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LEGISLATIVE COUNCIL BRIEF

Chemical Weapons (Convention) Ordinance
(Chapter 578)

Import and Export Ordinance
(Chapter 60)

CHEMICAL WEAPONS (CONVENTION) ORDINANCE (AMENDMENT OF SCHEDULE 1) ORDER 2021 AND IMPORT AND EXPORT (STRATEGIC COMMODITIES) REGULATIONS (AMENDMENT OF SCHEDULES 1 AND 2) ORDER 2021

INTRODUCTION

The Secretary for Commerce and Economic Development (“SCED”) and the Director-General of Trade and Industry (“DGTI”) have respectively made the Chemical Weapons (Convention) Ordinance (Amendment of Schedule 1) Order 2021 (“CWC Order”) and the Import and Export (Strategic Commodities) Regulations (Amendment of Schedules 1 and 2) Order 2021 (“I&E Order”) respectively to amend the relevant schedules in the Chemical Weapons (Convention) Ordinance (Cap. 578) (“CWC Ordinance”) and the Import and Export (Strategic Commodities) Regulations (Cap. 60, sub. leg. G) (“I&E Regulations”) to reflect the changes adopted by international non-proliferation regimes and convention. The CWC Order and the I&E Order are at **Annexes 1 and 2** respectively.

JUSTIFICATIONS

2. As a responsible trading partner and an international trading hub, Hong Kong has been following closely the controls adopted by leading international regimes and convention of non-proliferation of weapons of mass destruction, namely the Wassenaar Arrangement, the Nuclear Suppliers Group, the Missile Technology Control Regime, the Australia Group, and the Chemical Weapons Convention¹. It is necessary for Hong Kong to update its control lists from time to time to align them with the prevailing lists adopted by these leading international regimes and convention.

3. The Chemical Weapons Convention is an international treaty which aims to prohibit the development, production, acquisition, stockpiling, retention, transfer and use of chemical weapons, and the CWC Ordinance was enacted in 2004 for implementing the requirements of the Chemical Weapons Convention in Hong Kong². The list of toxic chemicals and their precursors under control of the said Convention is set out in Schedules 1 to 3 to the Ordinance. Under section 40 of the Ordinance, the SCED may by order amend Schedule 1, 2 or 3 in order to effect changes made to the Chemical Weapons Convention.

4. The Import and Export Ordinance (Cap. 60) and the I&E Regulations provide for the regime to regulate the import, export and transit of strategic commodities. The control list of strategic commodities, which is set out in Schedules 1 to 4 to the I&E Regulations, mirrors the control lists of strategic commodities adopted by the international non-proliferation regimes and convention mentioned in paragraph 2 above. Under section 6B(1) of the Import and Export Ordinance, the DGTI may, by order published in the Gazette, add or remove an article or class of articles to or from the Schedules to the I&E Regulations. The last update by way of the Import and Export (Strategic Commodities) Regulations (Amendment of Schedule 1) Order 2017 came into effect in July 2017.

¹ The full name of the Chemical Weapons Convention is “Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction”.

² The People's Republic of China is a signatory to the Convention, and the Central People's Government has extended the application of the Convention to the Hong Kong Special Administrative Region under Article 153 of the Basic Law.

THE ORDERS

The CWC Order

5. The Chemical Weapons Convention has added four sets of toxic chemicals for control with effect from 7 June 2020. The CWC Order serves to add these four sets of toxic chemicals to Schedule 1 to the CWC Ordinance. It also contains certain textual revisions regarding the control parameters of some toxic chemicals.

The I&E Order

6. The I&E Order amends Schedules 1 and 2 to the I&E Regulations. Apart from adding the four sets of toxic chemicals adopted by the Chemical Weapons Convention for import and export control, other amendments are made to Schedule 1 to reflect the changes adopted by the other international non-proliferation regimes in view of the latest proliferation risks and technological developments. For instance, some newly developed technologies / items are added for control (e.g. Read-Out Integrated Circuits that provide night vision capability), while the control threshold for some dual-use items (e.g. signal analysers, supercomputer, radio equipment having quadrature amplitude modulation techniques) are relaxed. The amendments also include clarifications / modifications made by the international regimes on the control thresholds of certain items as well as textual and presentational changes in line with the latest drafting practice.

7. The I&E Order also amends Schedule 2 to the I&E Regulations. Schedule 2 sets out those “more sensitive” Schedule 1 items that are subject to licensing control over transit³. Changes to Schedule 2 are necessary in order to align the items therein with those in Schedule 1.

³ An article in transit means an article which (a) is brought into Hong Kong solely for the purpose of taking it out of Hong Kong; and (b) remains at all times in or on the vessel or aircraft in or on which it is brought into Hong Kong.

LEGISLATIVE TIMETABLE

8. The Orders will be gazetted on 11 June 2021 and tabled at the Legislative Council on 16 June 2021. We plan to bring the Orders into effect on 25 August 2021⁴.

IMPLICATIONS OF THE PROPOSAL

9. The Orders are in conformity with the Basic Law, including the provisions concerning human rights. They will not affect the binding effect of the CWC Ordinance and the I&E Regulations. They have no financial, civil service, productivity, environmental, sustainability, gender or family implications. Regarding economic implications, the Orders are expected to have minimal impact on trade because the affected items are not commonly traded in Hong Kong.

PUBLIC CONSULTATION

10. The amendments made by the Orders are technical in nature. The Trade and Industry Department (“TID”) has briefed representatives from the trade on the amendments through its Customer Liaison Group for Strategic Commodities and informed the facilities engaging in activities that possibly involve the scheduled chemicals of the addition of the four sets of toxic chemicals through circulars. No objection or particular comments have been received.

PUBLICITY

11. A press release will be issued when the Orders are published in the Gazette on 11 June 2021. The TID will announce the revisions of the schedules and the control list through a trade circular, as well as through its website on the day of gazettal.

⁴ Pursuant to section 6B(7) of the Import and Export Ordinance, the I&E Order shall come into operation on a day to be appointed by the DGTI by notice published in the Gazette after the expiry of negative vetting period of the I&E Order. A notice for stipulating 25 August 2021 as the commencement date of the I&E Order is planned to be made in July 2021 after the negative vetting period of the I&E Order expires.

ENQUIRIES

12. For any enquiries on this brief, please contact Ms Diana LEE, Assistant Secretary for Commerce and Economic Development (Commerce and Industry) of the Commerce and Economic Development Bureau at 2810 3026 or Ms Michelle POON, Principal Trade Officer of the TID at 2398 5554.

Commerce and Economic Development Bureau
Trade and Industry Department
9 June 2021

Annex 1

**CHEMICAL WEAPONS (CONVENTION) ORDINANCE
(AMENDMENT OF SCHEDULE 1) ORDER 2021**

A copy of the captioned order is attached.

Chemical Weapons (Convention) Ordinance (Amendment of Schedule 1) Order 2021

(Made by the Secretary for Commerce and Economic Development under section 40(1) of the Chemical Weapons (Convention) Ordinance (Cap. 578))

1. Commencement

This Order comes into operation on a day to be appointed by the Secretary for Commerce and Economic Development by notice published in the Gazette.

2. Chemical Weapons (Convention) Ordinance amended

The Chemical Weapons (Convention) Ordinance (Cap. 578) is amended as set out in section 3.

3. Schedule 1 amended (chemicals listed for the purposes of the definition of *Schedule 1 chemical*)

(1) Schedule 1, English text, item (1)—

Repeal

“<C₁₀”

Substitute

“equal to or less than C₁₀”.

(2) Schedule 1, English text, item (2)—

Repeal

“<C₁₀”

Substitute

“equal to or less than C₁₀”.

(3) Schedule 1, English text, item (3)—

Repeal

“<C₁₀”

Substitute

“equal to or less than C₁₀”.

