”

Substitute

“parts;”.

- (289) Schedule 1, Dual-use Goods List, Category 2, 2B001, after Note 2(d)—

Add

“(e) Dental prostheses.”.

- (290) Schedule 1, Dual-use Goods List, Category 2, 2B001(a)(1)—

Repeal

everything before “along”

Substitute

“(1) “Unidirectional positioning repeatability” equal to or less (better) than 1.1 µm”.

- (291) Schedule 1, Dual-use Goods List, Category 2, 2B001(b)(1)(a)—

Repeal

everything before “along”

Substitute

“(a) “Unidirectional positioning repeatability” equal to or less (better) than 1.1 µm”.

- (292) Schedule 1, Dual-use Goods List, Category 2, 2B001(b)(2)—

Repeal

““contouring control”,”

Substitute

““contouring control” and that meet any of the following descriptions:

N.B.:

‘Parallel mechanism machine tools’ are specified in 2B001(b)(2)(d).

- (a) “Unidirectional positioning repeatability” equal to or less (better) than 1.1 µm along one or more linear axes with a travel length less than 1 m;
- (b) “Unidirectional positioning repeatability” equal to or less (better) than 1.4 µm along one or more linear axes with a travel length equal to or greater than 1 m and less than 4 m;
- (c) “Unidirectional positioning repeatability” equal to or less (better) than 6.0 µm along one or more linear axes with a travel length equal to or greater than 4 m;
- (d) Being a ‘parallel mechanism machine tool’;

Technical Note:

A ‘parallel mechanism machine tool’ is a machine tool having multiple rods that are linked with a platform and actuators; each of the actuators operates the respective rod simultaneously and independently.”.

- (293) Schedule 1, Dual-use Goods List, Category 2—

Repeal 2B001(b)(3)

Substitute

“(3) A “unidirectional positioning repeatability” for jig boring machines, equal to or less (better) than 1.1 µm along one or more linear axes;”.

- (294) Schedule 1, Dual-use Goods List, Category 2—
Repeal 2B001(c)(1)(a)
Substitute
“(a) “Unidirectional positioning repeatability” equal to or less (better) than 1.1 μm along one or more linear axes;”.
- (295) Schedule 1, Dual-use Goods List, Category 2, 2B001(c)(2)—
Repeal
““contouring control”;”
Substitute
““contouring control” and that meet any of the following descriptions:
(a) “Unidirectional positioning repeatability” equal to or less (better) than 1.1 μm along one or more linear axes with a travel length less than 1 m;
(b) “Unidirectional positioning repeatability” equal to or less (better) than 1.4 μm along one or more linear axes with a travel length equal to or greater than 1 m and less than 4 m;
(c) “Unidirectional positioning repeatability” equal to or less (better) than 6.0 μm along one or more linear axes with a travel length equal to or greater than 4 m;”.
- (296) Schedule 1, Dual-use Goods List, Category 2, 2B001(c), Note 2—
Repeal
everything after “with a”
Substitute
““unidirectional positioning repeatability” less (better) than 1.1 μm .”.

- (297) Schedule 1, Dual-use Goods List, Category 2, 2B001(c)(2)(b)—
Repeal
“Have a positioning accuracy”
Substitute
“A positioning “accuracy””.
- (298) Schedule 1, Dual-use Goods List, Category 2, 2B001(f)—
Repeal
“5 000 mm and specially designed components therefor”
Substitute
“5 m”.
- (299) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(1)—
Repeal
“Linear displacement”
Substitute
““Linear displacement””.
- (300) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(1), before the Technical Note—
Add
“*Note:*
Displacement measuring “laser” interferometers are only controlled in 2B006(b)(1)(c).”.
- (301) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(1)(b)—
Repeal everything before 2B006(b)(1)(b)(2)
Substitute

“(b) Linear Variable Differential Transformer (LVDT) systems that meet all of the following descriptions:

(1) Having any of the following:

- (a) “Linearity” equal to or less (better) than 0.1% measured from 0 to the ‘full operating range’, for LVDTs with a ‘full operating range’ up to and including ± 5 mm;
- (b) “Linearity” equal to or less (better) than 0.1% measured from 0 to 5 mm, for LVDTs with a ‘full operating range’ greater than ± 5 mm;”.

(302) Schedule 1, Dual-use Goods List, Category 2, after 2B006(b)(1)(b)(2)---

Add

Technical Note:

For the purposes of 2B006(b)(1)(b), ‘full operating range’ is half of the total possible linear displacement of the LVDT. For example, LVDTs with a ‘full operating range’ up to and including ± 5 mm can measure a total possible linear displacement of 10 mm.”.

(303) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(1)(c)(2), after “at a temperature of $20 \pm 1^\circ\text{C}$ ”---

Add

“, all of the following”.

(304) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(1)(c)(2)(a)---

Repeal

“and”.

(305) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(1)(c)(2)(b)---

Repeal

everything after ““measurement uncertainty””

Substitute

“equal to or less (better) than $(0.2 + L/2\,000)$ μm (L is the measured length in mm) at any point within a measuring range, when compensated for the refractive index of air;”.

(306) Schedule 1, English text, Dual-use Goods List, Category 2, 2B006(b)(1)(d)---

Repeal

“specified by”

Substitute

“specified in”.

(307) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(1), Note---

Repeal

“include”

Substitute

“control”.

(308) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(2)---

Repeal

““angular position deviation””

Substitute

“angular position “accuracy””.

(309) Schedule 1, Dual-use Goods List, Category 2, 2B006(b)(2), Note---

Repeal

“apply to”

Substitute

“control”.

(310) Schedule 1, Dual-use Goods List, Category 2, 2B006(c)---

Repeal

“irregularities, by measuring optical scatter as a function of angle”

Substitute

“roughness (including surface defects), by measuring optical scatter”.

(311) Schedule 1, Dual-use Goods List, Category 2, 2B201---

Repeal

“Machine tools, other than those controlled by 2B001, as follows, and any combination of those machine tools”

Substitute

“Machine tools and any combination of machine tools, other than those controlled by 2B001, as follows.”.

(312) Schedule 1, Dual-use Goods List, Category 2, before 2B201(a)---

Add

“Technical Note:

Stated ‘positioning accuracy’ levels derived under the following procedures from measurements made according to ISO 230/2 (1988) or national equivalents (if provided to and accepted by national authorities), instead of those derived from individual machine tests, may be used for each machine tool model. Manufacturers calculating ‘positioning accuracy’ in accordance with ISO 230/2 (1997) or (2006) are to consult

the competent authorities of the Member State in which they are established. Stated ‘positioning accuracy’ is determined as follows:

- (a) Select 5 machines of a model to be evaluated;
- (b) Measure the linear axis accuracies according to ISO 230/2 (1988);
- (c) Determine the accuracy value (A) for each axis of each machine. The method of calculating the accuracy value is described in ISO 230/2 (1988) standard;
- (d) Determine the average accuracy value for each axis. This average value becomes the stated ‘positioning accuracy’ of each axis for the model ($\hat{A}_x, \hat{A}_y, \dots$);
- (e) Since 2B201 refers to each linear axis, there will be as many stated ‘positioning accuracy’ values as there are linear axes;
- (f) If any axis of a machine tool not controlled by 2B201(a), 2B201(b) or 2B201(c) has the following stated ‘positioning accuracy’ according to ISO 230/2 (1988), then the builder is to be required to reaffirm the accuracy level once every 18 months---
 - (1) for grinding machines---equal to or less (better) than 6 μm ; *or*
 - (2) for milling and turning machines---equal to or less (better) than 8 μm .”.

(313) Schedule 1, Dual-use Goods List, Category 2, 2B201---

Repeal

“Positioning accuracies” (wherever appearing)

Substitute

““Positioning accuracies””.

- (314) Schedule 1, English text, Dual-use Goods List, Category 2, 2B201(a)(3)—

Repeal the comma.

- (315) Schedule 1, English text, Dual-use Goods List, Category 2, 2B201(a), Note (a)—

Repeal

“2m”

Substitute

“2 m”.

- (316) Schedule 1, Dual-use Goods List, Category 2, 2B201(a), Note (b)—

Repeal

“positioning accuracy”

Substitute

““positioning accuracy””.

- (317) Schedule 1, Dual-use Goods List, Category 2, 2B201(b), Note—

Repeal

“include grinding machines as follows”

Substitute

“control the following grinding machines”.

- (318) Schedule 1, Dual-use Goods List, Category 2, 2B201(b), Note 2.—

Repeal

“positioning accuracy less (better) than 4 microns. Positioning accuracy is according to ISO 230/2 (1988)”

Substitute

““positioning accuracy” less (better) than 4 µm according to ISO 230/2 (1988) or national equivalents”.

- (319) Schedule 1, Dual-use Goods List, Category 2, after 2B201(b)—

Add

“(c) Machine tools for turning, having ‘positioning accuracies’ with “all compensations available” better (less) than 6 µm according to ISO 230/2 (1988) along any linear axis (overall positioning) for machines capable of machining parts with diameters greater than 35 mm;

Note:

2B201(c) does not control bar machines (Swissturn) having the following characteristics:

- (a) Only for machining bar feed thru;
- (b) The maximum bar diameter is equal to or less than 42 mm; *and*
- (c) No capability of mounting chucks, though such machines described above may have drilling or milling capabilities, or both, for machining parts with diameters less than 42 mm.”.

- (320) Schedule 1, Dual-use Goods List, Category 2, 2B201—

Repeal Note 1

Substitute

“1. 2B201 does not control special purpose machine tools limited to the manufacture of any of the following parts:

- (a) Gears;
- (b) Crankshafts or camshafts;

- (c) Tools or cutters;
(d) Extruder worms.”
- (321) Schedule 1, Dual-use Goods List, Category 2, 2B201—
Repeal Note 2.
- (322) Schedule 1, Dual-use Goods List, Category 2, 2B201,
Notes—
Renumber Note 3 as Note 2.
- (323) Schedule 1, Dual-use Goods List, Category 2, 2B201, Note
2—
Repeal
“2B001(a) or 2B201(a) or (b)”
Substitute
“2B201(a), 2B201(b) or 2B201(c)”.
- (324) Schedule 1, Dual-use Goods List, Category 2, 2B206(a)—
Repeal
everything after “(CMM)”
Substitute
“meeting either of the following descriptions:
(1) Having only 2 axes and having a maximum permissible
error of length measurement along any axis (1-
dimensional), identified as any combination of $E_{0x,MPE}$,
 $E_{0y,MPE}$, or $E_{0z,MPE}$, equal to or less (better) than $(1.25 +$
 $L/1000) \mu\text{m}$ (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);
(2) Having 3 or more axes and having a 3-dimensional
(volumetric) maximum permissible error of length

measurement ($E_{0,MPE}$) equal to or less (better) than $(1.7 +$
 $L/800) \mu\text{m}$ (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, environments) and with “all
compensations available” is to be compared to the $1.7 +$
 $L/800 \mu\text{m}$ threshold.”.

- (325) Schedule 1, Dual-use Goods List, Category 2, 2B227(b)—
Repeal
“plasma atomization”
Substitute
““plasma atomization””.
- (326) Schedule 1, Dual-use Goods List, Category 2, 2B230—
Repeal everything before 2B230(a)
Substitute
“2B230 All types of ‘pressure transducers’ capable of
measuring absolute pressures that meet all of the
following descriptions:”.
- (327) Schedule 1, Dual-use Goods List, Category 2, 2B230(a)—
Repeal
“aluminium alloy, nickel or nickel alloy with more than 60%
nickel by weight; and”
Substitute

“aluminium alloy, aluminium oxide (alumina or sapphire), nickel or nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers;”

(328) Schedule 1, Dual-use Goods List, Category 2, 2B230—

Repeal everything after 2B230(a)

Substitute

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

(c) Having either of the following characteristics:

- (1) A full scale of less than 13 kPa and an ‘accuracy’ of better than $\pm 1\%$ of full-scale;
- (2) A full scale of 13 kPa or greater and an ‘accuracy’ of better than ± 130 Pa when measured at 13 kPa;

Technical Notes:

1. In 2B230, ‘pressure transducer’ means a device that converts a pressure measurement into a signal.
2. For the purposes of 2B230, ‘accuracy’ includes non-linearity, hysteresis and repeatability at ambient temperature.”

(329) Schedule 1, Dual-use Goods List, Category 2—

Repeal 2B232

Substitute

“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;

N.B.:

See also the Munitions List.”

(330) Schedule 1, Dual-use Goods List, Category 2, after 2B232—

Add

“2B233 Bellows-sealed scroll-type compressors and bellows-sealed scroll-type vacuum pumps that meet all of the following descriptions:

N.B.:

See also 2B350(i).

- (a) Capable of an inlet volume flow rate of 50 m³/h or greater;
- (b) Capable of a pressure ratio of 2:1 or greater;
- (c) Having all surfaces that come in contact with the process gas made from any of the following materials:
 - (1) Aluminium or aluminium alloy;
 - (2) Aluminium oxide;
 - (3) Stainless steel;
 - (4) Nickel or nickel alloy;
 - (5) Phosphor bronze;
 - (6) Fluoropolymers;”

(331) Schedule 1, Dual-use Goods List, Category 2, 2B350(a)(2), after “Fluoropolymers”—

Add

“(polymeric or elastomeric materials with more than 35% fluorine by weight)”.

(332) Schedule 1, Dual-use Goods List, Category 2, 2B350(b)—

(a) **Repeal**

“Agitators”

Substitute

“Agitators designed”;

(b) **Repeal**

“controlled by”

Substitute

“specified in”.

(333) Schedule 1, Dual-use Goods List, Category 2, 2B350(b)(2),
(c)(2), (d)(2) and (e)(2), after “Fluoropolymers”—

Add

“(polymeric or elastomeric materials with more than 35%
fluorine by weight)”.

(334) Schedule 1, Dual-use Goods List, Category 2—

Repeal 2B350(g)

Substitute

“(g) Valves and components, as follows:

(1) Valves that meet all of the following descriptions:

(a) A ‘nominal size’ greater than 10 mm (3/8”);

(b) All surfaces that come in direct contact with
the chemical(s) being produced, processed, or
contained are made from ‘corrosion resistant
materials’;

(2) Valves, other than those specified in 2B350(g)(1),
that meet all of the following descriptions:

(a) A ‘nominal size’ equal to or greater than
25.4 mm (1”) and equal to or less than
101.6 mm (4”);

(b) Casings (valve bodies) or preformed casing
liners;

(c) A closure element designed to be
interchangeable;

(d) All surfaces of the casing (valve body) or
preformed casing liner that come in direct
contact with the chemical(s) being produced,
processed, or contained are made from
‘corrosion resistant materials’;

(3) Components, designed for valves specified in
2B350(g)(1) or 2B350(g)(2), in which all surfaces
that come in direct contact with the chemical(s)
being produced, processed, or contained are made
from ‘corrosion resistant materials’, as follows:

(a) Casings (valve bodies);

(b) Preformed casing liners;

Technical Notes:

1. For the purposes of 2B350(g), ‘corrosion resistant
materials’ mean any of the following materials:

(a) Nickel or ‘alloys’ with more than 40% nickel
by weight;

(b) ‘Alloys’ with more than 25% nickel and 20%
chromium by weight;

(c) Fluoropolymers (polymeric or elastomeric
materials with more than 35% fluorine by
weight);

- (d) Glass or glass-lined (including vitrified or enamelled coating);
 - (e) Tantalum or tantalum ‘alloys’;
 - (f) Titanium or titanium ‘alloys’;
 - (g) Zirconium or zirconium ‘alloys’;
 - (h) Niobium (columbium) or niobium ‘alloys’;
 - (i) Ceramic materials as follows:
 - (1) Silicon carbide with a purity of 80% or more by weight;
 - (2) Aluminium oxide (alumina) with a purity of 99.9% or more by weight;
 - (3) Zirconium oxide (zirconia).
2. ‘Nominal size’ is defined as the smaller of the inlet and outlet diameters.”.
- (335) Schedule 1, Dual-use Goods List, Category 2, 2B350(h)(2), after “Fluoropolymers”—
- Add**
- “(polymeric or elastomeric materials with more than 35% fluorine by weight)”.
- (336) Schedule 1, Dual-use Goods List, Category 2, 2B350(i)—
- (a) English text, after “seal-less pumps”—
- Add a comma;**
- (b) After “conditions”—
- Add**
- “, other than those specified in 2B233”.
- (337) Schedule 1, Dual-use Goods List, Category 2, 2B350(i)(3), after “Ferrosilicon”—

- Add**
- “(high silicon iron ‘alloys’)”.
- (338) Schedule 1, Dual-use Goods List, Category 2, 2B350(i)(4), after “Fluoropolymers”—
- Add**
- “(polymeric or elastomeric materials with more than 35% fluorine by weight)”.
- (339) Schedule 1, Dual-use Goods List, Category 2, after 2B350(i)(11)—
- Add**
- “Technical Note:*
- In 2B350(i), the term seal refers to only those seals that come into direct contact with the chemical(s) being processed (or is designed to), and provide a sealing function where a rotary or reciprocating drive shaft passes through a pump body.”.
- (340) Schedule 1, Dual-use Goods List, Category 2, 2B350, after 2B350(j)—
- Add**
- “Note:*
- For the purposes of 2B350, the materials used for gaskets, packing, seals, screws, washers or other materials performing a sealing function do not determine the status of control, provided that such components are designed to be interchangeable.”.
- (341) Schedule 1, Dual-use Goods List, Category 2—
- Repeal 2B352(b)**
- Substitute**
- “(b) Fermenters and components as follows:

- (1) 'Fermenters' capable of cultivation of pathogenic "microorganisms" or of live cells for the production of pathogenic viruses or toxins, without the propagation of aerosols, and having a total capacity of 20 litres or more;
- (2) Components designed for 'fermenters' in 2B352(b)(1) as follows:
 - (a) Cultivation chambers designed to be sterilized or disinfected in situ;
 - (b) Cultivation chamber holding devices;
 - (c) Process control units capable of simultaneously monitoring and controlling 2 or more fermentation system parameters (e.g. temperature, pH, nutrients, agitation, dissolved oxygen, air flow, foam control);

Technical Note:

For the purposes of 2B352(b), 'fermenters' include bioreactors, single-use (disposable) bioreactors, chemostats and continuous-flow systems."

- (342) Schedule 1, Dual-use Goods List, Category 2, 2B352(d)(1)—
Repeal
"without the propagation of aerosols, and having both of the following characteristics"
Substitute
"that meets all of the following descriptions".
- (343) Schedule 1, Dual-use Goods List, Category 2, 2B352(d)(1)(a)—
Repeal
"and".

- (344) Schedule 1, Dual-use Goods List, Category 2, 2B352(d)(1)(b)—
Repeal everything before the Technical Note
Substitute
"(b) Meeting any of the following descriptions:
 - (1) Capable of being 'sterilized' or 'disinfected' in situ;
 - (2) Using disposable or single-use filtration components;"
- (345) Schedule 1, English text, Dual-use Goods List, Category 2, 2B352(d)(1)(b), Technical Note—
 - (a) **Repeal**
"sterilised"
Substitute
"sterilized";
 - (b) **Repeal**
"sterilisation"
Substitute
"sterilization".
- (346) Schedule 1, Dual-use Goods List, Category 2, after 2B352(g)—
Add
"(h) Spray-drying equipment capable of drying "toxins" or pathogenic "microorganisms", that meets all of the following descriptions:
 - (1) Having a water evaporation capacity of ≥ 0.4 kg/h and ≤ 400 kg/h;

- (2) Having the ability to generate a typical mean product particle size of $\leq 10 \mu\text{m}$ with existing fittings or by minimal modification of the spray-dryer with atomization nozzles enabling generation of the required particle size;
- (3) Capable of being 'sterilized' or 'disinfected' in situ;"

(347) Schedule 1, Dual-use Goods List, Category 2—

Repeal 2D001

Substitute

"2D001 "Software", other than that specified in 2D002, as follows:

- (a) "Software" specially designed or modified for the "development" or "production" of equipment specified in 2A001 or 2B001;
- (b) "Software" specially designed or modified for the "use" of equipment specified in 2A001(c), 2B001 or 2B003 to 2B009;

Note:

2D001 does not control part programming "software" that generates "numerical control" codes for machining various parts."

(348) Schedule 1, Dual-use Goods List, Category 2, 2D002, Note 1—

Repeal

"machine tools not controlled by"

Substitute

"items not specified in".

(349) Schedule 1, Dual-use Goods List, Category 2, 2D002, Note 2—

Repeal

"controlled by 2B002. See 2D001 for control of "software" for items controlled by"

Substitute

"specified in 2B002. See 2D001 and 2D003 for "software" for items specified in".

(350) Schedule 1, Dual-use Goods List, Category 2, 2D002, after Note 2—

Add

"3. 2D002 does not control "software" that is exported with, and the minimum necessary for the operation of, items not specified in Category 2."

(351) Schedule 1, Dual-use Goods List, Category 2, after 2D002—

Add

"2D003 "Software", designed or modified for the operation of equipment specified in 2B002, that converts optical designs, workpiece measurements and material removal functions into "numerical control" commands to achieve the desired workpiece form;"

(352) Schedule 1, Dual-use Goods List, Category 2, 2D202—

Repeal

everything after "equipment"

Substitute

"specified in 2B201;

Note:

- 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.”
- (353) Schedule 1, English text, Dual-use Goods List, Category 2, 2E001, Note—
- Repeal**
“measuring”
- Substitute**
“measurement”.
- (354) Schedule 1, Dual-use Goods List, Category 2, 2E201—
- (a) **Repeal**
“controlled by”
- Substitute**
“specified in”;
- (b) **Repeal**
“2B219, 2B225 to 2B228, 2B230 to 2B232”
- Substitute**
“2B225 to 2B228, 2B230 to 2B233”.
- (355) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(5)(b)(1)—
- Repeal**
“3 500 MSPS or greater”
- Substitute**
“greater than 3 500 MSPS”.
- (356) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(5)(b)(2)—

- Repeal**
“equal to or”.
- (357) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7)—
- Repeal**
““Field programmable logic devices’ having”
- Substitute**
“Field programmable logic devices having”.
- (358) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7)(a)—
- Repeal**
“input/outputs of 500 or greater”
- Substitute**
“input or outputs that is greater than 700”.
- (359) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7)(b)—
- Repeal**
“200 Gb/s”
- Substitute**
“500 Gb/s”.
- (360) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7)—
- Repeal Technical Note 1.**
- (361) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7), Technical Note 2—
- (a) **Repeal**
“input/output” (wherever appearing)
- Substitute**

- “input or outputs”;
- (b) English text—
Repeal
“the maximum”
Substitute
“maximum”.
- (362) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7)—
Renumber Technical Notes 2 and 3 as Technical Notes 1 and 2 respectively.
- (363) Schedule 1, Dual-use Goods List, Category 3—
Repeal 3A001(b)(7)
Substitute
“(7) Converters and harmonic mixers, that meet any of the following descriptions:
- (a) Designed to extend the frequency range of “signal analysers” beyond 90 GHz;
- (b) Designed to extend the operating range of signal generators:
- (1) Beyond 90 GHz;
- (2) To an output power greater than 100 mW (20 dBm) anywhere within the frequency range exceeding 43.5 GHz but not exceeding 90 GHz;
- (c) Designed to extend the operating range of network analysers:
- (1) Beyond 110 GHz;

- (2) To an output power greater than 31.62 mW (15 dBm) anywhere within the frequency range exceeding 43.5 GHz but not exceeding 90 GHz;
- (3) To an output power greater than 1 mW (0 dBm) anywhere within the frequency range exceeding 90 GHz but not exceeding 110 GHz;
- (d) Designed to extend the frequency range of microwave test receivers beyond 110 GHz;”.
- (364) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(10)—
Repeal everything before the Technical Note
Substitute
“(10) Oscillators or oscillator assemblies, specified to operate with a single sideband (SSB) phase noise, in dBc/Hz, less (better) than $-(126 + 20 \log_{10} F - 20 \log_{10} f)$ anywhere within the range of $10 \text{ Hz} \leq F \leq 10 \text{ kHz}$;”.
- (365) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(11)(f) and (g)—
Repeal
“75 GHz”
Substitute
“90 GHz”.
- (366) Schedule 1, Chinese text, Dual-use Goods List, Category 3, 3A002(a)(5)—
Repeal
“兩項”

Substitute

“所有”.

- (367) Schedule 1, Dual-use Goods List, Category 3, 3A002(a)(5)(a)---

Repeal

“and”.

- (368) Schedule 1, Dual-use Goods List, Category 3, after 3A002(a)(5)(b)---

Add

“(c) Triggered acquisition of transients or aperiodic signals;”.

- (369) Schedule 1, Dual-use Goods List, Category 3, 3A002(a)(5), after Technical Note 2---

Add

“3. For the purposes of 3A002(a)(5)(c), acquisition can be triggered internally or externally.”.

- (370) Schedule 1, Dual-use Goods List, Category 3, 3A002(c)---

Repeal

“Radio frequency “signal”

Substitute

““Signal”.

- (371) Schedule 1, Dual-use Goods List, Category 3, 3A002(c)(1)---

Repeal

“37.5 GHz”

Substitute

“37 GHz”.

- (372) Schedule 1, Dual-use Goods List, Category 3, 3A002(c)(2) and (3)---

Repeal

“75 GHz”

Substitute

“90 GHz”.

- (373) Schedule 1, Dual-use Goods List, Category 3, 3A002(c)(4)(a)---

Repeal

“85 MHz”

Substitute

“170 MHz”.

- (374) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)---

Repeal everything before 3A002(d)(1)

Substitute

“(d) Signal generators having any of the following:”.

- (375) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)(1)---

(a) **Repeal**

“synthesized”;

(b) **Repeal**

“75 GHz”

Substitute

“37 GHz”;

(c) **Repeal**

“100 ns”

Substitute

- “25 ns”.
- (376) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)(2)—
- (a) **Repeal**
“synthesized”;
- (b) **Repeal**
“75 GHz”
Substitute
“90 GHz”.
- (377) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)(3)(b)—
- (a) **Repeal**
“1.6 GHz”
Substitute
“2.2 GHz”;
- (b) **Repeal**
“synthesised”;
- (c) **Repeal**
“10.6 GHz”
Substitute
“31.8 GHz”.
- (378) Schedule 1, Dual-use Goods List, Category 3—
Repeal 3A002(d)(3)(c).
- (379) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)(3)(d)—
- (a) **Repeal**
“synthesised”;

- (b) **Repeal**
“43.5 GHz”
Substitute
“37 GHz”;
- (c) After the semicolon—
Add
“or”.
- (380) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)(3)(e)—
- (a) **Repeal**
“1 ms”
Substitute
“100 µs”;
- (b) **Repeal**
“550 MHz”
Substitute
“2.2 GHz”;
- (c) **Repeal**
“synthesized”;
- (d) **Repeal**
“43.5 GHz”
Substitute
“37 GHz”;
- (e) **Repeal**
“56 GHz”
Substitute

- “90 GHz”;
- (f) **Repeal**
“or”.
- (381) Schedule 1, Dual-use Goods List, Category 3—
Repeal 3A002(d)(3)(f).
- (382) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)(4)—
Repeal
“all”
Substitute
“any”.
- (383) Schedule 1, Dual-use Goods List, Category 3,
3A002(d)(4)(a)—
(a) **Repeal**
“10 Hz < F < 10 kHz”
Substitute
“10 Hz ≤ F ≤ 10 kHz”;
- (b) **Repeal**
“synthesized”;
- (c) **Repeal**
“75 GHz”
Substitute
“90 GHz”.
- (384) Schedule 1, Dual-use Goods List, Category 3,
3A002(d)(4)(b)—
(a) **Repeal**
“-(114 + 20 log₁₀F - 20 log₁₀f”

- Substitute**
“-(206 - 20 log₁₀f”;
- (b) **Repeal**
“10 kHz ≤ F < 500 kHz”
Substitute
“10 kHz < F ≤ 100 kHz”;
- (c) **Repeal**
“synthesized”;
- (d) **Repeal**
“75 GHz”
Substitute
“90 GHz”.
- (385) Schedule 1, Dual-use Goods List, Category 3, 3A002(d)(5)—
(a) **Repeal**
“synthesized”;
- (b) **Repeal**
“75 GHz”
Substitute
“90 GHz”.
- (386) Schedule 1, Dual-use Goods List, Category 3, 3A002(d), Note
1—
Repeal
“frequency synthesised”.
- (387) Schedule 1, Dual-use Goods List, Category 3, 3A002(d), Note
2—
Repeal

“include”

Substitute

“apply to”.

- (388) Schedule 1, Dual-use Goods List, Category 3, 3A002(d),
Technical Note 1—

Repeal

“synthesized”.

- (389) Schedule 1, Dual-use Goods List, Category 3, 3A002(e)(1)
and (2)—

- (a) English text—

Repeal

“Output”

Substitute

“An output”;

- (b) **Repeal**

“75 GHz”

Substitute

“90 GHz”.

- (390) Schedule 1, Dual-use Goods List, Category 3, 3A225—

Repeal

everything after “than those”

Substitute

“specified in 0B001(b)(13), usable as a variable or fixed
frequency motor drive, having all of the following
characteristics:

N.B.:

1. “Software” specially designed to enhance or release the
performance of a frequency changer or generator to meet
the characteristics of 3A225 is specified in 3D225.
2. “Technology” in the form of keys or codes to enhance or
release the performance of a frequency changer or
generator to meet the characteristics of 3A225 is
specified in 3E225.
 - (a) Multiphase output providing a power of 40 VA or
greater;
 - (b) Operating at a frequency of 600 Hz or more;
 - (c) Frequency control better (less) than 0.2%;

Note:

3A225 does not control frequency changers or generators if
they have hardware, “software” or “technology” constraints
that limit the performance to less than that specified above,
provided they meet any of the following descriptions:

1. They need to be returned to the original manufacturer to
make the enhancements or release the constraints;
2. They require “software” as specified in 3D225 to
enhance or release the performance to meet the
characteristics of 3A225;
3. They require “technology” in the form of keys or codes
as specified in 3E225 to enhance or release the
performance to meet the characteristics of 3A225.

Technical Notes:

1. Frequency changers in 3A225 are also known as
converters or inverters.
2. Frequency changers in 3A225 may be marketed as
Generators, Electronic Test Equipment, AC Power

Supplies, Variable Speed Motors Drives, Variable Speed Drives (VSDs), Variable Frequency Drives (VFDs), Adjustable Frequency Drives (AFDs), or Adjustable Speed Drives (ASDs).”.

(391) Schedule 1, Dual-use Goods List, Category 3, 3A229—

Repeal

everything after “Munitions List.”

Substitute

“(a) Detonator firing sets (initiator systems, firesets), including electronically-charged, explosively-driven and optically-driven firing sets, other than those specified in 1A007(a), designed to drive multiple controlled detonators specified in 1A007(b);

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

- (1) Designed for portable, mobile, or ruggedized-use;
- (2) Capable of delivering their energy in less than 15 μ s into loads of less than 40 ohms;
- (3) Having an output greater than 100 A;
- (4) No dimension greater than 30 cm;
- (5) Weight less than 30 kg;
- (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;

Note:

3A229(b) includes xenon flash-lamp drivers.

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

(1) No dimension greater than 35 mm;

(2) Voltage rating of equal to or greater than 1 kV;

(3) Capacitance equal to or greater than 100 nF;”.

(392) Schedule 1, Dual-use Goods List, Category 3, 3A230, after “pulse generators”—

Add

“, and ‘pulse heads’ for such generators.”.