(4) Schedule 1, Part A, after item (8)—

Add

“(8A) P-alkyl (H or equal to or less than C₁₀, incl. cycloalkyl) N-(1-(dialkyl (equal to or less than C₁₀, incl. cycloalkyl) amino)) alkylidene (H or equal to or less than C₁₀, incl. cycloalkyl) phosphonamidic fluorides and corresponding alkylated or protonated salts

e.g. N-(1-(di-n-decylamino)-n-decylidene)-P-decylphosphonamidic fluoride (2387495-99-8)
Methyl-(1-(diethylamino)ethylidene) phosphonamidofluoridate (2387496-12-8)

(8B) O-alkyl (H or equal to or less than C₁₀, incl. cycloalkyl) N-(1-(dialkyl (equal to or less than C₁₀, incl. cycloalkyl) amino)) alkylidene (H or equal to or less than C₁₀, incl. cycloalkyl) phosphoramidofluoridates and corresponding alkylated or protonated salts

- e.g. O-n-Decyl N-(1-(di-n-decylamino)-n-decylidene) phosphoramidofluoridate (2387496-00-4)
- Methyl-(1-(diethylamino)ethylidene) phosphoramidofluoridate (2387496-04-8)
- Ethyl-(1-(diethylamino)ethylidene) phosphoramidofluoridate (2387496-06-0)
- (8C) Methyl-(bis (diethylamino) methylene) phosphoramidofluoridate (2387496-14-0)
- (8D) Carbamates (quaternaries and bisquaternaries of dimethylcarbamoyloxypyridines):
- (a) Quaternaries of dimethylcarbamoyloxypyridines:
- 1-[N,N-dialkyl (equal to or less than C₁₀)-N-(n-(hydroxyl, cyano, acetoxy) alkyl (equal to or less than C₁₀)) ammonio]-n-[N-(3-dimethylcarbamoxy- α -picolinyl)-N,N-dialkyl (equal to or less than C₁₀) ammonio] decane dibromide (n=1-8)

- e.g. 1-[N,N-dimethyl-N-(2-hydroxy) ethylammonio]-10-[N-(3-dimethylcarbamoxy- α -picolinyl)-N,N-dimethylammonio] decane dibromide (77104-62-2)
- (b) Bisquaternaries of dimethylcarbamoyloxypyridines:
- 1,n-Bis[N-(3-dimethylcarbamoxy- α -picolyl)-N,N-dialkyl (equal to or less than C₁₀) ammonio]-alkane-(2,(n-1)-dione) dibromide (n=2-12)
- e.g. 1,10-Bis[N-(3-dimethylcarbamoxy- α -picolyl)-N-ethyl-N-methylammonio] decane-2,9-dione dibromide (77104-00-8)".
- (5) Schedule 1, English text, item (10)—
- Repeal**
“<C₁₀”
- Substitute**
“equal to or less than C₁₀”.

Explanatory Note

This Order amends Schedule 1 to the Chemical Weapons (Convention) Ordinance (Cap. 578) to reflect the latest changes adopted under Schedule 1 in the Annex on Chemicals to the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (also widely referred to as the Chemical Weapons Convention) in relation to toxic chemicals. This Order also makes minor technical amendments to the English text of Schedule 1 to the Ordinance.



Secretary for Commerce and
Economic Development

7 June 2021

**IMPORT AND EXPORT
(STRATEGIC COMMODITIES) REGULATIONS
(AMENDMENT OF SCHEDULES 1 and 2) ORDER 2021**

A copy of the captioned order is attached.

Import and Export (Strategic Commodities) Regulations (Amendment of Schedules 1 and 2) Order 2021

(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 sections 3 and 4.

3. Schedule 1 amended (strategic commodities)

(1) Schedule 1, Munitions List—

Repeal ML1(d)

Substitute

“(d) Accessories designed for arms specified in ML1(a), ML1(b) or ML1(c), as follows:

- (1) Detachable cartridge magazines;
- (2) Sound suppressors or moderators;
- (3) Special gun-mountings;
- (4) Flash suppressors;

(5) Optical weapon-sights with electronic image processing;

(6) Optical weapon-sights specially designed for military use;”.

(2) Schedule 1, Munitions List, ML4(a), Note (2), after “Missile”—

Add

“or”.

(3) Schedule 1, Munitions List, ML5—

Repeal

“and related alerting”

Substitute

“surveillance”.

(4) Schedule 1, Munitions List—

Repeal ML5(b)

Substitute

“(b) Other fire control, surveillance and warning equipment, and related systems, as follows:

- (1) Target acquisition, designation, range-finding, surveillance or tracking systems;
- (2) Detection, recognition or identification equipment;
- (3) Data fusion or sensor integration equipment;”.

(5) Schedule 1, Munitions List, ML7—

Repeal

“Chemical or biological toxic agents”

Substitute

“Chemical agents, “biological agents””.

(6) Schedule 1, Munitions List—

Repeal ML7(a)

Substitute

“(a) “Biological agents” or radioactive materials selected or modified to increase their effectiveness in producing casualties in humans or animals, degrading equipment or damaging crops or the environment;”.

(7) Schedule 1, Munitions List, after ML7(b)(1)(c)—

Add

“(d) P-alkyl (H or equal to or less than C₁₀, incl. cycloalkyl) N-(1-(dialkyl (equal to or less than C₁₀, incl. cycloalkyl) amino)) alkylidene (H or equal to or less than C₁₀, incl. cycloalkyl) phosphonamidic fluorides and corresponding alkylated or protonated salts, such as:

(1) N-(1-(di-n-decylamino)-n-decylidene)-P-decylphosphonamidic fluoride (CAS 2387495-99-8);

(2) Methyl-(1-(diethylamino) ethylidene) phosphoramidofluoridate (CAS 2387496-12-8);

(e) O-alkyl (H or equal to or less than C₁₀, incl. cycloalkyl) N-(1-(dialkyl (equal to or less than C₁₀, incl. cycloalkyl) amino)) alkylidene (H or equal to or less than C₁₀, incl. cycloalkyl) phosphoramidofluoridates and corresponding alkylated or protonated salts, such as:

(1) O-n-Decyl N-(1-(di-n-decylamino)-n-decylidene) phosphoramidofluoridate (CAS 2387496-00-4);

(2) Methyl-(1-(diethylamino) ethylidene) phosphoramidofluoridate (CAS 2387496-04-8);

(3) Ethyl-(1-(diethylamino) ethylidene) phosphoramidofluoridate (CAS 2387496-06-0);

(f) Methyl-(bis (diethylamino) methylene) phosphonamidofluoridate (CAS 2387496-14-0);

(g) Carbamates (quaternaries and bisquaternaries of dimethylcarbamoyloxypyridines):

(1) Quaternaries of dimethylcarbamoyloxypyridines: 1-[N,N-dialkyl (equal to or less than C₁₀)-N-(n-(hydroxyl, cyano, acetoxy) alkyl (equal to or less than C₁₀)) ammonio]-n-[N-(3-dimethylcarbamoxy- α -picolinyl)-N,N-dialkyl (equal to or less than C₁₀) ammonio] decane dibromide (n=1-8), such as:

1-[N,N-dimethyl-N-(2-hydroxy) ethylammonio]-10-[N-(3-dimethylcarbamoxy- α -picolinyl)-N,N-dimethylammonio] decane dibromide (CAS 77104-62-2);

(2) Bisquaternaries of dimethylcarbamoyloxypyridines: 1,n-Bis[N-(3-dimethylcarbamoxy- α -picolyl)-N,N-dialkyl (equal to or less than C₁₀) ammonio]-alkane-(2,(n-1)-dione) dibromide (n=2-12), such as:

1,10-Bis[N-(3-dimethylcarbamoxy- α -picolyl)-N-ethyl-N-methylammonio] decane-2,9-dione dibromide (CAS 77104-00-8);”.

(8) Schedule 1, Munitions List, ML7(e)(2), after “CW”—

Add

“agents”.

(9) Schedule 1, Munitions List, ML7, Note 1—

Repeal

“ML7(a),”.

- (10) Schedule 1, Munitions List, ML8, Technical Note 1, after “For the purposes of ML8,”—

Add

“excluding ML8(c)(11) or ML8(c)(12),”.

- (11) Schedule 1, Munitions List, ML8, after ML8(a)(39)—

Add

“(40) BTNEN (Bis(2,2,2-trinitroethyl)-nitramine) (CAS 19836-28-3);

(41) FTDO (5,6-(3',4'-furazano)-1,2,3,4-tetrazine-1,3-dioxide);

(42) EDNA (Ethylenedinitramine) (CAS 505-71-5);

(43) TKX-50 (Dihydroxylammonium 5,5'-bistetrazole-1,1'-diolate);

Note:

ML8(a) includes ‘explosive co-crystals’.

Technical Note:

An ‘explosive co-crystal’ is a solid material consisting of an ordered 3-dimensional arrangement of 2 or more explosive molecules, where at least one is specified in ML8(a).”.