(393) Schedule 1, Dual-use Goods List, Category 3, 3A230—

Repeal the Technical Note

Substitute

“*Technical Notes:*

1. In 3A230, ‘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.”.

(394) Schedule 1, Dual-use Goods List, Category 3—

Repeal 3A231(b)

Substitute

“(b) Utilizing:

- (1) Electrostatic acceleration to induce a tritium-deuterium nuclear reaction; *or*

- (2) Electrostatic acceleration to induce a deuterium-deuterium nuclear reaction and capable of an output of 3×10^9 neutrons/s or greater;”.

(395) Schedule 1, Dual-use Goods List, Category 3—

Repeal 3A233(d)

Substitute

“(d) Electron bombardment mass spectrometers having all of the following features:

- (1) Having 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;
- (2) Having one or more ‘cold traps’ that can be cooled to a temperature of 193 K (-80°C);

Technical Notes:

1. Electron bombardment mass spectrometers in 3A233(d) are also known as electron impact mass spectrometers or electron ionization mass spectrometers.
2. In 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 3A233(d)(2), a closed loop gaseous helium cryogenic vacuum pump is not a ‘cold trap’.”.

(396) Schedule 1, Dual-use Goods List, Category 3—

Repeal 3A233(e).

(397) Schedule 1, English text, Dual-use Goods List, Category 3, 3A233(f)—

Repeal

“use with”.

(398) Schedule 1, Dual-use Goods List, Category 3, after 3A233—

Add

“3A234 Striplines to provide low inductance path to detonators with the following characteristics:

- (a) Voltage rating greater than 2 kV; and
- (b) Inductance of less than 20 nH;”.

(399) Schedule 1, Dual-use Goods List, Category 3, 3B001(f)(1)(a)—

Repeal

“245 nm; or”

Substitute

“193 nm;”.

(400) Schedule 1, Dual-use Goods List, Category 3, 3B001(f)(1)(b)—

Repeal

“95 nm”

Substitute

“45 nm”.

(401) Schedule 1, Dual-use Goods List, Category 3, 3B001(f)(2)—

Repeal

“95 nm”

Substitute

“45 nm”.

(402) Schedule 1, Dual-use Goods List, Category 3, 3D002—

Repeal

- everything after “the “use” of”
- Substitute**
“equipment specified in 3A225, 3B001(a), 3B001(b), 3B001(c), 3B001(e), 3B001(f) or 3B002;”.
- (403) Schedule 1, Dual-use Goods List, Category 3, after 3D101—
Add
“3D225 “Software” specially designed to enhance or release the performance of a frequency changer or generator to meet the characteristics of 3A225;”.
- (404) Schedule 1, Dual-use Goods List, Category 3, 3E201—
Repeal
“3A233”
Substitute
“3A234”.
- (405) Schedule 1, Dual-use Goods List, Category 3, after 3E201—
Add
“3E225 “Technology” in the form of keys or codes to enhance or release the performance of a frequency changer or generator to meet the characteristics of 3A225;”.
- (406) Schedule 1, Dual-use Goods List, Category 4, 4D001(b)(1)—
Repeal
“0.60”
Substitute
“1.0”.
- (407) Schedule 1, Dual-use Goods List, Category 4—
Repeal 4D002.

- (408) Schedule 1, Dual-use Goods List, Category 4, 4E001(b)(1)—
Repeal
“0.60”
Substitute
“1.0”.
- (409) Schedule 1, Dual-use Goods List, Category 4, 4E001, Technical Note on “Adjusted Peak Performance”, Note 6—
(a) **Repeal**
“1)”;
(b) **Repeal**
everything after “and sharing”
Substitute
“memory.”
Technical Notes:
1. Aggregate all processors and accelerators operating simultaneously and located on the same die.
2. Processor combinations share memory when any processor is capable of accessing any memory location in the system through the hardware transmission of cache lines or memory words, without the involvement of any “software” mechanism. Processor combinations may be achieved using “electronic assemblies” specified in 4A003(c).”.
- (410) Schedule 1, Dual-use Goods List, Category 5, Part 1—
Repeal 5D001(b).
- (411) Schedule 1, Dual-use Goods List, Category 5, Part 1, 5E001(c)(1)—

Repeal

“120 Gbit/s”

Substitute

“560 Gbit/s”.

- (412) Schedule 1, Dual-use Goods List, Category 5, Part 2, Notes—

Repeal Note 1

Substitute

“1. The status of “information security” items or functions is determined in Category 5, Part 2 even if they are components, “software” or functions of other systems or equipment.”.

- (413) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5A002(a)—

Repeal everything before the Nota Bene

Substitute

“(a) Systems, equipment and components, for “information security”, as follows:”.

- (414) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5A002(a), Nota Bene—

Repeal

“7A005.”

Substitute

“7A005, and for related decryption “software” and “technology”, see 7D005 and 7E001.”.

- (415) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5A002(a)(2)—

Repeal

“cryptanalytic functions”

Substitute

““cryptanalytic functions””.

- (416) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5A002(a)(2), Note—

Repeal

“cryptanalysis”

Substitute

““cryptanalytic functions””.

- (417) Schedule 1, Dual-use Goods List, Category 5, Part 2, at the end of 5A002(a)(2)—

Add

“*Technical Note:*

‘Cryptanalytic functions’ are functions designed to defeat cryptographic mechanisms in order to derive confidential variables or sensitive data, including clear text, passwords or cryptographic keys.”.

- (418) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5A002(b)—

Repeal

“, application specific “electronic assemblies”, modules and integrated circuits, designed or modified to enable”

Substitute

“and components, designed or modified to enable, by means of “cryptographic activation”,”.

- (419) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5A002, Note (j)—

Repeal

everything after “5A002(a)(7),”

Substitute

“5A002(a)(8) or 5A002(b) and meeting all of the following descriptions:

- (1) All cryptographic capability specified in 5A002(a) of the equipment:
 - (a) Cannot be used; *or*
 - (b) Can only be made useable by means of “cryptographic activation”;
- (2) When necessary as determined by the appropriate authority in the exporter’s country, details of the equipment are accessible and will be provided to the authority on request, in order to ascertain compliance with the conditions described above;

N.B.:

1. See 5A002(a) for equipment that has undergone “cryptographic activation”.
2. See also 5A002(b), 5D002(d) and 5E002(b).”.

(420) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5A002, after Note (k)—

Add

“(l) Routers, switches or relays, where the “information security” functionality is limited to the tasks of “Operations, Administration or Maintenance” (“OAM”) implementing only published or commercial cryptographic standards;

(m) General purpose computing equipment or servers, where the “information security” functionality meets all of the following descriptions:

- (1) Uses only published or commercial cryptographic standards;
- (2) Meets any of the following descriptions:
 - (a) Is integral to a CPU that meets the provisions of Note 3 in Category 5, Part 2;
 - (b) Is integral to an operating system that is not controlled by 5D002;
 - (c) Is limited to “OAM” of the equipment;”.

(421) Schedule 1, Dual-use Goods List, Category 5, Part 2, at the end of 5D002(c)—

Add

Note:

5D002(c) does not apply to “software” limited to the tasks of “OAM” implementing only published or commercial cryptographic standards.”.

(422) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5D002(d), after “to enable”—

Add

“, by means of “cryptographic activation”,.”.

(423) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5E002(b), after “to enable”—

Add

“, by means of “cryptographic activation”,.”.

(424) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1), Note, after “does not control”—

Add

“equipment as follows”.

- (425) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1)(a)(2)—

Repeal

everything after “mapping and”

Substitute

“meeting any of the following descriptions:

Technical Note:

The acoustic sensor pressure rating determines the depth rating of the underwater survey equipment.

- (a) It meets both of the following descriptions:

- (1) Designed or modified to operate at depths exceeding 300 m;
- (2) ‘Sounding rate’ greater than 3 800 m/s;

Technical Note:

‘Sounding rate’ is the product of the maximum speed (m/s) at which the sensor can operate and the maximum number of soundings per swath assuming 100% coverage. For systems that produce soundings in 2 directions (3D sonars), the maximum of the ‘sounding rate’ in either direction is to be used for the purposes of 6A001(a)(1)(a)(2)(a)(2).

- (b) It is not specified in 6A001(a)(1)(a)(2)(a) and meets all of the following descriptions:

- (1) Designed or modified to operate at depths exceeding 100 m;

- (2) Designed to take measurements at an angle exceeding 20° from the vertical;

- (3) Meets either of the following descriptions:

- (a) Operating frequency below 350 kHz;
- (b) Designed to measure seabed topography at a range exceeding 200 m from the acoustic sensor;

- (4) Enhancement of the depth accuracy through compensation of all of the following:

- (a) Motion of the acoustic sensor;
- (b) In-water propagation from sensor to the seabed and back;
- (c) Sound speed at the sensor;”.

- (426) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1)(a)(3), after “following”—

Add

“, and specially designed transmitting and receiving acoustic arrays for such sonars”.

- (427) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1)(a)(3)(a)—

Repeal

“and”.

- (428) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1)(a)(3)(b)—

Repeal

everything after “operating”

Substitute

“at the maximum range that it can operate with an ‘along track resolution’ of less than 15 cm;”.

- (429) Schedule 1, Dual-use Goods List, Category 6, after 6A001(a)(1)(a)(3)(b)—

Add

“(c) An ‘across track resolution’ of less than 15 cm;

Technical Notes:

1. ‘Area coverage rate’ (m^2/s) is twice the product of the sonar range (m) and the maximum speed (m/s) at which the sensor can operate at that range.
2. ‘Along track resolution’ (cm), for SSS only, is the product of azimuth (horizontal) beamwidth (degrees) and sonar range (m) and 0.873.
3. ‘Across track resolution’ (cm) is 75 divided by the signal bandwidth (kHz).”.

- (430) Schedule 1, English text, Dual-use Goods List, Category 6, 6A001(a)(1)(c), after “combination,”—

Add

“and”.

- (431) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1)(c), Note 1—

(a) After “for other equipment”—

Add

“not specified in 6A001,”;

(b) Chinese text—

Repeal

“聲能投視器”

Substitute

“聲能投射器”.

- (432) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1)(c)—

Repeal everything after Note 2 and before 6A001(a)(1)(c)(3)

Substitute

“3. Piezoelectric elements specified in 6A001(a)(1)(c) include those made from lead-magnesium-niobate/lead-titanate ($Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3$, or PMN-PT) single crystals grown from solid solution or lead-indium-niobate/lead-magnesium niobate/lead-titanate ($Pb(In_{1/2}Nb_{1/2})O_3-Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3$, or PIN-PMN-PT) single crystals grown from solid solution.

(1) Operating at frequencies below 10 kHz and meeting either of the following descriptions:

(a) Not designed for continuous operation at 100% duty cycle and having a radiated ‘free-field Source Level (SL_{RMS})’ exceeding $(10 \log(f) + 169.77)$ dB (reference $1 \mu Pa$ at 1 m), where f is the frequency in Hertz of the maximum Transmitting Voltage Response (TVR) below 10 kHz;

(b) Designed for continuous operation at 100% duty cycle and having a continuously radiated ‘free-field Source Level (SL_{RMS})’ at 100% duty cycle exceeding $(10 \log(f) + 159.77)$ dB (reference $1 \mu Pa$ at 1 m), where f is the frequency in Hertz of the maximum Transmitting Voltage Response (TVR) below 10 kHz;

Technical Note:

The 'free-field Source Level (SL_{RMS})' is defined along the maximum response axis and in the far field of an acoustic projector. It can be obtained from the TVR using the following equation: $SL_{RMS} = (TVR + 20 \log V_{RMS})$ dB (reference 1 μ Pa at 1 m), where SL_{RMS} is the source level, TVR is the Transmitting Voltage Response and V_{RMS} is the Driving Voltage of the Projector.”.

- (433) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(1)(e), after “all of the following”---

Add

“, and specially designed transmitting and receiving acoustic arrays for such sonars”.

- (434) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(2)(a)(3)(b)---

- (a) English text---

Repeal

“polyvinylidene fluoride (PVDF) and its copolymers”

Substitute

“polyvinylidene-fluoride (PVDF) and its co-polymers”;

- (b) **Repeal**

“or”.

- (435) Schedule 1, Dual-use Goods List, Category 6, after 6A001(a)(2)(a)(3)(c)---

Add

- “(d) Lead-magnesium-niobate/lead-titanate (i.e. $Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3$, or PMN-PT) piezoelectric single crystals grown from solid solution;

- (e) Lead-indium-niobate/lead-magnesium niobate/lead-titanate (i.e. $Pb(In_{1/2}Nb_{1/2})O_3-Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3$, or PIN-PMN-PT) piezoelectric single crystals grown from solid solution;”.

- (436) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(2)(b)(1) and (2)---

Repeal

“able to be modified”

Substitute

“able to be modified”.

- (437) Schedule 1, Dual-use Goods List, Category 6, after 6A001(a)(2)(b)(7)---

Add

“(8) Accelerometer-based hydro-acoustic sensors specified in 6A001(a)(2)(g);”.

- (438) Schedule 1, Dual-use Goods List, Category 6, 6A001(a)(2)(e)(1)---

Repeal

“or”.

- (439) Schedule 1, Dual-use Goods List, Category 6, after 6A001(a)(2)(e)(2)---

Add

“(3) Incorporating accelerometer-based hydro-acoustic sensors specified in 6A001(a)(2)(g);”.

- (440) Schedule 1, Dual-use Goods List, Category 6, after 6A001(a)(2)(f)---

Add

“(g) Accelerometer-based hydro-acoustic sensors that meet all of the following descriptions:

- (1) Composed of 3 accelerometers arranged along 3 distinct axes;
- (2) Having an overall ‘acceleration sensitivity’ better than 48 dB (reference 1 000 mV rms per 1 g);
- (3) Designed to operate at depths greater than 35 m;
- (4) Operating frequency below 20 kHz;

Note:

6A001(a)(2)(g) does not control particle velocity sensors or geophones.

Technical Notes:

1. Accelerometer-based hydro-acoustic sensors are also known as vector sensors.
2. ‘Acceleration sensitivity’ is defined as 20 times the logarithm to the base 10 of the ratio of rms output voltage to a 1 V rms reference, when the hydro-acoustic sensor, without a pre-amplifier, is placed in a plane wave acoustic field with an rms acceleration of 1 g (i.e. 9.81 m/s²).”.

(441) Schedule 1, Dual-use Goods List, Category 6, 6A002—

Repeal everything before 6A002(a)

Substitute

“6A002 Optical sensors or equipment and components for such sensors or equipment, as follows:

N.B.:

See also 6A102.”.

(442) Schedule 1, Dual-use Goods List, Category 6, 6A002(a)(3)(d)(2)(b)—

Repeal

“element (SPRITE)”

Substitute

“detector elements”.

(443) Schedule 1, Chinese text, Dual-use Goods List, Category 6, 6A002(b)(2)(b)(2)—

Repeal

“微弧度”

Substitute

“毫弧度”.

(444) Schedule 1, Dual-use Goods List, Category 6, 6A003(a)(3)—

Repeal

everything after “cameras”

Substitute

“, as follows:

- (a) Mechanical streak cameras having writing speeds exceeding 10 mm/μs;
- (b) Electronic streak cameras having temporal resolution better than 50 ns;”.

(445) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), Note 3(b)(1)—

(a) **Repeal**

“Instantaneous-Field-of-View (IFOV)”

Substitute

“Instantaneous-Field-of-View (IFOV)”;

(b) Chinese text—

Repeal

“微弧度”

Substitute

“毫弧度”.

(446) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), Note 3(b)(3)—

Repeal the Technical Note.

(447) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), Note 3(b)(4)(b)—

Repeal the Technical Note.

(448) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), Note 3(c)—

Repeal

everything after “a civilian passenger land vehicle”

Substitute

“and meets all of the following descriptions:

- (1) The configuration of the camera and its placement within the vehicle are solely to assist its driver in the safe operation of the vehicle;
- (2) Is only operable when installed in:
 - (a) A civilian passenger land vehicle that weighs less than 4 500 kg (gross vehicle weight), and for which the camera was intended; *or*
 - (b) A specially designed, authorized maintenance test facility;

(3) Incorporates an active mechanism that forces the camera not to function when it is removed from the vehicle for which it was intended.”.

(449) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), at the end of Note 3—

Add

“*Technical Notes:*

1. ‘Instantaneous-Field-of-View (IFOV)’ in 6A003(b)(4) Note 3(b) is the lesser figure of the ‘Horizontal IFOV’ or the ‘Vertical IFOV’.

N.B.:

‘Horizontal IFOV’ = horizontal Field of View / number of horizontal detector elements.

‘Vertical IFOV’ = vertical Field of View / number of vertical detector elements.

2. ‘Direct view’ in 6A003(b)(4) Note 3(b) refers to an imaging camera operating in the infrared spectrum that presents a visual image to a human observer using a near-to-eye micro display incorporating any light-security mechanism.”.

(450) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4)—

Renumber Note 4(b)(1) and (2) as Note 4(b)(2) and (3) respectively.

(451) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), Note 4(b)—

Repeal

everything after “a civilian passenger land vehicle” and before Note 4(b)(2)

Substitute

“or a passenger and vehicle ferry, and meets all of the following descriptions:

(I) The placement and configuration of the camera within the vehicle or ferry is solely to assist its driver or operator in the safe operation of the vehicle or ferry;”.

(452) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), Note 4—

Repeal paragraph (b)(2)(a)

Substitute

“(a) A civilian passenger land vehicle that weighs less than 4 500 kg (gross vehicle weight), and for which the camera was intended;”.

(453) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4)—

Renumber Note 4(b)(2)(b) as Note 4(b)(2)(c).

(454) Schedule 1, Dual-use Goods List, Category 6, 6A003(b)(4), after Note 4(b)(2)(a)—

Add

“(b) A passenger and vehicle ferry that has a length overall (LOA) of 65 m or greater, and for which the camera was intended; *or*”.

(455) Schedule 1, Dual-use Goods List, Category 6, 6A004, after “and components”—

Add

“, as follows:”.

(456) Schedule 1, Dual-use Goods List, Category 6, before 6A004(a)(1)—

Add

“*Technical Note:*

For the purposes of 6A004(a), Laser Induced Damage Threshold (LIDT) is measured according to ISO 21254/1 (2011).

N.B.:

For optical mirrors specially designed for lithography equipment, see 3B001.”.

(457) Schedule 1, Dual-use Goods List, Category 6, 6A004(a)(1)—

Repeal

everything after “having”

Substitute

“an active optical aperture greater than 10 mm and either of the following, and specially designed components for such mirrors:

(a) All of the following:

(1) A mechanical resonant frequency of 750 Hz or more;

(2) More than 200 actuators;

(b) A Laser Induced Damage Threshold (LIDT) that is:

(1) Greater than 1 kW/cm² when using a “CW laser”;
or

(2) Greater than 2 J/cm² when using 20 ns “laser” pulses at a repetition rate of 20 Hz;”.

(458) Schedule 1, Dual-use Goods List, Category 6—

Repeal 6A004(a)(4)

Substitute

“(4) Mirrors specially designed for beam steering mirror stages specified in 6A004(d)(2)(a), with a flatness of

$\lambda/10$ or better (λ is equal to 633 mm) and meeting either of the following descriptions:

- (a) Having a diameter or major axis that is equal to or greater than 100 mm;
- (b) Having either of the following:
 - (1) A diameter or major axis that is greater than 50 mm but less than 100 mm;
 - (2) A Laser Induced Damage Threshold (LIDT) that is:
 - (a) Greater than 10 kW/cm² when using a “CW laser”; *or*
 - (b) Greater than 20 J/cm² when using 20 ns “laser” pulses at a repetition rate of 20 Hz;”.

(459) Schedule 1, Dual-use Goods List, Category 6—

Repeal the Nota Bene after 6A004(a)(4).

(460) Schedule 1, Dual-use Goods List, Category 6—

Repeal 6A004(d)(2)

Substitute

- “(2) Steering, tracking, stabilization and resonator alignment equipment, as follows:
 - (a) Beam steering mirror stages designed to carry mirrors that have a diameter or major axis that is greater than 50 mm and all of the following, and specially designed electronic control equipment for such mirror stages:
 - (1) A maximum angular travel of ± 26 mrad or more;

(2) A mechanical resonant frequency of 500 Hz or more;

(3) An angular accuracy of 10 μ rad (microradians) or less;

(b) Resonator alignment equipment having bandwidths equal to or more than 100 Hz and an accuracy of 10 μ rad or less;”.

(461) Schedule 1, Dual-use Goods List, Category 6—

Repeal 6A004(d)(4).

(462) Schedule 1, Dual-use Goods List, Category 6, 6A005, Note 2—

Repeal

everything after “, and”

Substitute

““non-repetitive pulsed’ Nd:glass “lasers” are only specified in 6A005(d).

Technical Note:

‘Non-repetitive pulsed’ refers to “lasers” that produce either a single output pulse or that have a time interval between pulses exceeding 1 minute.”.

(463) Schedule 1, Dual-use Goods List, Category 6, 6A005, before 6A005(a)—

Add

Technical Note:

In 6A005, ‘Wall-plug efficiency’ is defined as the ratio of “laser” output power (or “average output power”) to total electrical input power required to operate the “laser”,

- including the power supply or conditioning and thermal conditioning or heat exchanger.”.
- (464) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)---
Repeal
“characteristics”.
- (465) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(2)---
Repeal
“520 nm”
Substitute
“510 nm”.
- (466) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(3)---
Repeal
“520 nm but not exceeding 540 nm and having”
Substitute
“510 nm but not exceeding 540 nm and”.
- (467) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(5)---
Repeal
“having”.
- (468) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(6)---
Repeal
“1 150 nm and having”
Substitute
“1 150 nm and”.
- (469) Schedule 1, Dual-use Goods List, Category 6---
Repeal 6A005(a)(6)(a)
Substitute

- “(a) Single-transverse mode and output power exceeding 200 W;”.
- (470) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(6)(b)---
Repeal
“having”.
- (471) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(6)(b)---
Repeal the Note
Substitute
“Notes:
1. 6A005(a)(6)(b) does not include multiple-transverse mode, industrial “lasers” with output power exceeding 2 kW and not exceeding 6 kW with a total mass greater than 1 200 kg. For the purposes of this Note, total mass includes all components required to operate the “laser”, e.g. “laser”, power supply, heat exchanger, but excludes external optics for beam conditioning or delivery, or both.
2. 6A005(a)(6)(b) does not include multiple-transverse mode, industrial “lasers” that meet any of the following descriptions:
(a) Output power exceeding 500 W but not exceeding 1 kW and having all of the following:
(1) Beam Parameter Product (BPP) exceeding 0.7 mm•mrad;
(2) ‘Brightness’ not exceeding 1 024 W/(mm•mrad)²;

- (b) Output power exceeding 1 kW but not exceeding 1.6 kW and having a BPP exceeding 1.25 mm•mrad;
- (c) Output power exceeding 1.6 kW but not exceeding 2.5 kW and having a BPP exceeding 1.7 mm•mrad;
- (d) Output power exceeding 2.5 kW but not exceeding 3.3 kW and having a BPP exceeding 2.5 mm•mrad;
- (e) Output power exceeding 3.3 kW but not exceeding 4 kW and having a BPP exceeding 3.5 mm•mrad;
- (f) Output power exceeding 4 kW but not exceeding 5 kW and having a BPP exceeding 5 mm•mrad;
- (g) Output power exceeding 5 kW but not exceeding 6 kW and having a BPP exceeding 7.2 mm•mrad;
- (h) Output power exceeding 6 kW but not exceeding 8 kW and having a BPP exceeding 12 mm•mrad;
- (i) Output power exceeding 8 kW but not exceeding 10 kW and having a BPP exceeding 24 mm•mrad.

Technical Note:

For the purposes of 6A005(a)(6)(b) Note 2(a)(2), 'brightness' is defined as the output power of the "laser" divided by the squared Beam Parameter Product (BPP²), i.e. (output power)/BPP²."

(472) Schedule 1, Dual-use Goods List, Category 6—

Repeal 6A005(a)(7)

Substitute

- "(7) Output wavelength exceeding 1 150 nm but not exceeding 1 555 nm and having either of the following:
 - (a) Single-transverse mode and output power exceeding 50 W;

- (b) Multiple-transverse mode and output power exceeding 80 W;"

(473) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)—

Repeal

"characteristics".

(474) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(1)—

Repeal

"having".

(475) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(2)—

Repeal

"520 nm and having"

Substitute

"510 nm and".

(476) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(3)—

Repeal

"520 nm but not exceeding 540 nm and having"

Substitute

"510 nm but not exceeding 540 nm and".

(477) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(3)(a)—

Repeal

"having".

(478) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(3)(b)—

Repeal

"having".

- (479) Schedule 1, Dual-use Goods List, Category 6—
Repeal 6A005(b)(4)
Substitute
“(4) Output wavelength exceeding 540 nm but not exceeding 800 nm and:
(a) “Pulse duration” less than 1 ps and:
(1) Output energy exceeding 0.005 J per pulse and “peak power” exceeding 5 GW; *or*
(2) “Average output power” exceeding 20 W; *or*
(b) “Pulse duration” equal to or exceeding 1 ps and:
(1) Output energy exceeding 1.5 J per pulse and “peak power” exceeding 30 W; *or*
(2) “Average output power” exceeding 30 W;”.
- (480) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)—
Repeal
“975 nm and having”
Substitute
“975 nm and”.
- (481) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(a)—
Repeal
“not exceeding 1 μ s and having”
Substitute
“less than 1 ps and”.
- (482) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(a)(1)—

- (a) **Repeal**
“0.5 J”
Substitute
“0.005 J”;
- (b) **Repeal**
“50 W”
Substitute
“5 GW”;
- (c) After the semicolon—
Add
“*or*”.
- (483) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(a)(2)—
Repeal
“*or*”.
- (484) Schedule 1, Dual-use Goods List, Category 6—
Repeal 6A005(b)(5)(a)(3).
- (485) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(b)—
Repeal
“exceeding 1 μ s and having”
Substitute
“equal to or exceeding 1 ps and not exceeding 1 μ s and”.
- (486) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(b)(1)—
(a) **Repeal**

- “2 J”
Substitute
“0.5 J”;
- (b) **Repeal**
“50 W”
Substitute
“20 W”.
- (487) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(b)(2)—
Repeal
“50 W”
Substitute
“20 W”.
- (488) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(b)(3)—
(a) **Repeal**
“80 W”
Substitute
“50 W”;
- (b) After the semicolon—
Add
“or”.
- (489) Schedule 1, Dual-use Goods List, Category 6, after 6A005(b)(5)(b)—
Add
“(c) “Pulse duration” exceeding 1 μ s and:

- (1) Output energy exceeding 2 J per pulse and “peak power” exceeding 50 W;
- (2) Single-transverse mode output and “average output power” exceeding 50 W; *or*
- (3) Multiple-transverse mode output and “average output power” exceeding 80 W;”.
- (490) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(6)—
Repeal
everything after “1 150 nm”
Substitute
“and:
- (a) “Pulse duration” of less than 1 ps and:
- (1) Output “peak power” exceeding 2 GW per pulse;
- (2) “Average output power” exceeding 10 W; *or*
- (3) Output energy exceeding 0.002 J per pulse;
- (b) “Pulse duration” equal to or exceeding 1 ps and less than 1 ns and:
- (1) Output “peak power” exceeding 5 GW per pulse;
- (2) “Average output power” exceeding 10 W; *or*
- (3) Output energy exceeding 0.1 J per pulse;
- (c) “Pulse duration” equal to or exceeding 1 ns but not exceeding 1 μ s and:
- (1) Single-transverse mode output and:
- (a) “Peak power” exceeding 100 MW;
- (b) “Average output power” exceeding 20 W limited by design to a maximum pulse

- repetition frequency less than or equal to 1 kHz;
- (c) ‘Wall-plug efficiency’ exceeding 12%, “average output power” exceeding 100 W and capable of operating at a pulse repetition frequency greater than 1 kHz;
 - (d) “Average output power” exceeding 150 W and capable of operating at a pulse repetition frequency greater than 1 kHz; *or*
 - (e) Output energy exceeding 2 J per pulse; *or*
- (2) Multiple-transverse mode output and:
- (a) “Peak power” exceeding 400 MW;
 - (b) ‘Wall-plug efficiency’ exceeding 18% and “average output power” exceeding 500 W;
 - (c) “Average output power” exceeding 2 kW; *or*
 - (d) Output energy exceeding 4 J per pulse; *or*
- (d) “Pulse duration” exceeding 1 μ s and:
- (1) Single-transverse mode output and:
 - (a) “Peak power” exceeding 500 kW;
 - (b) ‘Wall-plug efficiency’ exceeding 12% and “average output power” exceeding 100 W; *or*
 - (c) “Average output power” exceeding 150 W; *or*
 - (2) Multiple-transverse mode output and:
 - (a) “Peak power” exceeding 1 MW;
 - (b) ‘Wall-plug efficiency’ exceeding 18% and “average output power” exceeding 500 W; *or*
 - (c) “Average output power” exceeding 2 kW;”.

- (491) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(7)—
Repeal
“1 555 nm and having”
Substitute
“1 555 nm and”.
- (492) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(7)(a)—
Repeal
“having”.
- (493) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(7)(b)—
Repeal
“having”.
- (494) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(8)—
Repeal
“having”.
- (495) Schedule 1, Dual-use Goods List, Category 6—
Repeal the Note before 6A005(c)(1).
- (496) Schedule 1, Dual-use Goods List, Category 6, 6A005(d)(1)(e), Note 3—
Repeal
“apply to”
Substitute
“control”.
- (497) Schedule 1, Dual-use Goods List, Category 6, 6A005(e)(2)—
Repeal

everything after “components.”

Substitute

“other than fused tapered fibre combiners or Multi-Layer Dielectric gratings (MLDs), specially designed for use with specified “lasers”;

Note:

Fibre combiners and MLDs are specified in 6A005(e)(3).”.

- (498) Schedule 1, Dual-use Goods List, Category 6, after 6A005(e)(2)—

Add

“(3) Fibre laser components, as follows:

- (a) Multimode-to-multimode fused tapered fibre combiners having:
- (1) An insertion loss better (less) than or equal to 0.3 dB maintained at a rated total average or CW output power exceeding 1 000 W, excluding any output power transmitted through the single mode core (if any); *and*
 - (2) At least 3 input fibres;
- (b) Single mode to multimode fused tapered fibre combiners having:
- (1) An insertion loss better (less) than 0.5 dB maintained at a rated total average or CW output power exceeding 4 600 W;
 - (2) At least 3 input fibres; *and*
 - (3) Any of the following:

- (a) A Beam Parameter Product (BPP) measured at an output not exceeding 1.5 mm mrad for at least 5 input fibres;
- (b) A BPP measured at an output not exceeding 2.5 mm mrad for more than 5 input fibres;
- (c) MLDs:
 - (1) that are designed for the spectral or coherent beam combination of 5 or more fibre lasers; *and*
 - (2) that have a CW Laser Induced Damage Threshold (LIDT) that is equal to or greater than 10 kW/cm².”.

- (499) Schedule 1, Dual-use Goods List, Category 6, 6A005—

Repeal the Technical Note.

- (500) Schedule 1, Dual-use Goods List, Category 6, 6A006, before the Note—

Add

“*N.B.:*

See also 7A103(d).”.

- (501) Schedule 1, Chinese text, Dual-use Goods List, Category 6, 6A007—

(a) Repeal

“比重計” (wherever appearing)

Substitute

“重力計”;

(b) Repeal

“比重梯度計” (wherever appearing)

Substitute

“重力梯度計”.

- (502) Schedule 1, English text, Dual-use Goods List, Category 6, 6A007(a)---

Repeal

“having a static accuracy of less (better) than 10 µgal”

Substitute

“and having a static accuracy of less (better) than 10 µGal”.