- (12) Schedule 1, Munitions List, ML8(c)(1)—

Repeal the Note

Substitute

“Notes:

1. ML8(c)(1) does not apply to the following aircraft fuels: JP-4, JP-5 and JP-8.

2. Aircraft fuels specified in ML8(c)(1) are finished products, not their constituents.”.

- (13) Schedule 1, Munitions List—

Repeal ML8(c)(3)

Substitute

“(3) Boranes, as follows, and their derivatives:

(a) Carboranes;

(b) Borane homologues, as follows:

(1) Decaborane (14) (CAS 17702-41-9);

(2) Pentaborane (9) (CAS 19624-22-7);

(3) Pentaborane (11) (CAS 18433-84-6);”.

- (14) Schedule 1, Munitions List, ML8(c)(10)(b), Note—

Repeal

“JP-4, JP-8,”.

- (15) Schedule 1, Munitions List, after ML8(c)(12)(c)—

Add

“*Note:*

ML8(c)(12) includes thermites.”.

- (16) Schedule 1, Munitions List, after ML8(e)(20)—

Add

“(21) TMETN (Trimethylolethane trinitrate) (CAS 3032-55-1);”.

- (17) Schedule 1, Munitions List, ML8(f)(5), after “(CAS 20936-32-7)”—

Add

“or copper beta-resorcylate (CAS 70983-44-7)”.

- (18) Schedule 1, Munitions List, after ML8(g)—

Add

“(h) ‘Reactive material’ powders and shapes, as follows:

- (1) Powders of any of the following materials, with a particle size less than 250 µm in any direction and not specified elsewhere in ML8:
 - (a) Aluminium;
 - (b) Niobium;
 - (c) Boron;
 - (d) Zirconium;
 - (e) Magnesium;
 - (f) Titanium;
 - (g) Tantalum;
 - (h) Tungsten;
 - (i) Molybdenum;
 - (j) Hafnium;
- (2) Shapes, not specified in ML3, ML4, ML12 or ML16, fabricated from powders specified in ML8(h)(1);

Technical Notes:

1. ‘Reactive materials’ are designed to produce an exothermic reaction only at high shear rates and for use as liners or casings in warheads.
2. ‘Reactive material’ powders are produced by, for example, a high energy ball milling process.
3. ‘Reactive material’ shapes are produced by, for example, selective laser sintering.”.

- (19) Schedule 1, Munitions List, at the end of ML9(a)(1)—

Add

“*Note:*

ML9(a)(1) includes vehicles specially designed or modified for the delivery of divers.”.

- (20) Schedule 1, Munitions List, ML9(b), after “Engines and propulsion systems, as follows”—

Add

“, specially designed for military use and components for the system specially designed for military use”.

- (21) Schedule 1, Munitions List, ML9(b)(1)—

Repeal

everything after “submarines”

Substitute a semicolon.

- (22) Schedule 1, Munitions List—

Repeal ML9(b)(3)

Substitute

“(3) Diesel engines having all of the following:

- (a) Power output of 37.3 kW (50 hp) or more;
- (b) ‘Non-magnetic’ content in excess of 75% of total mass;

Technical Note:

For the purposes of ML9(b)(3), ‘non-magnetic’ means the relative permeability is less than 2.”.

- (23) Schedule 1, Munitions List, ML9(c), after “controls”—

Add

- “of those devices, and components for the devices specially designed for military use”.
- (24) Schedule 1, Munitions List—
Repeal ML9(d)
Substitute
“(d) Anti-submarine nets and anti-torpedo nets, specially designed for military use;”.
- (25) Schedule 1, Munitions List, ML9(f), after “a vessel”—
Add
“, and components for the system specially designed for military use”.
- (26) Schedule 1, Munitions List, after ML9(g)—
Add
“(h) Naval nuclear equipment and related equipment and components, as follows:
(1) Nuclear power generating equipment or propulsion equipment, specially designed for vessels specified in ML9(a) and components for the nuclear power generating equipment or propulsion equipment specially designed or ‘modified’ for military use;
Technical Note:
For the purposes of ML9(h)(1), ‘modified’ means any structural, electrical, mechanical, or other change that provides a non-military item with military capabilities equivalent to an item which is specially designed for military use.
Note:
ML9(h)(1) includes “nuclear reactors”.”.

- (27) Schedule 1, Munitions List, ML10(c)—
Repeal
“and related equipment, as follows, and specially designed components for the unmanned aircraft and”
Substitute
“and “lighter-than-air vehicles”, and related equipment, as follows, and specially designed components for the unmanned aircraft and “lighter-than-air vehicles”, and”.
- (28) Schedule 1, Munitions List, ML10, Note 5—
Repeal
“that meets”
Substitute
“or “lighter-than-air vehicles” that meet”.
- (29) Schedule 1, Munitions List, ML10, after Note 5—
Add
“6. ML10(d) does not apply to propulsion aero-engines that were first manufactured before 1946.”.
- (30) Schedule 1, Munitions List, ML11(b)—
Repeal
“Global Navigation Satellite Systems (GNSS)”
Substitute
““Satellite navigation system””.
- (31) Schedule 1, Munitions List, ML14—
(a) **Repeal**
“Specialised equipment for military training”
Substitute

- “Specialized equipment for military training”;
- (b) English text, Technical Note—
- Repeal**
“specialised”
- Substitute**
“specialized”.
- (32) Schedule 1, Munitions List, ML15—
- Repeal the Notes**
- Substitute**
“*Note:*
ML15 does not control “first generation image intensifier tubes” or equipment specially designed to incorporate “first generation image intensifier tubes”.
N.B.:
For the status of weapons sights incorporating “first generation image intensifier tubes”, see ML1, ML2 and ML5(a).”.
- (33) Schedule 1, Munitions List, ML17(l)—
- Repeal**
“Containers”
- Substitute**
“ISO intermodal containers or demountable vehicle bodies (i.e. swap bodies),”.
- (34) Schedule 1, Dual-use Goods List, General Technology Note—
- Repeal**
“*N.B.*”

- Substitute**
“*Note*”.
- (35) Schedule 1, Dual-use Goods List, after General Technology Note—
- Add**
“*NUCLEAR SOFTWARE NOTE (NSN)*
(This note overrides any control within section D of Category 0)
Section D of Category 0 does not control “software” which is the minimum necessary “object code” for the installation, operation, maintenance (checking) or repair of those items whose export has been authorized.
The approval of goods for export also authorizes the export to the same end-user of the minimum necessary “object code” for the installation, operation, maintenance (checking) or repair of the goods.
Note:
The Nuclear Software Note does not release “software” specified in Category 5—Part 2 (“Information Security”).”.
- (36) Schedule 1, Dual-use Goods List, General Software Note—
- Repeal**
“Categories 0”
- Substitute**
“(This note overrides any control within section D of Categories 1 to 9)
Categories 1”.
- (37) Schedule 1, Dual-use Goods List, General Software Note, entry (1)(b)—

Repeal

“*N.B.*”

Substitute

“*Note*”.

- (38) Schedule 1, Dual-use Goods List, General Software Note, entry (3)—

Repeal

“*N.B.*”

Substitute

“*Note*”.

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

Add

“*GENERAL “INFORMATION SECURITY” NOTE (GISN)*

“Information security” items or functions should be considered against the provisions in Category 5—Part 2, even if they are components, “software” or functions of other items.”.

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

Repeal 1A001(b) and (c).

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

Repeal

“having any of the following”

Substitute

“as follows”.

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

Repeal 1A002(a)

Substitute

“(a) Made from any of the following:

- (1) An organic “matrix” and “fibrous or filamentary materials” specified in 1C010(c) or 1C010(d);
- (2) Prepregs or preforms specified in 1C010(e);”.

- (43) Schedule 1, Dual-use Goods List, Category 1, 1A002(b)—

Repeal

“A metal”

Substitute

“Made from a metal”.

- (44) Schedule 1, Dual-use Goods List, Category 1, 1A002, Note 1—

Repeal

“composite”

Substitute

““composite””.

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

Repeal 1A004(a)(1) and (2)

Substitute

- “(1) “Biological agents”;
(2) ‘Radioactive materials’;”.

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

Repeal 1A004(b)(1) and (2)

Substitute

- “(1) “Biological agents”;
(2) ‘Radioactive materials’;”.

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

Repeal 1A004(c)(1) and (2)

Substitute

“(1) “Biological agents”;

(2) ‘Radioactive materials’;”.

- (48) Schedule 1, Dual-use Goods List, Category 1, 1A004,
Technical Note 1—

Repeal

“radioactive materials “adapted for use in war”, biological
agents “adapted for use in war””

Substitute

“radioactive materials’, “biological agents””.