- (503) Schedule 1, English text, Dual-use Goods List, Category 6, 6A007(b)---

Repeal

“platforms,”

Substitute

“platforms and”.

- (504) Schedule 1, Dual-use Goods List, Category 6, 6A007(b)(1)---

Repeal

“0.7 mgal; and”

Substitute

“0.7 mGal;”.

- (505) Schedule 1, Dual-use Goods List, Category 6, 6A007(b)(2)---

Repeal

“0.7 mgal having a time-to-steady-state registration”

Substitute

“0.7 mGal having a ‘time-to-steady-state registration’”.

- (506) Schedule 1, Dual-use Goods List, Category 6, at the end of 6A007(b)(2)---

Add

“*Technical Note:*

For the purposes of 6A007(b)(2), ‘time-to-steady-state registration’ (also referred to as the gravimeter’s response time) is the time over which the disturbing effects of platform induced accelerations (high frequency noise) are reduced.”.

- (507) Schedule 1, Chinese text, Dual-use Goods List, Category 6, 6A008(k)---

Repeal

“訊號處理”

Substitute

““訊號處理””.

- (508) Schedule 1, Dual-use Goods List, Category 6---

Repeal 6A008(k)(2)

Substitute

“(2) A compressed pulse width of less than 200 ns;

Note:

6A008(k)(2) does not control 2-dimensional ‘marine radar’ or ‘vessel traffic service’ radar, that meets all of the following descriptions:

- (a) “Pulse compression” ratio not exceeding 150;
- (b) Compressed pulse width of greater than 30 ns;
- (c) Single and rotating mechanically scanned antenna;
- (d) Peak output power not exceeding 250 W;
- (e) Not capable of “frequency hopping”.

- (509) Schedule 1, Dual-use Goods List, Category 6, 6A008(1)---
Repeal
“with any of the following”
Substitute
“that meet any of the following descriptions”.
- (510) Schedule 1, Dual-use Goods List, Category 6, 6A008(1)(1),
Note---
(a) **Repeal**
“apply to”
Substitute
“control”;
(b) **Repeal**
“marine or harbour radar”
Substitute
“marine radar”.
- (511) Schedule 1, Dual-use Goods List, Category 6, 6A008(1)(4),
Nota Bene---
Repeal
“ML5(b)”
Substitute
“the Munitions List”.
- (512) Schedule 1, Dual-use Goods List, Category 6, 6A008(1)(4),
Note---
(a) **Repeal**
“apply to”
Substitute

- “control”;
(b) **Repeal**
“marine traffic control”
Substitute
“vessel traffic service”.
- (513) Schedule 1, Dual-use Goods List, Category 6, after
6A008(1)---
Add
Technical Notes:
1. For the purposes of 6A008, ‘marine radar’ is a radar that
is used to navigate safely at sea, inland waterways or
near-shore environments.
2. For the purposes of 6A008, ‘vessel traffic service’ is a
vessel traffic monitoring and control service similar to
air traffic control for aircraft.”.
- (514) Schedule 1, Dual-use Goods List, Category 6, 6A107---
(a) **Repeal**
“controlled by” (wherever appearing)
Substitute
“specified in”;
(b) **Repeal**
“of 7×10^{-6} m/s² (0.7 milligal) or less (better)”
Substitute
“equal to or less (better) than 0.7 milligal (mgal)”;
(c) **Repeal**
“time-to-ready-state”

Substitute

“time-to-steady-state”;

(d) Chinese text—

Repeal

“比重計(梯度計)”

Substitute

“重力計”;

(e) Chinese text—

Repeal

“比重計” (wherever appearing)

Substitute

“重力計”;

(f) Chinese text—

Repeal

“比重梯度計” (wherever appearing)

Substitute

“重力梯度計”.

(515) Schedule 1, Dual-use Goods List, Category 6—

Repeal 6A203

Substitute

“6A203 Cameras and components, other than those specified in 6A003, as follows:

N.B.:

1. “Software” specially designed to enhance or release the performance of a camera or an imaging device to meet the characteristics of

6A203(a), 6A203(b) or 6A203(c) is specified in 6D203.

2. “Technology” in the form of keys or codes to enhance or release the performance of a camera or an imaging device to meet the characteristics of 6A203(a), 6A203(b) or 6A203(c) is specified in 6E203.

Note:

6A203(a), 6A203(b) and 6A203(c) does not control cameras or imaging devices that have hardware, “software” or “technology” constraints limiting their performance to less than that specified in 6A003, if such cameras or imaging devices meet any of the following descriptions:

- (1) They need to be returned to the original manufacturer to make the enhancements or release the constraints;
 - (2) They require “software” as specified in 6D203 to enhance or release the performance to meet the characteristics of 6A203;
 - (3) They require “technology” in the form of keys or codes as specified in 6E203 to enhance or release the performance to meet the characteristics of 6A203.
- (a) Streak cameras, and specially designed components for such cameras, as follows:
- (1) Streak cameras with writing speeds greater than 0.5 mm/μs;
 - (2) Electronic streak cameras capable of

- 50 ns or less time resolution;
- (3) Streak tubes for cameras specified in 6A203(a)(2);
 - (4) Plug-ins that enable streak cameras to achieve the performance specifications specified in 6A203(a)(1) or 6A203(a)(2), and that are specially designed for use with streak cameras that have modular structures;
 - (5) Synchronizing electronics units, rotor assemblies consisting of turbines, mirrors and bearings specially designed for cameras specified in 6A203(a)(1);
- (b) Framing cameras, and specially designed components for such cameras, as follows:
- (1) Framing cameras with recording rates greater than 225 000 frames per second;
 - (2) Framing cameras capable of 50 ns or less frame exposure time;
 - (3) Framing tubes and solid-state imaging devices having a fast-image gating (shutter) time of 50 ns or less specially designed for cameras specified in 6A203(b)(1) or 6A203(b)(2);
 - (4) Plug-ins that enable framing cameras to achieve the performance specifications specified in 6A203(b)(1)

- or 6A203(b)(2), and that are specially designed for use with framing cameras that have modular structures;
- (5) Synchronizing electronics units, rotor assemblies consisting of turbines, mirrors and bearings specially designed for cameras specified in 6A203(b)(1) or 6A203(b)(2);
- Technical Note:*
- In 6A203(b), 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.
- (c) Solid-state cameras or electron tube cameras, and specially designed components for such cameras, as follows:
- (1) Solid-state cameras or electron tube cameras having a fast-image gating (shutter) time of 50 ns or less;
 - (2) Solid-state imaging devices and image intensifier tubes having a fast-image gating (shutter) time of 50 ns or less specially designed for cameras specified in 6A203(c)(1);
 - (3) Electro-optical shuttering devices (Kerr or Pockels cells) having a fast-image gating (shutter) time of 50 ns or less;
 - (4) Plug-ins that enable solid-state cameras

or electron tube cameras to achieve the performance specifications specified in 6A203(c)(1), and that are specially designed for use with solid-state cameras or electron tube cameras that have modular structures;

- (d) Radiation-hardened TV cameras, or lenses for such cameras, specially designed or rated as radiation-hardened to withstand a total radiation dose greater than 50×10^3 Gy (Silicon) (5×10^6 rad (Silicon)) without operational degradation;

Technical Note:

The term Gy (Silicon) refers to the energy in Joules per kilogram absorbed by an unshielded silicon sample when exposed to ionizing radiation.”.

- (516) Schedule 1, English text, Dual-use Goods List, Category 6, 6A205(e)---

Repeal

“micrometre”

Substitute

“ μm ”.

- (517) Schedule 1, Dual-use Goods List, Category 6, after 6A205(f)---

Add

- “(g) Pulsed carbon monoxide “lasers”, other than those specified in 6A005(d)(2), that meet all of the following descriptions:

- (1) Operating at wavelengths between 5 000 nm and 6 000 nm;
- (2) A repetition rate greater than 250 Hz;
- (3) An average output power greater than 200 W;
- (4) Pulse width of less than 200 ns;”.

- (518) Schedule 1, Dual-use Goods List, Category 6, 6A225---

Repeal the Note

Substitute

“*Note:*

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).”.

- (519) Schedule 1, Dual-use Goods List, Category 6---

Repeal 6A226(a)

Substitute

- “(a) Shock pressure gauges capable of measuring pressures greater than 10 GPa, including gauges made with manganin, ytterbium, and polyvinylidene bifluoride (PVBF, PVF₂); *or*”.

- (520) Schedule 1, Dual-use Goods List, Category 6, 6A226(b)---

Repeal

“(100 kbar)”.

- (521) Schedule 1, Dual-use Goods List, Category 6, 6B007---

- (a) English text---

Repeal

- “mgal”
Substitute
“mGal”;
(b) Chinese text—
Repeal
“比重計”
Substitute
“重力計”.
- (522) Schedule 1, English text, Dual-use Goods List, Category 6, 6C004(a)—
(a) **Repeal**
“process,”
Substitute
“process and”;
(b) **Repeal**
“80 mm having”
Substitute
“80 mm and”.
- (523) Schedule 1, Dual-use Goods List, Category 6, 6C004(b)—
Repeal everything before 6C004(b)(1)
Substitute
“(b) Electro-optic materials and non-linear optical materials, as follows:”.
- (524) Schedule 1, Dual-use Goods List, Category 6, 6C004(b)(2), after “AgGaSe₂”—
Add

- “, also known as AGSE”.
- (525) Schedule 1, Dual-use Goods List, Category 6, after 6C004(b)(3)—
Add
“(4) Zinc germanium phosphide (ZnGeP₂, also known as ZGP, zinc germanium biphosphide or zinc germanium diphosphide);
(5) Gallium selenide (GaSe) (CAS 12024-11-2);”.
- (526) Schedule 1, Dual-use Goods List, Category 6—
Repeal 6C004(c)
Substitute
“(c) Non-linear optical materials, other than those specified in 6C004(b), that meet any of the following descriptions:
(1) Having all of the following:
(a) Dynamic (also known as non-stationary) third order non-linear susceptibility ($\chi^{(3)}$, chi 3) of $10^{-6} \text{ m}^2/\text{V}^2$ or more;
(b) Response time of less than 1 ms;
(2) Second order non-linear susceptibility ($\chi^{(2)}$, chi 2) of $3.3 \times 10^{-11} \text{ m/V}$ or more;”.
- (527) Schedule 1, Chinese text, Dual-use Goods List, Category 6, 6C004(d)—
Repeal
“附著物”
Substitute
“附着物”.
- (528) Schedule 1, Dual-use Goods List, Category 6—

Repeal 6C005

Substitute

“6C005 “Laser” materials, as follows:

(a) Synthetic crystalline “laser” host material in unfinished form, as follows:

(1) Titanium doped sapphire;

(b) Rare-earth-metal doped double-clad fibres that have:

(1) A nominal laser wavelength of 975 nm to 1 150 nm, with:

(a) An average core diameter that is equal to or greater than 25 µm; *and*

(b) A core ‘Numerical Aperture’ that is less than 0.065; *or*

Note:

6C005(b)(1) does not control double-clad fibres that have an inner glass cladding diameter exceeding 150 µm but not exceeding 300 µm.

(2) A nominal laser wavelength exceeding 1 530 nm, with:

(a) An average core diameter that is equal to or greater than 20 µm; *and*

(b) A core ‘Numerical Aperture’ that is less than 0.1;

Technical Notes:

1. For the purposes of 6C005, core ‘Numerical Aperture’ is measured at the emission wavelengths of the fibre.

2. 6C005(b) includes fibres assembled with end caps.”.

(529) Schedule 1, Dual-use Goods List, Category 6, 6D003(d)—

Repeal

“Deleted”

Substitute

““Software” specially designed to maintain the alignment and phasing of segmented mirror systems that consist of mirror segments with a diameter or major axis that is equal to or greater than 1 m”.

(530) Schedule 1, Chinese text, Dual-use Goods List, Category 6, 6D003(g)—

(a) **Repeal**

“比重計”

Substitute

“重力計”;

(b) **Repeal**

“比重梯度計”

Substitute

“重力梯度計”.

(531) Schedule 1, Dual-use Goods List, Category 6, after 6D103—

Add

“6D203 “Software” specially designed to enhance or release the performance of a camera or an imaging

- device to meet the characteristics of 6A203(a), 6A203(b) or 6A203(c);”.
- (532) Schedule 1, Dual-use Goods List, Category 6, after 6E201—
Add
“6E203 “Technology” in the form of keys or codes to enhance or release the performance of a camera or an imaging device to meet the characteristics of 6A203(a), 6A203(b) and 6A203(c);”.
- (533) Schedule 1, Dual-use Goods List, Category 7, 7A001(a)(2)(a)—
Repeal
“5 000 micro”
Substitute
“1 250 micro”.
- (534) Schedule 1, Dual-use Goods List, Category 7, 7A001(a)(2)(b)—
Repeal
“2 500 ppm”
Substitute
“1 250 ppm”.
- (535) Schedule 1, Dual-use Goods List, Category 7, 7A002(a)(1)(b), Note—
Repeal
“apply to ‘spinning mass gyros’”
Substitute
“control “spinning mass gyros””.

- (536) Schedule 1, Dual-use Goods List, Category 7, 7A002(a)(1)(b)—
Repeal the Technical Note.
- (537) Schedule 1, Dual-use Goods List, Category 7, 7A002(a)(2)(a)—
Repeal
“40 degrees”
Substitute
“4 degrees”.
- (538) Schedule 1, Dual-use Goods List, Category 7, 7A002(a)(2)(b)—
Repeal
“0.2 degree”
Substitute
“0.1 degree”.
- (539) Schedule 1, Dual-use Goods List, Category 7, 7A002(a)(2)(b), Note—
Repeal
“apply to ‘spinning mass gyros’”
Substitute
“control “spinning mass gyros””.
- (540) Schedule 1, Dual-use Goods List, Category 7—
Repeal 7A003
Substitute
“7A003 ‘Inertial measurement equipment or systems’ that meet any of the following descriptions:

N.B.:

See also 7A103.

Notes:

1. ‘Inertial measurement equipment or systems’ incorporate accelerometers or gyroscopes to measure changes in velocity and orientation in order to determine or maintain heading or position without requiring an external reference once aligned. ‘Inertial measurement equipment or systems’ include the following:
 - Attitude and Heading Reference Systems (AHRSS);
 - Gyrocompasses;
 - Inertial Measurement Units (IMUs);
 - Inertial Navigation Systems (INSS);
 - Inertial Reference Systems (IRSS);
 - Inertial Reference Units (IRUs).
2. 7A003 does not control ‘inertial measurement equipment or systems’ that are certified for use on “civil aircraft” by the civil aviation authority or authorities of one or more “Participating States”.

Technical Notes:

1. ‘Positional aiding references’ independently provide position, and include:
 - (a) Global Navigation Satellite Systems (GNSS); *and*

- (b) “Data-Based Referenced Navigation” (“DBRN”).
2. ‘Circular Error Probable’ (‘CEP’)—In a circular normal distribution, the radius of the circle containing 50% of the individual measurements being made, or the radius of the circle within which there is a 50% probability of being located.
 - (a) Designed for “aircraft”, land vehicles or vessels, providing position without the use of ‘positional aiding references’, and having any of the following accuracies subsequent to normal alignment:
 - (1) 0.8 nautical miles per hour (nm/hr) ‘Circular Error Probable’ (‘CEP’) rate or less (better);
 - (2) 0.5% distanced travelled ‘CEP’ or less (better);
 - (3) Total drift of 1 nautical mile ‘CEP’ or less (better) in a 24-hour period;

Technical Note:

The performance parameters in 7A003(a)(1), 7A003(a)(2) and 7A003(a)(3) typically apply to ‘inertial measurement equipment or systems’ designed for “aircraft”, vehicles and vessels, respectively. These parameters result from the utilization of specialized non-positional aiding references (e.g. altimeter, odometer, velocity log). As a consequence, the specified performance values cannot be readily converted between these parameters.