- (49) Schedule 1, Dual-use Goods List, Category 1, 1A004, after
Technical Note 2—

Add

“3. For the purposes of 1A004, ‘radioactive materials’ are
those selected or modified to increase their effectiveness
in producing casualties in humans or animals, degrading
equipment or damaging crops or the environment.”.

- (50) Schedule 1, Dual-use Goods List, Category 1, 1B001(b),
Technical Note—

(a) **Repeal**

“25 mm”

Substitute

“25.4 mm”;

(b) **Repeal**

“305 mm”

Substitute

“304.8 mm”.

- (51) Schedule 1, Dual-use Goods List, Category 1, 1B001(g),
Technical Note—

Repeal

“25 mm”

Substitute

“25.4 mm”.

- (52) Schedule 1, Dual-use Goods List, Category 1, 1B001,
Technical Note 2, after “or fibre.”—

Add

“Fully or partially resin-impregnated ‘filament bands’ include
those coated with dry powder that tacks on heating.”.

- (53) Schedule 1, Dual-use Goods List, Category 1, 1B228(c)(1),
after “Stainless steel of the”—

Add

“Society of Automotive Engineers International (SAE)”.

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

Repeal 1B229.

- (55) Schedule 1, Dual-use Goods List, Category 1, 1B234(a)—

Repeal

“TNT”

Substitute

“trinitrotoluene (TNT)”.

- (56) Schedule 1, Dual-use Goods List, Category 1, after 1B234—

Add

“1B235 Target assemblies and components for the production of tritium as follows:

- (a) Target assemblies made of or containing lithium enriched in the lithium-6 isotope specially designed for the production of tritium through irradiation, including insertion in a “nuclear reactor”;
- (b) Components specially designed for the target assemblies specified in 1B235(a);

Technical Note:

Components specially designed for target assemblies for the production of tritium may include lithium pellets, tritium getters, and specially-coated cladding.”

(57) Schedule 1, Dual-use Goods List, Category 1, 1C003(c)—

Repeal

“nanocrystalline”

Substitute

““nanocrystalline””.

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

Repeal 1C006(a).

(59) Schedule 1, Dual-use Goods List, Category 1, 1C006—

Repeal the Technical Note.

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

Repeal

“non-“composite” ceramic materials, ceramic-“matrix” “composite” materials and precursor materials”

Substitute

“ceramic-“matrix” “composite” materials and ‘precursor materials””.

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

Repeal

“Ceramic powders of single or complex borides of titanium”

Substitute

“Ceramic powders of titanium diboride (TiB₂) (CAS 12045-63-5)”.

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

Repeal 1C007(b).

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

Repeal 1C007(c)

Substitute

“(c) Ceramic-“matrix” “composite” materials as follows:

- (1) Ceramic-ceramic “composite” materials with a glass or oxide-“matrix” and reinforced with any of the following:

(a) Continuous fibres made from any of the following materials:

- (1) Al₂O₃ (CAS 1344-28-1);
- (2) Si-C-N;

Note:

1C007(c)(1)(a) does not apply to “composites” containing fibres with a tensile strength of less than 700 MPa at 1 273 K (1 000°C) or tensile creep resistance of more than 1% creep strain at 100 MPa load and 1 273 K (1 000°C) for 100 hours.

- (b) Fibres being all of the following:
- (1) Made from any of the following materials:
 - (a) Si-N;
 - (b) Si-C;
 - (c) Si-Al-O-N;
 - (d) Si-O-N;
 - (2) Having a “specific tensile strength” exceeding 12.7×10^3 m;
- (2) Ceramic-“matrix” “composite” materials, with a “matrix” formed of carbides or nitrides of silicon, zirconium or boron;”.
- (64) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C007(d).
- (65) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C007(e)
Substitute
“(e) ‘Precursor materials’ specially designed for the “production” of the materials controlled by 1C007(c), as follows:
 - (1) Polydiorganosilanes;
 - (2) Polysilazanes;
 - (3) Polycarbosilazanes;

Technical Note:

For the purposes of 1C007, ‘precursor materials’ are special purpose polymeric or metallo-organic materials used for the

- “production” of silicon carbide, silicon nitride, or ceramics with silicon, carbon and nitrogen.”.
- (66) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C007(f).
- (67) Schedule 1, Dual-use Goods List, Category 1, 1C008, Technical Note 1—
Repeal
“materials and 1C008(a)(4) materials”
Substitute
“materials, 1C008(a)(4) materials and 1C008(f) materials”.
- (68) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C009(a).
- (69) Schedule 1, Dual-use Goods List, Category 1, 1C010(c), Note 1—
Repeal
“specific modulus”
Substitute
““specific modulus””.
- (70) Schedule 1, Dual-use Goods List, Category 1, after 1C107(e)—
Add
“(f) Bulk machinable ceramic composite materials consisting of an ‘Ultra High Temperature Ceramic (UHTC)’ matrix with a melting point equal to or greater than 3 000°C and reinforced with fibres or filaments, usable for missile components (such as nose-tips, re-entry vehicles, leading edges, jet vanes, control surfaces or rocket motor throat inserts) in “missiles”, space launch vehicles specified in

9A004, sounding rockets specified in 9A104 or 'missiles';

Note:

1C107(f) does not control 'Ultra High Temperature Ceramic (UHTC)' materials in non-composite form.

Technical Notes:

1. For the purposes of 1C107(f), 'missile' means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.
2. 'Ultra High Temperature Ceramics (UHTCs)' include:
 - (1) Titanium diboride (TiB₂);
 - (2) Zirconium diboride (ZrB₂);
 - (3) Niobium diboride (NbB₂);
 - (4) Hafnium diboride (HfB₂);
 - (5) Tantalum diboride (TaB₂);
 - (6) Titanium carbide (TiC);
 - (7) Zirconium carbide (ZrC);
 - (8) Niobium carbide (NbC);
 - (9) Hafnium carbide (HfC);
 - (10) Tantalum carbide (TaC)."

(71) Schedule 1, Dual-use Goods List, Category 1, 1C111(a)(3)(d)—

Repeal the Note.

(72) Schedule 1, Dual-use Goods List, Category 1, 1C111(a)(4)(e), after "dihydrazine"—

Add

"(CAS 6068-98-0)".

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

Repeal 1C111(a)(4)(i)

Substitute

"(i) 1,1-Dimethylhydrazinium azide (CAS 227955-52-4)/1,2-Dimethylhydrazinium azide (CAS 299177-50-7);".

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

Repeal 1C111(a)(4)(p)

Substitute

"(p) 1,1-Diethylhydrazine nitrate (DEHN)/1,2-Diethylhydrazine nitrate (DEHN) (CAS 363453-17-2); *and*".

(75) Schedule 1, Dual-use Goods List, Category 1, 1C111(b)(2), after "(HTPB)"—

Add

"(CAS 69102-90-5)".

(76) Schedule 1, Dual-use Goods List, Category 1, 1C111(b)(4), after "(PBAN)"—

Add

"(CAS 25265-19-4/CAS 68891-50-9)".

(77) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(e)—

Repeal

"(CAS 1274-00-6)".

(78) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(h)—

Repeal

- “(CAS 1273-97-8)”.
- (79) Schedule 1, Dual-use Goods List, Category 1, 1C111(c)(6)(l)—
Repeal
“(CAS 1271-55-2)/1,1'-diacetyl ferrocene (CAS 1273-94-5)”
Substitute
“/1,1'-diacetyl ferrocene”.
- (80) Schedule 1, Dual-use Goods List, Category 1, after 1C111(c)—
Add
“(d) ‘Gel propellants’, specifically formulated for use in ‘missiles’;
Technical Notes:
1. For the purposes of 1C111(d), a ‘gel propellant’ is a fuel or oxidizer formulation using a gellant such as silicates, kaolin (clay), carbon or any polymeric gellant.
2. For the purposes of 1C111(d), ‘missile’ means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.”.
- (81) Schedule 1, Dual-use Goods List, Category 1, after 1C350(63)—
Add
“(64) Diethylamine (109-89-7);
(65) N,N-Diisopropylaminoethanethiol hydrochloride (41480-75-5);”.
- (82) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(9)—
Repeal

- “Congo-Crimean haemorrhagic”
Substitute
“Crimean-Congo hemorrhagic”.
- (83) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C351(a)(10).
- (84) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(13)—
Repeal
“Ebola virus”
Substitute
“Ebola virus: all members of the Ebolavirus genus”.
- (85) Schedule 1, English text, Dual-use Goods List, Category 1, 1C351(a)(14)—
Repeal
“Foot and mouth”
Substitute
“Foot-and-mouth”.
- (86) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(19)—
Repeal
“Herpes virus (“
Substitute
“Suid herpesvirus 1 (Pseudorabies virus;”.
- (87) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(20)—
Repeal
“Hog cholera virus (swine fever)”
Substitute
“Classical swine fever virus (Hog cholera”.

- (88) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(23),
after “Forest”—
Add
“disease”.
- (89) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(25)—
Repeal
“fever”.
- (90) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(31)—
Repeal
“Marburg virus”
Substitute
“Marburgvirus: all members of the Marburgvirus genus”.
- (91) Schedule 1, English text, Dual-use Goods List, Category 1,
1C351(a)(32)—
Repeal
“Monkey pox”
Substitute
“Monkeypox”.
- (92) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(39)—
Repeal
“Porcine enterovirus type 9 (swine vesicular disease virus)”
Substitute
“Swine vesicular disease virus”.
- (93) Schedule 1, Chinese text, Dual-use Goods List, Category 1,
1C351(a)(41)—
Repeal

- “屬病毒屬”
Substitute
“屬”.
- (94) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(50)—
Repeal
“Teschen disease virus”
Substitute
“Porcine Teschovirus”.
- (95) Schedule 1, Dual-use Goods List, Category 1, 1C351(a)(51)—
Repeal
“Russian Spring-Summer encephalitis virus”
Substitute
“Far Eastern subtype”.
- (96) Schedule 1, Dual-use Goods List, Category 1, after
1C351(a)(56)—
Add
“(57) Severe acute respiratory syndrome-related coronavirus
(SARS-related coronavirus);
(58) Reconstructed 1918 influenza virus;”.
- (97) Schedule 1, English text, Dual-use Goods List, Category 1,
1C351(c)(17)—
Repeal
“prowasecki”
Substitute
“prowazekii”.
- (98) Schedule 1, Dual-use Goods List, Category 1, 1C351(c)(18)—

Repeal

“typhi”

Substitute

“enterica subspecies enterica serovar Typhi (Salmonella typhi)”.

- (99) Schedule 1, Dual-use Goods List, Category 1, 1C351(c)(19)—

Repeal the Technical Note

Substitute

“*Note:*

Shiga toxin producing Escherichia coli (STEC) includes inter alia enterohaemorrhagic E. coli (EHEC), verotoxin producing E. coli (VTEC) or verocytotoxin producing E. coli (VTEC).”.

- (100) Schedule 1, Dual-use Goods List, Category 1, 1C351(d)(6), after “Shiga toxin”—

Add

“(shiga-like toxins, verotoxins and verocytotoxins)”.

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

Repeal 1C351(d)(9).

- (102) Schedule 1, Dual-use Goods List, Category 1, 1C351(d)(14)—

Repeal

“toxin”.

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

Repeal 1C353

Substitute

“1C353 ‘Genetic elements’ and ‘genetically-modified organisms’, as follows:

- (a) Any ‘genetically-modified organism’ that contains, or ‘genetic element’ that codes for, any of the following:

- (1) Any gene or genes specific to any virus specified in 1C351(a) or 1C354(a);

- (2) Any gene or genes specific to bacterium specified in 1C351(c) or 1C354(b) or fungus specified in 1C351(e) or 1C354(c), and which is any of the following:

- (a) In itself or through its transcribed or translated products represents a significant hazard to human, animal or plant health;

- (b) Could ‘endow or enhance pathogenicity’;

- (3) Any “toxins” specified in 1C351(d) or “sub-units of toxins” for such “toxins”;

Technical Notes:

1. ‘Genetically-modified organisms’ include organisms in which the nucleic acid sequences have been created or altered by deliberate molecular manipulation.
2. ‘Genetic elements’ include inter alia chromosomes, genomes, plasmids, transposons, vectors and inactivated organisms containing recoverable nucleic acid fragments, whether genetically

modified or unmodified, or chemically synthesized in whole or in part. For the purposes of the genetic elements control, nucleic acids from an inactivated organism, virus, or sample are considered recoverable if the inactivation and preparation of the material is intended or known to facilitate isolation, purification, amplification, detection, or identification of nucleic acids.

3. 'Endow or enhance pathogenicity' is defined as when the insertion or integration of the nucleic acid sequence or sequences is/are likely to enable or increase a recipient organism's ability to be used to deliberately cause disease or death. This might include alterations to, among other things: virulence, transmissibility, stability, route of infection, host range, reproducibility, ability to evade or suppress host immunity, resistance to medical countermeasures, or detectability.

Note:

1C353 does not include nucleic acid sequences of shiga toxin producing *Escherichia coli* of serogroups O26, O45, O103, O104, O111, O121, O145, O157, and other shiga toxin producing serogroups, other than those genetic elements coding for shiga toxin, or for its sub-units."

- (104) Schedule 1, Dual-use Goods List, Category 1—
Repeal 1C450(b)(2)
Substitute

"(2) N,N-Dialkyl [methyl, ethyl or propyl (normal or iso)] phosphoramidic dihalides, other than N,N-Dimethyl aminophosphoryl dichloride which is controlled by 1C350;"

- (105) Schedule 1, Dual-use Goods List, Category 1, 1C450(b)(6)—
Repeal
"which is"

Substitute

"(5842-07-9) and N,N-Diisopropylaminoethanethiol hydrochloride (41480-75-5) which are".

- (106) Schedule 1, Dual-use Goods List, Category 1, 1C450(b)(7), before "Ethyl diethanolamine"—
Add
"See 1C350 for".

- (107) Schedule 1, Dual-use Goods List, Category 1, 1E001—
(a) **Repeal**
"1A001(b), 1A001(c);"
(b) **Repeal**
"1A102,"

- (108) Schedule 1, Dual-use Goods List, Category 1, 1E002(c)(2), Note—
Repeal
"the design or production of".

- (109) Schedule 1, Dual-use Goods List, Category 1, 1E002(f)—
Repeal
", 1C007(c) or 1C007(d)"
Substitute

- “or 1C007(c)”.
- (110) Schedule 1, Dual-use Goods List, Category 1, 1E101—
Repeal
“1C117”
Substitute
“1C118”.
- (111) Schedule 1, Dual-use Goods List, Category 2, 2A001, Note, after “grade 5”—
Add
“(or national equivalents)”.
- (112) Schedule 1, Dual-use Goods List, Category 2, 2A001(a)—
Repeal
“rings and rolling elements (ISO 5593)”
Substitute
“‘rings’ and ‘rolling elements’”.
- (113) Schedule 1, Dual-use Goods List, Category 2, 2A001(a), after the Note—
Add
“*Technical Notes:*
1. ‘Ring’—annular part of a radial rolling bearing incorporating one or more raceways (ISO 5593:1997).
2. ‘Rolling element’—ball or roller that rolls between raceways (ISO 5593:1997).”.
- (114) Schedule 1, Dual-use Goods List, Category 2—
Repeal 2B001(a)
Substitute

- “(a) Machine tools for turning having 2 or more axes that can be co-ordinated simultaneously for “contouring control” having any of the following characteristics:
- (1) “Unidirectional positioning repeatability” equal to or less (better) than 0.9 μm along one or more linear axis with a travel length less than 1.0 m;
 - (2) “Unidirectional positioning repeatability” equal to or less (better) than 1.1 μm along one or more linear axis with a travel length equal to or greater than 1.0 m;
- Notes:*
1. 2B001(a) does not include turning machines specially designed for producing contact lenses, having all of the following characteristics:
 - (a) Machine controller limited to using ophthalmic based software for part programming data input;
 - (b) No vacuum chucking.
 2. 2B001(a) does not control bar machines (Swissturn), limited to machining only bar feed thru, if maximum bar diameter is equal to or less than 42 mm and there is no capability of mounting chucks. Machines may have drilling or milling capabilities for machining parts with diameters less than 42 mm.”.
- (115) Schedule 1, Dual-use Goods List, Category 2—
Repeal 2B001(b)(1)
Substitute