Equipment designed for multiple platforms are evaluated against each applicable entry 7A003(a)(1), 7A003(a)(2) or 7A003(a)(3).

- (b) Designed for “aircraft”, land vehicles or vessels, with an embedded ‘positional aiding reference’ and providing position after loss of all ‘positional aiding references’ for a period of up to 4 minutes, having an accuracy of less (better) than 10 metres ‘CEP’;

Technical Note:

7A003(b) refers to systems in which ‘inertial measurement equipment or systems’ and other independent ‘positional aiding references’ are built into a single unit (i.e. embedded) in order to achieve improved performance.

- (c) Designed for “aircraft”, land vehicles or vessels, providing heading or True North determination and meeting any of the following descriptions:
- (1) Having a maximum operating angular rate less (lower) than 500 deg/s and a heading accuracy without the use of ‘positional aiding references’ equal to or less (better) than 0.07 deg sec(Lat) (equivalent to 6 arc minutes rms at 45 degrees latitude);
 - (2) Having a maximum operating angular rate equal to or greater (higher) than 500 deg/s and a heading accuracy

without the use of ‘positional aiding references’ equal to or less (better) than 0.2 deg sec(Lat) (equivalent to 17 arc minutes rms at 45 degrees latitude);

- (d) Providing acceleration measurements or angular rate measurements, in more than one dimension, and meeting any of the following descriptions:
- (1) Having performance specified in 7A001 or 7A002 along any axis, without the use of any aiding references;
 - (2) Being “space-qualified” and providing angular rate measurements having an “angle random walk” along any axis of less (better) than or equal to 0.1 degree per square root hour;

Note:

7A003(d)(2) does not control ‘inertial measurement equipment or systems’ that contain “spinning mass gyros” as the only type of gyro.”.

- (541) Schedule 1, English text, Dual-use Goods List, Category 7, 7A101, Note—

Repeal

“service”

Substitute

“services”.

- (542) Schedule 1, Dual-use Goods List, Category 7, 7A103(a)(2)—

Repeal

everything after “or 7A001(a)(2)”

Substitute

“designed for use in inertial navigation systems or in guidance systems of all types, and usable in ‘missiles’;”.

- (543) Schedule 1, Dual-use Goods List, Category 7, 7A103(d), after “navigation systems,”—

Add

“other than those specified in 6A006,”.

- (544) Schedule 1, Dual-use Goods List, Category 7, 7A105, after “Galileo),”—

Add

“other than those specified in 7A005,”.

- (545) Schedule 1, Dual-use Goods List, Category 7, 7A105(a)—

Repeal

everything after “9A004,”

Substitute

“sounding rockets controlled by 9A104 or “unmanned aerial vehicles” controlled by 9A012 or 9A112(a);”.

- (546) Schedule 1, Dual-use Goods List, Category 7—

Repeal 7D003(c) and (d).

- (547) Schedule 1, Dual-use Goods List, Category 7, after 7D003—

Add

“7D004 “Source code” incorporating “development” “technology” controlled by 7E004(a)(2), 7E004(a)(3), 7E004(a)(5), 7E004(a)(6) or 7E004(b), for any of the following:

- (a) Digital flight management systems for “total control of flight”;
- (b) Integrated propulsion and flight control systems;
- (c) “Fly-by-wire systems” or “fly-by-light systems”;
- (d) Fault-tolerant or self-reconfiguring “active flight control systems”;
- (e) Not used;
- (f) Air data systems based on surface static data;
- (g) 3-dimensional displays;

Note:

7D004 does not control “source code” associated with common computer elements and utilities (e.g. input signal acquisition, output signal transmission, computer program and data loading, built-in test, task scheduling mechanisms) not providing a specific flight control system function.

7D005 “Software” specially designed to decrypt Global Navigation Satellite Systems (GNSS) ranging code designed for government use;”.

- (548) Schedule 1, Dual-use Goods List, Category 7, 7E001—

Repeal

everything after ““software””

Substitute

- “, specified in 7A, 7B, 7D001, 7D002, 7D003, 7D005, 7D101, 7D102 and 7D103;”.
- (549) Schedule 1, Dual-use Goods List, Category 7, at the end of 7E001—

Add

Note:

7E001 includes key management “technology” exclusively for equipment specified in 7A005(a).”.

- (550) Schedule 1, Dual-use Goods List, Category 7, 7E004(b)—

Repeal

“fly-by-wire or fly-by-light”

Substitute

““fly-by-wire systems” or “fly-by-light systems””.

- (551) Schedule 1, Dual-use Goods List, Category 7—

Repeal 7E004(b)(1)

Substitute

“(1) Photonic-based “technology” for sensing aircraft or flight control component state, transferring flight control data, or commanding actuator movement, “required” for “fly-by-light systems” or “active flight control systems”;”.

- (552) Schedule 1, Dual-use Goods List, Category 7—

Repeal 7E004(b)(2).

- (553) Schedule 1, Dual-use Goods List, Category 7—

Repeal 7E004(b)(3) and (4)

Substitute

- “(3) Real-time algorithms to analyze component sensor information to predict and preemptively mitigate impending degradation and failures of components within an “active flight control system”;

Note:

7E004(b)(3) does not control algorithms for off-line maintenance.

- (4) Real-time algorithms to identify failures of components and reconfigure force and moment controls to mitigate “active flight control system” degradation and failures;

Note:

7E004(b)(4) does not control algorithms for the elimination of fault effects through comparison of redundant data sources, or off-line pre-planned responses to anticipated failures.”.

- (554) Schedule 1, Chinese text, Dual-use Goods List, Category 7, 7E004(b)(5)—

Repeal everything before Note 2

Substitute

- “(5) 將數碼式飛行控制、導航及推進控制資料集成而為一“飛行全控”的數碼式飛行管理系統；

註釋：

項目 7E004(b)(5)不管制：

1. 將數碼式飛行控制、導航及推進控制資料集成而為一“飛行航線優化”的數碼式飛行管理系統的“發展”“技術”。

- (555) Schedule 1, Dual-use Goods List, Category 7—

Repeal 7E004(b)(6).

(556) Schedule 1, Dual-use Goods List, Category 7, at the end of 7E004(b)---

Add

“(7) “Technology” “required” for deriving the functional requirements for “fly-by-wire systems”---

- (a) that have ‘inner-loop’ airframe stability controls requiring a loop closure rate of 40 Hz or greater;

Technical Note:

‘Inner-loop’ refers to functions of “active flight control systems” that automate airframe stability controls.

- (b) that meet any of the following descriptions:

(1) Correct an aerodynamically unstable airframe, measured at any point in a design flight envelope, that would lose recoverable control if not corrected within 0.5 seconds;

(2) Combine controls in 2 or more axes while compensating for ‘abnormal changes in aircraft state’;

Technical Note:

‘Abnormal changes in aircraft state’ include in-flight structural damage, loss of engine thrust, disabled control surface and destabilizing shifts in cargo load.

(3) Perform the functions specified in 7E004(b)(5);

Note:

7E004(b)(7)(b)(3) does not control autopilots.

(4) Enable an aircraft to have a stable controlled flight, other than during take-off or landing, at an angle of attack greater than 18 degrees, a side slip at 15 degrees, a pitch rate or yaw rate of 15 degrees per second, or a roll rate of 90 degrees per second;

(8) “Technology” “required” for deriving the functional requirements for “fly-by-wire systems” to achieve---

- (a) No loss of control of the aircraft in the event of a consecutive sequence of any 2 individual faults within the “fly-by-wire system”; *and*

- (b) A probability of loss of control of the aircraft that is less (better) than 1×10^{-9} failures per flight hour;

Note:

7E004(b) does not control “technology” associated with common computer elements and utilities (e.g., input signal acquisition, output signal transmission, computer program and data loading, built-in test, task scheduling mechanisms) not providing a specific flight control system function.”.

(557) Schedule 1, Dual-use Goods List, Category 8---

Repeal 8A001(f), (g), (h) and (i).

(558) Schedule 1, Dual-use Goods List, Category 8, 8A002(i)(2)---

Repeal

“or by using a dedicated computer, and having 5 degrees of freedom of movement”

Substitute

“and having 5 degrees of ‘freedom of movement’”.

(559) Schedule 1, Dual-use Goods List, Category 8, 8A002(i)(2)---

Repeal the Note

Substitute

“Technical Note:

Only functions having proportionally related motion control using positional feedback are counted when determining the number of degrees of ‘freedom of movement’.”.

(560) Schedule 1, Dual-use Goods List, Category 8—

Repeal 8A002(k), (l), (m), (n) and (o)(1).

(561) Schedule 1, Dual-use Goods List, Category 8, at the end of 8A002(q)—

Add

“N.B.:

For equipment and devices specially designed for military use, see the Munitions List.”.

(562) Schedule 1, Dual-use Goods List, Category 8, after 8E002(b)—

Add

“(c) “Technology” according to the General Technology Note for the “development” or “production” of any of the following characteristics:

- (1) Surface-effect vehicles (fully skirted variety) having all of the following characteristics:
 - (a) A maximum design speed, fully loaded, exceeding 30 knots in a significant wave height of 1.25 m or more;
 - (b) A cushion pressure exceeding 3 830 Pa;
 - (c) A light-ship-to-full-load displacement ratio of less than 0.70;

- (2) Surface-effect vehicles (rigid sidewalls) with a maximum design speed, fully loaded, exceeding 40 knots in a significant wave height of 3.25 m or more;
- (3) Hydrofoil vessels with active systems for automatically controlling foil systems, with a maximum design speed, fully loaded, of 40 knots or more in a significant wave height of 3.25 m or more;
- (4) ‘Small waterplane area vessels’ having any of the following characteristics:
 - (a) A full load displacement exceeding 500 tonnes with a maximum design speed, fully loaded, exceeding 35 knots in a significant wave height of 3.25 m or more;
 - (b) A full load displacement exceeding 1 500 tonnes with a maximum design speed, fully loaded, exceeding 25 knots in a significant wave length of 4 m or more;

Technical Note:

A ‘small waterplane area vessel’ is defined by the following formula: waterplane area at an operational design draft that is less than $2 \times$ (displaced volume at the operational design draft)^{2/3}.”.

(563) Schedule 1, Chinese text, Dual-use Goods List, Category 9, 9A001—

Repeal

“任何條件的空用燃氣渦輪引擎”

Substitute

“任何條件的航空用燃氣渦輪引擎”。

(564) Schedule 1, Dual-use Goods List, Category 9, 9A001(a)---

Repeal

“technologies”

Substitute

““technologies””。

(565) Schedule 1, Dual-use Goods List, Category 9, 9A001(a)---

Repeal the Note

Substitute

“Notes:

1. 9A001(a) does not control aero gas turbine engines that meet both of the following descriptions:
 - (a) Certified by the civil aviation authority or authorities of one or more “Participating States”;
 - (b) Intended to power non-military manned “aircraft” for which any of the following has been issued by the civil aviation authority or authorities of one or more “Participating States” for the “aircraft” with this specific engine type:
 - (1) A civil Type Certificate;
 - (2) An equivalent document recognized by the International Civil Aviation Organization (ICAO).
2. 9A001(a) does not control aero gas turbine engines designed for Auxiliary Power Units (APUs) approved by the civil aviation authority or authorities of one or more “Participating States”.

(566) Schedule 1, Dual-use Goods List, Category 9, 9A003---

Repeal

“gas turbine engine propulsion systems”

Substitute

“aero gas turbine engines”。

(567) Schedule 1, English text, Dual-use Goods List, Category 9, 9A003(b)---

Repeal

“non-“participating states””

Substitute

“non-“Participating States””。

(568) Schedule 1, Dual-use Goods List, Category 9---

Repeal 9A004

Substitute

“9A004 Space launch vehicles, “spacecraft”, “spacecraft buses” and other systems or equipment (including terrestrial equipment), as follows:

N.B.:

See also 9A104.

- (a) Space launch vehicles;
- (b) “Spacecraft”;
- (c) “Spacecraft buses”;
- (d) “Spacecraft payloads” incorporating the items specified or described in 3A001(b)(1)(a)(4), 3A002(g), 5A001(a)(1), 5A001(b)(3), 5A002(a)(5), 5A002(a)(9), 6A002(a)(1), 6A002(a)(2), 6A002(b), 6A002(d), 6A003(b), 6A004(c), 6A004(e),

6A008(d), 6A008(e), 6A008(k), 6A008(l) or 9A010(c);

- (e) On-board systems or equipment, specially designed for “spacecraft” and having any of the following functions:

- (1) ‘Command and telemetry data handling’;

Note:

For the purposes of 9A004(e)(1), ‘command and telemetry data handling’ includes bus data management, storage and processing.

- (2) ‘Payload data handling’;

Note:

For the purposes of 9A004(e)(2), ‘payload data handling’ includes payload data management, storage and processing.

- (3) ‘Attitude and orbit control’;

Note:

For the purposes of 9A004(e)(3), ‘attitude and orbit control’ includes sensing and actuation to determine and control the position and orientation of a “spacecraft”.

N.B.:

For equipment specially designed for military use, see the Munitions List.

- (f) Terrestrial equipment, specially designed for

“spacecraft”, as follows:

- (1) Telemetry and telecommand equipment;
(2) Simulators;”.

- (569) Schedule 1, Dual-use Goods List, Category 9, 9A006, Nota Bene—

Repeal

“and 9A108”

Substitute

“, 9A108 and 9A120”.

- (570) Schedule 1, English text, Dual-use Goods List, Category 9, 9A006(g), after “orifices”—

Add

“and”.

- (571) Schedule 1, Chinese text, Dual-use Goods List, Category 9, 9A007(a)—

Repeal

“總推力量”

Substitute

“總推動力”.

- (572) Schedule 1, Chinese text, Dual-use Goods List, Category 9, 9A009(a)—

Repeal

“總推力”

Substitute

“總推動力”.

(573) Schedule 1, Dual-use Goods List, Category 9, 9A010(a)---

Repeal

everything after “structures”

Substitute

“, each exceeding 10 kg and specially designed for launch vehicles, and manufactured using any of the following:

- (1) A “composite” material consisting of any of the “fibrous or filamentary materials” specified in 1C010(e) and any resin specified in or controlled by 1C008 or 1C009(b);
- (2) A metal “matrix” “composite” reinforced by:
 - (a) Any of the materials specified in 1C007;
 - (b) Any of the “fibrous or filamentary materials” specified in 1C010; *or*
 - (c) Any of the aluminides specified in 1C002(a);
- (3) A ceramic-“matrix” “composite” material specified in 1C007;

Note:

The weight cut-off is not relevant for nose cones.”.

(574) Schedule 1, Dual-use Goods List, Category 9, 9A010(b)---

Repeal

everything after “structures”

Substitute

“, specially designed for any of the launch vehicle propulsion systems specified in 9A005 to 9A009, and manufactured using any of the following:

- (1) Any of the “fibrous or filamentary materials” specified in 1C010(e) and any resins specified in or controlled by 1C008 or 1C009(b);
- (2) A metal “matrix” “composite” reinforced by:
 - (a) Any of the materials specified in 1C007;
 - (b) Any of the “fibrous or filamentary materials” specified in 1C010; *or*
 - (c) Any of the aluminides specified in 1C002(a);
- (3) A ceramic-“matrix” “composite” material specified in 1C007;”.

(575) Schedule 1, English text, Dual-use Goods List, Category 9, 9A010(c), after “systems”---

Add a comma.

(576) Schedule 1, Dual-use Goods List, Category 9, before 9A012(a)---

Add

“*N.B.:*

See also 9A112.”.