- “(1) Three linear axes plus 1 rotary axis which can be co-ordinated simultaneously for “contouring control” having any of the following:
- (a) “Unidirectional positioning repeatability” equal to or less (better) than 0.9 μm along one or more linear axis with a travel length less than 1.0 m;
 - (b) “Unidirectional positioning repeatability” equal to or less (better) than 1.1 μm along one or more linear axis with a travel length equal to or greater than 1.0 m;”.
- (116) Schedule 1, Dual-use Goods List, Category 2, 2B001(b)(2)—
Repeal the Nota Bene.
- (117) Schedule 1, Dual-use Goods List, Category 2, 2B001(b)(2)(a)—
Repeal
“1.1”
Substitute
“0.9”.
- (118) Schedule 1, Dual-use Goods List, Category 2—
Repeal 2B001(b)(2)(d).
- (119) Schedule 1, Dual-use Goods List, Category 2, 2B001(b)(2)—
Repeal the Technical Note.
- (120) Schedule 1, Dual-use Goods List, Category 2, 2B001(c)(1)(b)—
Repeal
“more”
Substitute

- “four”.
- (121) Schedule 1, Dual-use Goods List, Category 2, 2B005—
Repeal
“non-electronic substrates, by processes shown in the Table and associated Notes”
Substitute
“substrates specified in column 2 of the Table, by processes specified in column 1 of the Table”.
- (122) Schedule 1, Dual-use Goods List, Category 2, before 2B005(a)(1)—
Add
“*N.B.*:
See also 2B105.”.
- (123) Schedule 1, Dual-use Goods List, Category 2, 2B005(a)(1)(b)—
Repeal
“decomposition”
Substitute
“deposition”.
- (124) Schedule 1, Dual-use Goods List, Category 2, 2B006, after “, equipment”—
Add
“, position feedback units”.
- (125) Schedule 1, Dual-use Goods List, Category 2—
Repeal 2B006(b) and (c)
Substitute

“(b) Linear displacement measuring instruments or systems, linear position feedback units, and “electronic assemblies”, as follows:

Note:

Interferometer and optical-encoder measuring systems containing a “laser” are only specified in 2B006(b)(3) and 2B206(c).

(1) ‘Non-contact type measuring systems’ with a “resolution” equal to or less (better) than 0.2 μm within a measuring range up to 0.2 mm;

Technical Note:

For the purposes of 2B006(b)(1), ‘non-contact type measuring systems’ are designed to measure the distance between the probe and measured object along a single vector, where the probe or measured object is in motion.

(2) Linear position feedback units specially designed for machine tools and having an overall “accuracy” less (better) than $(800 + (600 \times L/1\ 000))$ nm (L equals effective length in mm);

(3) Measuring systems having all of the following:

- (a) Containing a “laser”;
- (b) A “resolution” over their full scale of 0.200 nm or less (better);
- (c) Capable of achieving a “measurement uncertainty” equal to or less (better) than $(1.6 + L/2\ 000)$ nm (L is the measured length in mm) at any point within a measuring range, when compensated for the refractive index of

air and measured over a period of 30 seconds at a temperature of $20 \pm 0.01^\circ\text{C}$; or

(4) “Electronic assemblies” specially designed to provide feedback capability in systems specified in 2B006(b)(3);

(c) Rotary position feedback units specially designed for machine tools or angular displacement measuring instruments, having an angular position “accuracy” equal to or less (better) than 0.9 second of arc;

Note:

2B006(c) does not control optical instruments, such as autocollimators, using collimated light (e.g. “laser” light) to detect angular displacement of a mirror.

(d) Equipment for measuring surface roughness (including surface defects), by measuring optical scatter with a sensitivity of 0.5 nm or less (better);”

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

Repeal 2B007(a).

(127) Schedule 1, Dual-use Goods List, Category 2, 2B008—

Repeal

“Assemblies or units, specially designed for machine tools, or dimensional inspection or measuring systems and equipment”

Substitute

““Compound rotary tables” and “tilting spindles”, specially designed for machine tools”.

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

Repeal 2B008(a) and (b).

(129) Schedule 1, Dual-use Goods List, Category 2, 2B008—

Repeal the Note.

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

Repeal 2B008(c)

Substitute

- “(c) “Compound rotary tables” having all of the following:
- (1) Designed for machine tools for turning, milling or grinding;
 - (2) Two rotary axes designed to be co-ordinated simultaneously for “contouring control”;
- (d) “Tilting spindles” having all of the following:
- (1) Designed for machine tools for turning, milling or grinding;
 - (2) Designed to be co-ordinated simultaneously for “contouring control”;

- (131) Schedule 1, Dual-use Goods List, Category 2, 2B109, after “2B009,”—

Add

“usable in the “production” of propulsion components and equipment (e.g. motor cases and interstages) for “missiles”;

- (132) Schedule 1, Dual-use Goods List, Category 2, 2B109—

Repeal the Note.

- (133) Schedule 1, Dual-use Goods List, Category 2, 2B201, after Note 2—

Add

“3. 2B201(a)(3) and 2B201(b)(3) include machines based on a parallel linear kinematic design (e.g. hexapods) that have 5 or more axes none of which is a rotary axis.”

- (134) Schedule 1, Dual-use Goods List, Category 2, after 2B206(b)—

Add

- “(c) ‘Linear displacement’ measuring systems having all of the following characteristics:

Technical Note:

For the purposes of 2B206(c), ‘linear displacement’ means the change of distance between the measuring probe and the measured object.

- (1) Containing a “laser”;
- (2) Capable of maintaining, for at least 12 hours, at a temperature of ± 1 K ($\pm 1^\circ\text{C}$); around a standard temperature and standard pressure, all of the following:
 - (a) A “resolution” over their full scale of $0.1\ \mu\text{m}$ or better;
 - (b) With a “measurement uncertainty” equal to or less (better) than $(0.2 + L/2\ 000)\ \mu\text{m}$ (L is the measured length in mm);

Note:

2B206(c) does not control measuring interferometer systems, without closed or open loop feedback, containing a laser to measure slide movement errors of machine tools, dimensional inspection machines, or similar equipment.

- (d) Linear variable differential transformer (LVDT) systems having both of the following characteristics:

- (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 an operating range up to 5 mm;
- (b) “Linearity” equal to or less (better) than 0.1% measured from 0 to 5 mm for LVDTs with an operating range greater than 5 mm;
- (2) Drift equal to or less (better) than 0.1% per day at a standard ambient test room temperature ± 1 K ($\pm 1^\circ\text{C}$);”.
- (135) Schedule 1, Dual-use Goods List, Category 2, 2B226, after “furnaces,”—
- Add**
- “other than those controlled by 3B001 and 9B001”.
- (136) Schedule 1, Dual-use Goods List, Category 2, 2B226, Nota Bene—
- Repeal**
- “3B”
- Substitute**
- “3B001 and 9B001”.
- (137) Schedule 1, Dual-use Goods List, Category 2, 2B227(a), after “remelt”—
- Add**
- “furnaces, arc melt furnaces and arc melt”.
- (138) Schedule 1, Dual-use Goods List, Category 2, 2B227(b)—
- Repeal**
- “and “plasma atomization” and”
- Substitute**
- “, “plasma atomization” furnaces and plasma”.

- (139) Schedule 1, Dual-use Goods List, Category 2, after 2B227(c)—
- Add**
- “(d) Plasma torches specially designed for furnaces controlled by 2B227(b) having both of the following characteristics:
- (1) Operating at a power greater than 50 kW;
- (2) Capable of operating above 1 473 K (1 200°C);
- (e) Electron beam guns specially designed for furnaces controlled by 2B227(b) operating at a power greater than 50 kW;”.
- (140) Schedule 1, Dual-use Goods List, Category 2, 2B230(c)(1)—
- Repeal**
- “ $\pm 1\%$ ”
- Substitute**
- “1%”.
- (141) Schedule 1, Dual-use Goods List, Category 2, 2B230(c)(2)—
- Repeal**
- “ ± 130 ”
- Substitute**
- “130”.
- (142) Schedule 1, Dual-use Goods List, Category 2, before 2B350(a)(1)—
- Add**
- “*N.B.*:
For prefabricated repair assemblies, see 2B350(k).”.
- (143) Schedule 1, Dual-use Goods List, Category 2, before 2B350(c)(1)—

Add

“*N.B.*:

For prefabricated repair assemblies, see 2B350(k).”

- (144) Schedule 1, Dual-use Goods List, Category 2, after 2B350(j)—

Add

“(k) Prefabricated repair assemblies having metallic surfaces that come in direct contact with the chemical(s) being processed that are made from tantalum or tantalum alloys as follows, and specially designed components for such prefabricated repair assemblies:

- (1) Designed for mechanical attachment to glass-lined reaction vessels or reactors specified in 2B350(a); *or*
- (2) Designed for mechanical attachment to glass-lined storage tanks, containers or receivers specified in 2B350(c);”

- (145) Schedule 1, Dual-use Goods List, Category 2, 2B351, after “gas”—

Add

“monitors and”.

- (146) Schedule 1, Dual-use Goods List, Category 2, 2B352—

Repeal

“Equipment capable of use in handling biological materials”

Substitute

“Biological manufacturing and handling equipment”.

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

Repeal 2B352(a)

Substitute

“(a) Containment facilities and related equipment as follows:

- (1) Complete containment facilities that meet the criteria for P3 or P4 (BL3, BL4, L3, L4) containment as specified in the WHO Laboratory Biosafety Manual (3rd edition, Geneva, 2004);
- (2) Equipment designed for fixed installation in containment facilities specified in 2B352(a), as follows:
 - (a) Double-door pass-through decontamination autoclaves;
 - (b) Breathing air suit decontamination showers;
 - (c) Mechanical-seal or inflatable-seal walkthrough doors;”

- (148) Schedule 1, Dual-use Goods List, Category 2, 2B352(b)(1)—

Repeal

“pathogenic” (wherever appearing).

- (149) Schedule 1, Dual-use Goods List, Category 2, 2B352(d)(1)—

Repeal

“pathogenic”.

- (150) Schedule 1, Dual-use Goods List, Category 2, 2B352(d), Note, after “osmosis”—

Add

“and hemodialysis”.

- (151) Schedule 1, Dual-use Goods List, Category 2, 2B352(e)—

Repeal

“sterilisable freeze drying equipment with a condenser capacity exceeding 10 kg of ice”

Substitute

“, gas or vapour sterilizable freeze drying equipment with a condenser capacity of 10 kg of ice or more”.

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

Repeal 2B352(f)(2)

Substitute

“(2) Biocontainment chambers, isolators, or biological safety cabinets having all of the following characteristics, for normal operation:

- (a) Fully enclosed workspace where the operator is separated from the work by a physical barrier;
- (b) Able to operate at negative pressure;
- (c) Means to safely manipulate items in the workspace;
- (d) Supply and exhaust air to and from the workspace is HEPA filtered;

Notes:

1. 2B352(f)(2) includes Class III biosafety cabinets, as described in the latest edition of the WHO Laboratory Biosafety Manual or constructed in accordance with national standards, regulations or guidance.
2. 2B352(f)(2) does not include isolators specially designed for barrier nursing or transportation of infected patients.”.

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

Repeal 2B352(g)

Substitute

“(g) Aerosol inhalation equipment designed for aerosol challenge testing with “microorganisms”, viruses or “toxins” as follows:

- (1) Whole-body exposure chambers having a capacity of 1 m³ or more;
- (2) Nose-only exposure apparatus utilizing directed aerosol flow and having capacity for exposure of any of the following:
 - (a) 12 or more rodents;
 - (b) 2 or more animals other than rodents;
- (3) Closed animal restraint tubes designed for use with nose-only exposure apparatus utilizing directed aerosol flow;”.

(154) Schedule 1, Dual-use Goods List, Category 2, after 2B352(h)—

Add

“(i) Nucleic acid assemblers and synthesisers, which are partly or entirely automated, and designed to generate continuous nucleic acids greater than 1.5 kilobases in length with error rates less than 5% in a single run;”.

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

Repeal 2E003(a) and (d).

(156) Schedule 1, Dual-use Goods List, Category 2, 2E, under heading “TABLE—DEPOSITION TECHNIQUES—STATEMENT OF UNDERSTANDING”, after paragraph 1(d)(3)—

Add

“(4) Application of binders to promote adhesion;”.

- (157) Schedule 1, Dual-use Goods List, Category 2, 2E, under heading “TABLE—DEPOSITION TECHNIQUES—STATEMENT OF UNDERSTANDING”—
Repeal paragraph 5(b)(7)(f).
- (158) Schedule 1, Dual-use Goods List, Category 3, 3A, Note 1—
Repeal
“or 3A001(a)(13)”
Substitute
“to 3A001(a)(14)”.
- (159) Schedule 1, Dual-use Goods List, Category 3, 3A, Note 2—
Repeal
“or 3A001(a)(13)”
Substitute
“to 3A001(a)(14)”.
- (160) Schedule 1, Dual-use Goods List, Category 3, 3A, Note 2, Nota Bene—
Repeal
“and 3A001(a)(13)”
Substitute
“to 3A001(a)(14)”.
- (161) Schedule 1, Dual-use Goods List, Category 3, 3A001—
Repeal
“Electronic components”
Substitute
“Electronic items”.

- (162) Schedule 1, Dual-use Goods List, Category 3, 3A001(a), Note 2—
Repeal
““Three dimensional integrated circuits”.”
Substitute
““Three dimensional integrated circuits”;
“Monolithic Microwave Integrated Circuits” (“MMICs”).”.
- (163) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(2), after “analogue-to-digital converters,”—
Add
“integrated circuits that contain analogue-to-digital converters and store or process the digitized data.”.
- (164) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(2)—
Repeal
“electrical erasable programmable read-only memories (EEPROMs), flash memories or”.
- (165) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(2), after “(SRAMs)”—
Add
“or ‘non-volatile memories’”.
- (166) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(2), after the Note—
Add
“*Technical Note:*
‘Non-volatile memories’ are memories with data retention over a period of time after a power shutdown.”.
- (167) Schedule 1, Dual-use Goods List, Category 3—

Repeal 3A001(a)(5)(a)

Substitute

“(a) Analogue-to-digital converters having any of the following:

N.B.:

1. See also 3A101.
2. For integrated circuits that contain analogue-to-digital converters and store or process the digitized data, see 3A001(a)(14).
- (1) A resolution of 8 bit or more, but less than 10 bit, with a “sample rate” greater than 1.3 Giga Samples Per Second (GSPS);
- (2) A resolution of 10 bit or more, but less than 12 bit, with a “sample rate” greater than 600 Mega Samples Per Second (MSPS);
- (3) A resolution of 12 bit or more, but less than 14 bit, with a “sample rate” greater than 400 MSPS;
- (4) A resolution of 14 bit or more, but less than 16 bit, with a “sample rate” greater than 250 MSPS;
- (5) A resolution of 16 bit or more with a “sample rate” greater than 65 MSPS;

Technical Notes:

1. A resolution of n bit corresponds to a quantization of 2^n levels.
2. The resolution of the ADC is the number of bits of the digital output of the ADC that represents the measured analogue input. Effective Number of Bits (ENOB) is not used to determine the resolution of the ADC.

3. For “multiple channel ADCs”, the “sample rate” is not aggregated and the “sample rate” is the maximum rate of any single channel.
4. For “interleaved ADCs” or for “multiple channel ADCs” that are specified to have an interleaved mode of operation, the “sample rates” are aggregated and the “sample rate” is the maximum combined total rate of all of the interleaved channels.”.

(168) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7), Note—

Repeal

“—Simple Programmable Logic Devices (SPLDs)”.

(169) Schedule 1, Dual-use Goods List, Category 3, 3A001(a)(7), after the Note—

Add

N.B.:

For integrated circuits having field programmable logic devices that are combined with an analogue-to-digital converter, see 3A001(a)(14).”.

(170) Schedule 1, Dual-use Goods List, Category 3, after 3A001(a)(13)—

Add

“(14) Integrated circuits that perform or are programmable to perform all of the following:

- (a) Analogue-to-digital conversions meeting any of the following:

- (1) A resolution of 8 bit or more, but less than 10 bit, with a “sample rate” greater than 1.3 Giga Samples Per Second (GSPS);
 - (2) A resolution of 10 bit or more, but less than 12 bit, with a “sample rate” greater than 1.0 GSPS;
 - (3) A resolution of 12 bit or more, but less than 14 bit, with a “sample rate” greater than 1.0 GSPS;
 - (4) A resolution of 14 bit or more, but less than 16 bit, with a “sample rate” greater than 400 Mega Samples Per Second (MSPS);
 - (5) A resolution of 16 bit or more with a “sample rate” greater than 180 MSPS;
- (b) Any of the following:
- (1) Storage of digitized data;
 - (2) Processing of digitized data;

N.B.:

1. For analogue-to-digital converter integrated circuits, see 3A001(a)(5)(a).
2. For field programmable logic devices, see 3A001(a)(7).