(577) Schedule 1, Dual-use Goods List, Category 9, 9A012(a)---

Repeal

everything after ““airships”,”

Substitute

“designed to have controlled flights out of the direct ‘natural vision’ of the ‘operator’ and meeting either of the following descriptions:

- (1) Meeting both of the following requirements:

- (a) Having a maximum 'endurance' that is equal to or greater than 30 minutes but less than 1 hour;
- (b) Designed for take-off and having stable controlled flight in wind gusts equal to or exceeding 46.3 km/h (25 knots);

(2) Having a maximum 'endurance' of 1 hour or greater;

Technical Notes:

For the purposes of 9A012(a):

- (1) 'Operator' is a person who initiates or commands a "UAV" or unmanned "airship" flight.
- (2) 'Endurance' is to be calculated for ISA conditions (ISO 2533 (1975)) at sea level with zero wind.
- (3) 'Natural vision' means unaided human sight, with or without corrective lenses."

(578) Schedule 1, Dual-use Goods List, Category 9, 9A012(b)—

Repeal

"systems,".

(579) Schedule 1, Dual-use Goods List, Category 9—

Repeal 9A012(b)(1) and (2).

(580) Schedule 1, Dual-use Goods List, Category 9, 9A012(b)(4)—

Repeal

"50 000 feet (15 240 metres)"

Substitute

"15 240 metres (50 000 feet)".

(581) Schedule 1, Dual-use Goods List, Category 9, 9A012—

Repeal the Note.

(582) Schedule 1, Dual-use Goods List, Category 9, 9A101(a)(1)—

(a) **Repeal**

"Maximum thrust value"

Substitute

"Maximum thrust value";

(b) **Repeal**

"maximum thrust value"

Substitute

"maximum thrust value".

(583) Schedule 1, Dual-use Goods List, Category 9, 9A101(a)(2)—

(a) English text—

Repeal

"kg/N/h"

Substitute

"kg/N/hr";

(b) **Repeal**

"and standard conditions"

Substitute

"conditions using the International Civil Aviation Organisation (ICAO) standard atmosphere".

(584) Schedule 1, Dual-use Goods List, Category 9, at the end of 9A101(a)—

Add

Technical Note:

For the purposes of 9A101(a)(1), 'maximum thrust value' is the manufacturer's demonstrated maximum thrust for the engine type un-installed. The civil type certified thrust value

will be equal to or less than the manufacturer's demonstrated maximum thrust for the engine type.”.

- (585) Schedule 1, Dual-use Goods List, Category 9, 9A101(b), after “9A012”---

Add

“or 9A112(a)”.

- (586) Schedule 1, Dual-use Goods List, Category 9, 9A102---

(a) **Repeal**

““Unmanned Aerial Vehicles””

Substitute

““unmanned aerial vehicles” specified in 9A012 or 9A112(a)”;

(b) **Repeal**

everything after “having a” and before the Technical Note

Substitute

““maximum power’ greater than 10 kW;

Note:

9A102 does not control civil certified engines.”.

- (587) Schedule 1, Dual-use Goods List, Category 9, 9A102---

Repeal

“*Technical Note:*

For the purposes”

Substitute

“*Technical Notes:*

1. For the purposes”.

- (588) Schedule 1, Dual-use Goods List, Category 9, 9A102, after Technical Note 1---

Add

“2. For the purposes of 9A102, ‘maximum power’ is achieved uninstalled at sea level static conditions using the International Civil Aviation Organization (ICAO) standard atmosphere.”.

- (589) Schedule 1, Dual-use Goods List, Category 9, 9A105(a)---

Repeal

everything after “those”

Substitute

“specified in 9A005, integrated, or designed or modified to be integrated, into a liquid propellant propulsion system that has a total impulse capacity equal to or greater than 1.1 MNs;”.

- (590) Schedule 1, Dual-use Goods List, Category 9, 9A105(b)---

Repeal

everything after “systems or”

Substitute

““unmanned aerial vehicles”, capable of a range of 300 km, other than those specified in 9A005 or 9A105(a), integrated, or designed or modified to be integrated, into a liquid propellant propulsion system that has a total impulse capacity equal to or greater than 0.841 MNs;”.

- (591) Schedule 1, Dual-use Goods List, Category 9, 9A106(d)---

(a) **Repeal**

“and slurry propellant (including oxidizer)”

Substitute

“, slurry and gel propellant (including oxidizers)”;

- (b) English text—
Repeal
““missiles””
Substitute
““missiles”, ”;
- (c) **Repeal**
“2 000 Hz”
Substitute
“2 kHz”;
- (d) Chinese text—
Repeal
“為其”
Substitute
“為該等系統”.
- (592) Schedule 1, Dual-use Goods List, Category 9, 9A106(d),
Note—
Repeal
“and pumps”
Substitute
“, pumps and gas turbines”.
- (593) Schedule 1, Dual-use Goods List, Category 9, 9A106(d), Note
(b), after “rpm”—
Add
“at the maximum operating mode,”.
- (594) Schedule 1, Dual-use Goods List, Category 9, 9A106(d), after
Note (b)—

- Add**
“(c) Gas turbines, for liquid propellant turbo pumps, with
shaft speeds equal to or greater than 8 000 rpm at the
maximum operating mode;”.
- (595) Schedule 1, Dual-use Goods List, Category 9, after
9A106(d)—
Add
“(e) Combustion chambers and nozzles, usable in “missiles”,
space launch vehicles controlled by 9A004 or sounding
rockets specified in 9A104;”.
- (596) Schedule 1, Dual-use Goods List, Category 9, 9A107—
(a) **Repeal**
“unmanned air vehicles”
Substitute
““unmanned aerial vehicles””;
- (b) Chinese text—
Repeal
“總推力量”
Substitute
“總推動力”.
- (597) Schedule 1, Dual-use Goods List, Category 9, 9A111—
Repeal
““Unmanned Aerial Vehicles” specified in 9A012”
Substitute
““unmanned aerial vehicles” specified in 9A012 or
9A112(a)”.
- (598) Schedule 1, Dual-use Goods List, Category 9, after 9A111—

Add

- “9A112 “Unmanned aerial vehicles” (“UAVs”), other than those specified in 9A012, as follows:
- (a) “UAVs” capable of a range of 300 km;
 - (b) “UAVs” that meet both of the following descriptions:
 - (1) Having either of the following:
 - (a) An autonomous flight control and navigation capability;
 - (b) A capability of controlled flight out of the direct visual range involving a human operator;
 - (2) Meeting either of the following descriptions:
 - (a) Incorporating an aerosol dispensing system or mechanism with a capacity greater than 20 litres;
 - (b) Designed or modified to incorporate an aerosol dispensing system or mechanism with a capacity greater than 20 litres;

Technical Notes:

1. An aerosol consists of particulate or liquids, other than fuel components, by-products or additives, as part of the payload to be dispersed into the atmosphere. Examples of aerosols include pesticides for crop dusting

and dry chemicals for cloud seeding.

2. An aerosol dispensing system or mechanism contains all those devices (mechanical, electrical, hydraulic, etc.) that are necessary for the storage of an aerosol and its dispersion into the atmosphere. The dispersion may be effected by aerosol injection into the combustion exhaust vapour and the propeller slip stream.”

(599) Schedule 1, Dual-use Goods List, Category 9, 9A115(a)---

Repeal

everything after “9A004,”

Substitute

“sounding rockets specified in 9A104 or “unmanned aerial vehicles” specified in 9A012 or 9A112(a);”.

(600) Schedule 1, Dual-use Goods List, Category 9, at the end of 9A117---

Add

“*N.B.:*

See also 9A121.”.

(601) Schedule 1, Dual-use Goods List, Category 9, 9A118---

Repeal

everything after “engines”

Substitute

“that meet both of the following descriptions:

- (a) specified in 9A011 or 9A111;
- (b) usable in “missiles” or “unmanned aerial vehicles” controlled by 9A012 or 9A112(a);”.

- (602) Schedule 1, Dual-use Goods List, Category 9, 9A119—
Repeal
“unmanned air vehicles”
Substitute
““unmanned aerial vehicles””.
- (603) Schedule 1, Dual-use Goods List, Category 9, after 9A120—
Add
“9A121 Umbilical and ‘interstage electrical connectors’ specially designed for “missiles”, space launch vehicles controlled by 9A004 or sounding rockets specified in 9A104;
Technical Note:
‘Interstage electrical connectors’ also include electrical connectors installed between the “missile”, space launch vehicle or sounding rocket and their payload.”.
- (604) Schedule 1, Dual-use Goods List, Category 9, 9B001—
(a) **Repeal**
“Specially designed equipment, tooling and fixtures, as follows,”
Substitute
“Equipment, tooling or fixtures, specially designed”;
- (b) English text—
Repeal
“castings:”
Substitute
“castings, as follows:”.

- (605) Schedule 1, Dual-use Goods List, Category 9—
Repeal 9B001(b)
Substitute
“(b) Cores or shells (moulds), manufactured from refractory metals or ceramics, and specially designed for casting;”.
- (606) Schedule 1, Dual-use Goods List, Category 9, after 9B001(b)—
Add
“(c) Directional-solidification or single-crystal additive-manufacturing equipment;”.
- (607) Schedule 1, Dual-use Goods List, Category 9, 9B010—
Repeal
everything after “for the”
Substitute
“production of the items specified in 9A012;”.
- (608) Schedule 1, Dual-use Goods List, Category 9, 9B105—
Repeal
“Wind tunnels”
Substitute
““Aerodynamic test facilities””.
- (609) Schedule 1, Dual-use Goods List, Category 9, 9B105—
Repeal everything after the Nota Bene
Substitute
“*Note:*”.

9B105 does not control wind tunnels for speeds of Mach 3 or less with dimension of the 'test cross section size' equal to or less than 250 mm.

Technical Notes:

1. In 9B105, 'aerodynamic test facilities' include wind tunnels and shock tunnels for the study of airflow over objects.
2. In 9B105, 'missiles' means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.
3. In the Note to 9B105, 'test cross section size' means the diameter of the circle, or the side of the square, or the longest side of the rectangle, or the major axis of the ellipse at the largest 'test cross section' location. 'Test cross section' is the section perpendicular to the flow direction."

(610) Schedule 1, Dual-use Goods List, Category 9, 9B106(a)(2)—

(a) **Repeal**

"designed or modified"

Substitute

"designed or modified";

(b) **Repeal**

"2 kHz"

Substitute

"2 kHz while".

(611) Schedule 1, Dual-use Goods List, Category 9, 9B106(a)—

Repeal

"5 kN;

Technical Notes:

1. 9B106(a)"

Substitute

"5 kN;

Technical Notes:

1. 9B106(a)(2)".

(612) Schedule 1, Dual-use Goods List, Category 9, 9B106(a), Technical Note 2—

Repeal

"9B106(a), designed or modified"

Substitute

"9B106(a)(2), 'designed or modified'".

(613) Schedule 1, Dual-use Goods List, Category 9, 9B106(a), after Technical Note 2—

Add

"3. In 9B106(a)(2), 'bare table' means a flat table, or surface, with no fixture or fittings."

(614) Schedule 1, Dual-use Goods List, Category 9, 9B106(b)(1)—

Repeal

" $2 \times 10^{-5} \text{ N/m}^2$ "

Substitute

"20 μPa ".

(615) Schedule 1, Dual-use Goods List, Category 9, 9B106—

Repeal the Note.

(616) Schedule 1, Dual-use Goods List, Category 9, 9D003—

Repeal

- “propulsion”.
- (617) Schedule 1, Chinese text, Dual-use Goods List, Category 9, 9D004(b)—
Repeal
“空用燃氣渦輪引擎”
Substitute
“航空用燃氣渦輪引擎”.
- (618) Schedule 1, Dual-use Goods List, Category 9, 9D004(c)—
Repeal
“casting”
Substitute
“material growth in the equipment specified in 9B001(a) or 9B001(c)”.
- (619) Schedule 1, Dual-use Goods List, Category 9, 9D004(e)—
Repeal
““UAVs” and associated systems, equipment and components”
Substitute
“the items”.
- (620) Schedule 1, Chinese text, Dual-use Goods List, Category 9, 9D004(f) and (g)(1) and (2)—
Repeal
“航空燃氣渦輪引擎”
Substitute
“航空用燃氣渦輪引擎”.
- (621) Schedule 1, Dual-use Goods List, Category 9, after 9D004—

- Add**
“9D005 “Software” specially designed or modified for the operation of the items specified in 9A004(e) or 9A004(f);”.
- (622) Schedule 1, Dual-use Goods List, Category 9, 9D103—
Repeal
everything after “subsystems” and before the Note
Substitute
“or “missiles” specified in 9A005, 9A007, 9A105, 9A106(c), 9A107, 9A108(c), 9A116 or 9A119, as appropriate;”.
- (623) Schedule 1, Dual-use Goods List, Category 9, 9D103, Note—
Repeal
“supplied with specially designed hybrid computers specified in”
Substitute
“combined with specially designed hardware controlled by”.
- (624) Schedule 1, Dual-use Goods List, Category 9, 9D105—
(a) After ““Software””—
Add
“(other than that specified in 9D004(e))”;
(b) **Repeal**
“9A104;”
Substitute
“9A104 or ‘missiles’;
Technical Note:

In 9D105, ‘missiles’ means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.”.

(625) Schedule 1, Dual-use Goods List, Category 9, 9E, Note—

Repeal

“9E for gas turbine engines remains specified in 9E when used for repair or overhaul. Excluded from 9E”

Substitute

“9E001, 9E002 and 9E003 for gas turbine engines remains controlled when used for repair or overhaul. Excluded from control”.

(626) Schedule 1, Dual-use Goods List, Category 9, 9E003(a)(3)—

Repeal

everything after “Components”

Substitute

“that are:

(a) Manufactured from any organic “composite” material designed to operate at a temperature above 588 K (315°C);

(b) Manufactured from either of the following:

(1) A metal “matrix” “composite” reinforced by:

(a) Any of the materials specified in 1C007;

(b) Any of the “fibrous or filamentary materials” specified in 1C010; *or*

(c) Any of the aluminides specified in 1C002(a);

(2) A ceramic-“matrix” “composite” material specified in 1C007; *or*

(c) Stators, vanes, blades, tip seals (shrouds), rotating blings, rotating blisks or ‘splitter ducts’, and that meet all of the following descriptions:

(1) Not specified in 9E003(a)(3)(a);

(2) Designed for compressors or fans;

(3) Manufactured from any of the materials specified in 1C010(e) that has a resin specified in 1C008;

Technical Note:

A ‘splitter duct’ performs the initial separation of the air-mass flow between the bypass and the core sections of an engine.”.

(627) Schedule 1, Dual-use Goods List, Category 9, 9E003(a)(4)—

Repeal

everything after “vanes”

Substitute

“or “tip-shrouds”, designed to operate at a ‘gas path temperature’ of 1 373 K (1 100°C) or above;”.

(628) Schedule 1, Dual-use Goods List, Category 9, 9E003(a)(5)—

Repeal

everything after “9E003(a)(1),”

Substitute

“designed to operate at a ‘gas path temperature’ of 1 693 K (1 420°C) or more;”.

(629) Schedule 1, Dual-use Goods List, Category 9, at the end of 9E003(a)(5)—

Add

“Technical Notes:

1. 'Gas path temperature' is the bulk average gas path total (stagnation) temperature at the leading edge plane of the turbine component when the engine is running in a 'steady state mode' of operation at the certificated or specified maximum continuous operating temperature.
 2. The term 'steady state mode' defines engine operation conditions, where the engine parameters, such as thrust or power, rpm and others, have no appreciable fluctuations, when the ambient air temperature and pressure at the engine inlet are constant."
- (630) Schedule 1, Dual-use Goods List, Category 9, 9E003(h), Note—
- Repeal**
"certification authorities"
- Substitute**
"authority or authorities of one or more "Participating States"".
- (631) Schedule 1, Dual-use Goods List, Category 9, after 9E003(i)—
- Add**
"(j) "Technology" "required" for the "development" of wing-folding systems designed for fixed wing aircraft powered by gas turbine engines;
N.B.:
See also the Munitions List."
- (632) Schedule 1, Dual-use Goods List, Category 9, 9E101(a)—
- Repeal**
"or 9A115 to 9A119"

- Substitute**
", 9A112(a) or 9A115 to 9A121".
- (633) Schedule 1, Dual-use Goods List, Category 9, 9E101(b)—
- Repeal**
"or 9A115 to 9A119"
- Substitute**
", 9A112(a) or 9A115 to 9A121".
- (634) Schedule 1, Dual-use Goods List, Category 9, 9E101(b), Technical Note—
- Repeal**
"the term".
- (635) Schedule 1, Dual-use Goods List, Category 9, 9E102—
- (a) **Repeal**
"9A004 or"
- Substitute**
"9A004,";
- (b) **Repeal**
"9A115 to 9A119"
- Substitute**
"9A112(a), 9A115 to 9A121".
- (636) Schedule 1, Dual-use Goods List, Category 9, 9E102, Technical Note—
- Repeal**
"the term".
- (637) Schedule 1, Definitions of terms, definition of *Angular position deviation*—

Repeal

everything after “position.”.

- (638) Schedule 1, Definitions of terms, definition of *Biocatalysts*—

Repeal

“ML7 “Biocatalysts” (生物催化劑)”

Substitute

“ML7 “Biocatalysts” (生物催化劑).
ML22

- (639) Schedule 1, Definitions of terms, definition of *Biocatalysts*—

Repeal

“Enzymes for”

Substitute

““Enzymes’ for”.

- (640) Schedule 1, Definitions of terms, definition of *Biopolymers*—

Repeal paragraph (b)

Substitute

“(b) ‘Anti-idiotypic antibodies’, ‘monoclonal antibodies’ or
‘polyclonal antibodies’;”.

- (641) Schedule 1, Definitions of terms, definition of *Biopolymers*
paragraph (c)—

Repeal

“receptors”

Substitute

““receptors””.

- (642) Schedule 1, Definitions of terms, definition of *Biopolymers*,
Technical Note 4—

Repeal

““Receptors””

Substitute

““Receptors””.

- (643) Schedule 1, Definitions of terms—

Repeal the definition of *Civil aircraft*

Substitute

“1 3 4 7 “Civil aircraft” (民用飛機)

ML4

ML10

Those “aircraft” listed by designation in
published airworthiness certification lists by
the civil aviation authority or authorities of
one or more “Participating States” to fly
commercial civil internal and external routes
or for legitimate civil, private or business
use.”.

- (644) Schedule 1, Definitions of terms, definition of *Cryptographic
activation*—

Repeal

everything after “cryptographic capability”

Substitute

“of an item, by means of a secure mechanism implemented by
the manufacturer of the item, where this mechanism is
uniquely bound to any of the following:

(a) A single instance of the item;

(b) One customer, for multiple instances of the item.

Technical Notes:

1. “Cryptographic activation” techniques and mechanisms may be implemented as hardware, “software” or “technology”.
 2. Mechanisms for “cryptographic activation” can, for example, be serial number-based licence keys or authentication instruments such as digitally signed certificates.”.
- (645) Schedule 1, Definitions of terms—
Repeal the definition of *Diffusion bonding*
Substitute
“1 2 9 “Diffusion bonding” (擴散接合)
A solid state joining of at least 2 separate pieces of metals into a single piece with a joint strength equivalent to that of the weakest material, in which the principal mechanism is interdiffusion of atoms across the interface.”.
- (646) Schedule 1, Definitions of terms, definition of *End-effectors*—
Repeal the *Nota Bene*
Substitute
“*Technical Note:*
‘Active tooling units’ are devices for applying motive power, process energy or sensing to a workpiece.”.
- (647) Schedule 1, Definitions of terms, definition of *Fibrous or filamentary materials*—
Repeal
“0 1 8 “Fibrous or filamentary materials” (纖維或絲狀

- 物料)”
- Substitute**
“0 1 8 9 “Fibrous or filamentary materials” (纖維或絲狀物料)”.
- (648) Schedule 1, Definitions of terms, definition of *Frequency hopping*—
Repeal
“5 “Frequency hopping” (跳頻)”
Substitute
“5 6 “Frequency hopping” (跳頻)”.
- (649) Schedule 1, Definitions of terms, definition of *Information security*—
Repeal
“5 “Information security” (資訊安全)”
Substitute
“GSN “Information security” (資訊安全).
4 5 8
- (650) Schedule 1, Chinese text, Definitions of terms, definition of *資訊安全*, Technical Note—
Repeal
“清除文字”
Substitute
“清晰的原文”.
- (651) Schedule 1, Definitions of terms, definition of *ISO*—
Repeal
“2 9 “ISO””

Substitute

“1 2 5 6 “ISO””
9

- (652) Schedule 1, Definitions of terms, definition of *Local area network*—

Repeal

“which”

Substitute

“having all of the following characteristics”.

- (653) Schedule 1, Definitions of terms, definition of *Local area network*, paragraph (a)—

Repeal

“and”.

- (654) Schedule 1, Definitions of terms, definition of *Local area network*—

Repeal the Nota Bene

Substitute

“*Technical Note:*

‘Data device’ means equipment capable of transmitting or receiving sequences of digital information.”.

- (655) Schedule 1, Definitions of terms—

Repeal the definition of *Materials resistant to corrosion by UF₆*

Substitute

“0 “Materials resistant to corrosion by UF₆” (可抵抗 UF₆ 腐蝕的物料)

Include copper, copper alloys, stainless

steel, aluminium, aluminium oxide, aluminium alloys, nickel or alloys containing 60% or more nickel by weight and fluorinated hydrocarbon polymers.”.

- (656) Schedule 1, Definitions of terms, definition of *Measurement uncertainty*—

Repeal

“, or VDI/VDE 2617”.

- (657) Schedule 1, Definitions of terms, definition of *Object code*—

Repeal

“4 9 “Object code” (目標碼)”

Substitute

“GSN “Object code” (目標碼)”.

- (658) Schedule 1, Definitions of terms, definition of *Participating state*—

Repeal

“7 9 “Participating state” (參與國)”

Substitute

“0 7 9 “Participating State” (參與國)”.

ML4

ML10

- (659) Schedule 1, Definitions of terms—

Repeal the definition of *Pyrotechnic(s)*

Substitute

“ML4 “Pyrotechnics(s)” (煙火劑)

ML8

Mixtures of solid or liquid fuels and oxidizers which, when ignited, undergo an

energetic chemical reaction at a controlled rate intended to produce specific time delays, or quantities of heat, noise, smoke, visible light or infrared radiation. Pyrophorics are a subclass of pyrotechnics, which contain no oxidizers but ignite spontaneously on contact with air.”.

- (660) Schedule 1, Definitions of terms, definition of *Required*—

Repeal

“GTN “Required” (所需)
1-9

Substitute

“GTN “Required” (所需).
1-9
ML22

- (661) Schedule 1, Definitions of terms, definition of *Spacecraft*—

Repeal

“7 9 “Spacecraft” (太空船)”

Substitute

“9 “Spacecraft” (太空船).
ML11

- (662) Schedule 1, Definitions of terms, definition of *Space-qualified*—

Repeal

“3 6 “Space-qualified” (太空級)
ML19

Substitute

“3 6 7 “Space-qualified” (太空級).”

ML19

- (663) Schedule 1, Definitions of terms, definition of *Unmanned aerial vehicles*—

Repeal

“9 “Unmanned aerial vehicles” (“UAVs”) (無人駕駛
ML10 飛行載具)”

Substitute

“1 4 5 6 “Unmanned aerial vehicles” (“UAVs”) (無人駕駛
7 9 飛行載具).
ML10

- (664) Schedule 1, Chinese text, Definitions of terms, definition of *高能物料*—

Repeal

““焰火訊號彈””

Substitute

““煙火劑””.

- (665) Schedule 1, Definitions of terms—

- (a) definition of *Expert systems*;
(b) definition of *Pressure transducers*—

Repeal the definitions.

- (666) Schedule 1, Definitions of terms—

Add in alphabetical order

“ML1 “Deactivated firearm” (失效槍枝)

A firearm that has been made incapable of firing any projectile by processes defined by the national authority of a “Participating State”. These processes permanently modify

the essential elements of the firearm. According to national laws and regulations, deactivation of the firearm may be attested by a certificate delivered by a competent authority and may be marked on the firearm by a stamp on an essential part.

7 “Fly-by-light system” (光傳飛控系統)
A primary digital flight control system employing feedback to control an aircraft during a flight, where the commands to the effectors or actuators are optical signals.

7 “Fly-by-wire system” (電傳飛控系統)
A primary digital flight control system employing feedback to control an aircraft during a flight, where the commands to the effectors or actuators are electrical signals.

1
ML17 “Libraries” (parametric technical database) (圖書資料) (參數技術資料庫)
A collection of technical information, reference to which may enhance the performance of relevant systems, equipment or components.

5 “Operations, Administration or Maintenance” (“OAM”) (操作、管理或維修)
Means performing one or more of the following tasks:
(a) Establishing or managing any of the

following:

- (1) Accounts or privileges of users or administrators;
 - (2) Settings of an item;
 - (3) Authentication data in support of the tasks described in subparagraph (1) or (2);
- (b) Monitoring or managing the operating condition or performance of an item;
- (c) Managing logs or audit data in support of the tasks described in paragraph (a) or (b).

Note:

“OAM” does not include any of the following tasks or their associated key management functions:

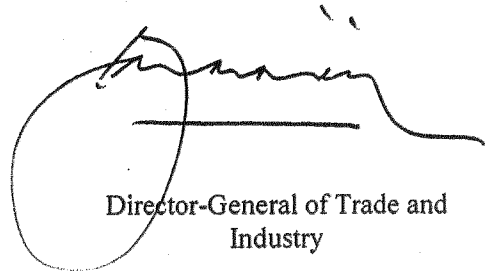
- (a) Provisioning or upgrading any cryptographic functionality that is not directly related to establishing or managing authentication data in support of the tasks described in paragraph (a)(1) or (2) above;
- (b) Performing any cryptographic functionality on the forwarding or data plane of an item.

1 2 “Plasma atomization” (等離子原子化)

A process to reduce a molten stream or solid metal to droplets with a diameter of 500 µm or less, using plasma torches in an inert gas

environment.

- 9 “Spacecraft bus” (太空船本體)
Equipment that provides support infrastructure for a “spacecraft” and locations for a “spacecraft payload”.
- 9 “Spacecraft payload” (太空船有效負載)
Equipment attached to a “spacecraft bus”, designed to perform a mission in space (e.g. communications, observation, science).
- 7 “Spinning mass gyros” (旋轉物體陀螺儀)
Means gyros that use a continually rotating mass to sense angular motion.
- 2 “Unidirectional positioning repeatability” (單向定位重複性)
The smaller of values R_{\uparrow} (forward) and R_{\downarrow} (backward) of an individual machine tool axis, as defined by paragraph 3.21 of ISO 230/2 (2014) or national equivalents.”.



Director-General of Trade and
Industry

21 Mar 2017

Explanatory Note

This Order amends Schedule 1 to the Import and Export (Strategic Commodities) Regulations (Cap. 60 sub. leg. G) to reflect the latest changes in the control lists of strategic commodities adopted by various international non-proliferation regimes. The Order also makes minor textual amendments to that Schedule.

**Major Changes to be Brought by
Import and Export (Strategic Commodities) Regulations
(Amendment of Schedule 1) Order 2017**

I. New Items to be Controlled

Category 0 – Nuclear Materials, Facilities, and Equipment	
0A001(k)	External thermal shields of nuclear reactor.
0B004(b)(9)	Ammonia synthesis converters or synthesis units specially designed or prepared for heavy water production utilising the ammonia-hydrogen exchange process.
Category 1 – Special Materials and Related Equipment	
1B234	High explosive containment vessels, chambers, containers and other similar containment devices designed for the testing of high explosives or explosive devices.
1C002(c)(2)(h)	Metal alloy powder or particulate material made in certain controlled environment.
1C111(a)(2)(b)	Boron powders.
1C111(a)(6)	Certain replacement fuels for use in spacecraft propellants.
1C111(b)(6)	Certain polymeric substance.
1C241	Rhenium and related alloys.
1C354	Certain plant pathogens.
Category 2 – Materials Processing	
2B201(c)	Certain machine tools.
2B233	Bellow-sealed compressors and vacuum pumps.

2B352(h)	Certain spray drying equipment.
2D003	Software relating to optical finishing equipment.
Category 3 – Electronics	
3A229	Certain micro-firing sets.
3A234	Certain striplines.
3D225 3E225	Software and technology capable of releasing constraints of frequency changers.
Category 6 – Sensors and Lasers	
6A001(a)(2)(g)	Certain accelerometer-based hydro-acoustic sensors.
6A005(e)(3)	Certain fibre laser components.
6A205(g)	Carbon monoxide lasers.
6D003(d)	Software specially designed for certain optical control equipment.
6D203	Certain camera software.
6E203	Certain camera technology.
Category 7 – Navigation and Avionics	
7D005	Certain decrypt software.
7E004(b)(7) 7E004(b)(8)	Technology required for deriving certain functional requirements for fly-by-wire systems.
Category 8 – Marine	
8E002(c)	Technology for the development or production of certain surface vessels.
Category 9 – Aerospace and Propulsion	
9A004	Certain spacecrafts.
9A106(e)	Combustion chambers and nozzles usable in missiles, space launch vehicles or sounding rockets.

9A112	Certain unmanned aerial vehicles.
9A121	Certain missile/rocket connectors.
9D005	Software specially designed or modified for the operation of certain spacecrafts.
9E003(j)	Technology for the development of wing-folding systems designed for certain aircrafts.

II. Removal / Relaxation of Controlled Items

Category 0 – Nuclear Materials, Facilities, and Equipment	
0B001(i)4	Liquid metal handling systems specially designed or prepared for plasma separation process.
Category 1 – Special Materials and Related Equipment	
1B227	Ammonia synthesis converters or ammonia synthesis units.
1C001(b) Note	Certain materials capable of absorbing electromagnetic waves when they are specially designed or formulated for laser marking of polymers and laser welding of polymers.
1C001(c) Note	Intrinsically conductive polymeric materials when they are in liquid form.
1C008(b)	Thermoplastic liquid crystal copolymers.
1E002(d)	Technology for the production of certain synthetic fibres.
Category 2 – Materials Processing	
2B001 Note 2(e)	Special purpose machine tools limited to the manufacture of dental prostheses.
2B001	Certain machine tools for turning and milling.
Category 3 – Electronics	
3A001(a)(7)	Certain field programmable logic devices.

Category 4 - Computers	
4D001(b)(1) 4E001(b)(1)	Software and technology specially designed or modified for the development or production of digital computers having specified performance level
4D002	Software specially designed or modified to support technology controlled under 4E.
Category 5 - Part 1 Telecommunications	
5D001(b)	Software specially designed or modified to support technology controlled by 5E001.
5E001(c)(1)	Technology for the development or production of equipment employing digital techniques designed to operate at a certain digital transfer rate.
Category 5 - Part 2 Information Security	
5A002 Note	Routers, switches or relays, as well as the general purpose computing equipment or servers, where the information security functionality is limited to the tasks of "Operations, Administration or Maintenance" ("OAM") implementing only published or commercial cryptographic standards.
5D002(c)	Software limited to the tasks of "OAM" implementing only published or commercial cryptographic standards.
Category 6 – Sensors and Lasers	
6A004(d)(4)	Certain optical control equipment.
6C005(b)	Alexandrite.
Category 7 – Navigation and Avionics	
7D003(c)	Certain integrated avionics systems source code.
Category 8 – Marine	
8A001	Certain surface vessels.
8A002	Certain marine systems, equipment and components.

ECONOMIC IMPLICATIONS

The relaxation of control over certain items in the three categories of strategic commodities traded in Hong Kong, i.e. electronics, computers and telecommunications and information security products will relieve the relevant traders from the burden of applying for import and export licences for the trading of such products. This will help raise operational efficiency and indirectly lower the cost of operation of the relevant businesses. On the other hand, the imposing of control on new items should not have significant effects on the import/export trade as these items are not commonly traded in Hong Kong.