Technical Notes:

1. A resolution of n bit corresponds to a quantization of 2^n levels.
2. The resolution of the ADC is the number of bits of the digital output of the ADC that represents the measured analogue input. Effective Number of Bits

- (ENOB) is not used to determine the resolution of the ADC.
3. For integrated circuits with non-interleaving “multiple channel ADCs”, the “sample rate” is not aggregated and the “sample rate” is the maximum rate of any single channel.
 4. For integrated circuits with “interleaved ADCs” or with “multiple channel ADCs” that are specified to have an interleaved mode of operation, the “sample rates” are aggregated and the “sample rate” is the maximum combined total rate of all of the interleaved channels.”
- (171) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)—
Repeal
“Microwave or millimeter wave components”
Substitute
“Microwave or millimeter wave items”.
- (172) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(1)—
Repeal
“Electronic vacuum tubes”
Substitute
““Vacuum electronic devices””.
- (173) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(1), Notes 1 and 2—
Repeal
“tubes”
Substitute
““vacuum electronic devices””.

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

Repeal 3A001(b)(1)(a)

Substitute

- “(a) Travelling wave “vacuum electronic devices”, pulsed or continuous wave, as follows:
- (1) Operating at frequencies exceeding 31.8 GHz;
 - (2) Having a cathode heater with a turn on time to rated RF power of less than 3 seconds;
 - (3) Coupled cavity devices, or derivatives of those coupled cavity devices, with a “fractional bandwidth” of more than 7% or a peak power exceeding 2.5 kW;
 - (4) Based on helix, folded waveguide, or serpentine waveguide circuits, or derivatives of these items, with any of the following characteristics:
 - (a) An “instantaneous bandwidth” of more than one octave, and average power (expressed in kW) times frequency (expressed in GHz) of more than 0.5;
 - (b) An “instantaneous bandwidth” of one octave or less, and average power (expressed in kW) times frequency (expressed in GHz) of more than 1;
 - (c) Being “space-qualified”;
 - (d) Having a gridded electron gun;
 - (5) With a “fractional bandwidth” greater than or equal to 10% with any of the following:
 - (a) An annular electron beam;
 - (b) A non-axisymmetric electron beam;

(c) Multiple electron beams;”.

(175) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(1)(b)—

Repeal

“tubes”

Substitute

““vacuum electronic devices””.

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

Repeal 3A001(b)(1)(c)

Substitute

- “(c) Thermionic cathodes designed for “vacuum electronic devices” producing an emission current density at rated operating conditions exceeding 5 A/cm² or a pulsed (non-continuous) current density at rated operating conditions exceeding 10 A/cm²;
- (d) “Vacuum electronic devices” with the capability to operate in ‘dual mode’;

Technical Note:

‘Dual mode’ means the “vacuum electronic device” beam current can be intentionally changed between continuous-wave and pulsed mode operation by use of a grid and produces a peak pulse output power greater than the continuous-wave output power.”.

(177) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(2)—

Repeal everything before 3A001(b)(2)(a)

Substitute

- “(2) “Monolithic Microwave Integrated Circuit” (“MMIC”) amplifiers that are any of the following:

N.B.:

For “MMIC” amplifiers that have an integrated phase shifter, see 3A001(b)(12).”.

- (178) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(2), Note 2—

Repeal

“MMIC” (wherever appearing)

Substitute

““MMIC””.

- (179) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(2), Note 3—

Repeal

“MMICs”

Substitute

““MMICs””.

- (180) Schedule 1, Dual-use Goods List, Category 3, after 3A001(b)(3)(e)—

Add

“(f) Other than those specified in 3A001(b)(3)(a) to 3A001(b)(3)(e) and rated for operation with a peak saturated power output greater than 5 W (37.0 dBm) at any frequency exceeding 8.5 GHz up to and including 31.8 GHz.”.

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

Repeal 3A001(b)(4)(f).

- (182) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(4)—

Repeal the Nota Bene

Substitute

N.B.:

1. For “MMIC” amplifiers, see 3A001(b)(2).
2. For ‘transmit/receive modules’ and ‘transmit modules’, see 3A001(b)(12).
3. For converters and harmonic mixers, designed to extend the operating or frequency range of signal analysers, signal generators, network analysers or microwave test receivers, see 3A001(b)(7).”.

- (183) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(4)—

Repeal Note 3.

- (184) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(8)—

Repeal

“tubes”

Substitute

““vacuum electronic devices””.

- (185) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(9)—

Repeal

“tube, a microwave “monolithic integrated circuit””

Substitute

““vacuum electronic device”, a “Monolithic Microwave Integrated Circuit” (“MMIC”)”.

- (186) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(11)(a)—

Repeal

“156”

Substitute

- “143”.
- (187) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(11)(b)—
- (a) **Repeal**
“1.6”
Substitute
“2.2”;
- (b) **Repeal**
“10.6”
Substitute
“31.8”.
- (188) Schedule 1, Dual-use Goods List, Category 3—
Repeal 3A001(b)(11)(c).
- (189) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(11)(d)—
Repeal
“43.5”
Substitute
“37”.
- (190) Schedule 1, Dual-use Goods List, Category 3, 3A001(b)(11)(e)—
- (a) **Repeal**
“1 ms”
Substitute
“100 μ s”;
- (b) **Repeal**

- “550 MHz”
Substitute
“2.2 GHz”;
- (c) **Repeal**
“43.5”
Substitute
“37”;
- (d) **Repeal**
“56”
Substitute
“90”.
- (191) Schedule 1, Dual-use Goods List, Category 3—
Repeal 3A001(b)(11)(f).
- (192) Schedule 1, Dual-use Goods List, Category 3, after 3A001(b)(11)—
Add
- “(12) ‘Transmit/receive modules’, ‘transmit/receive MMICs’, ‘transmit modules’, and ‘transmit MMICs’, rated for operation at frequencies above 2.7 GHz and having all of the following:
- (a) A peak saturated power output (in watts), P_{sat} , greater than 505.62 divided by the maximum operating frequency (in GHz) squared [$P_{\text{sat}} > 505.62 \text{ W} \cdot \text{GHz}^2 / f_{\text{GHz}}^2$] for any channel;
- (b) A “fractional bandwidth” of 5% or greater for any channel;

- (c) Any planar side with length d (in cm) equal to or less than 15 divided by the lowest operating frequency (in GHz) [$d \leq 15 \text{ cm} * \text{GHz} * N / f_{\text{GHz}}$] where N is the number of transmit or transmit/receive channels;
- (d) An electronically variable phase shifter per channel;

Technical Notes:

1. A 'transmit/receive module' is a multifunction "electronic assembly" that provides bidirectional amplitude and phase control for transmission and reception of signals.
2. A 'transmit module' is an "electronic assembly" that provides amplitude and phase control for transmission of signals.
3. A 'transmit/receive MMIC' is a multifunction "MMIC" that provides bidirectional amplitude and phase control for transmission and reception of signals.
4. A 'transmit MMIC' is a "MMIC" that provides amplitude and phase control for transmission of signals.
5. 2.7 GHz should be used as the lowest operating frequency (f_{GHz}) in the formula in 3A001(b)(12)(c) for 'transmit/receive modules' or 'transmit modules' that have a rated operation range extending downward to 2.7 GHz and below [$d \leq 15 \text{ cm} * \text{GHz} * N / 2.7 \text{ GHz}$].
6. 3A001(b)(12) applies to 'transmit/receive modules' or 'transmit modules' with or without a heat sink. The value of length d in 3A001(b)(12)(c) does not

include any portion of the 'transmit/receive module' or 'transmit module' that functions as a heat sink.

7. 'Transmit/receive modules', 'transmit/receive MMICs', 'transmit modules' or 'transmit MMICs' may or may not have N integrated radiating antenna elements where N is the number of transmit or transmit/receive channels."

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

Repeal 3A001(e)(1)(a)

Substitute

"(a) 'Primary cells' having any of the following at 20°C:

- (1) 'Energy density' exceeding 550 Wh/kg and a 'continuous power density' exceeding 50 W/kg;
- (2) 'Energy density' exceeding 50 Wh/kg and a 'continuous power density' exceeding 350 W/kg;".

(194) Schedule 1, Dual-use Goods List, Category 3, 3A001(e)(1)(b)—

Repeal

"300"

Substitute

"350".

(195) Schedule 1, Dual-use Goods List, Category 3, 3A001(e)(1), after Technical Note 4—

Add

5. For the purpose of 3A001(e)(1)(a), 'continuous power density' (W/kg) is calculated from the nominal voltage multiplied by the specified maximum continuous discharge current in ampere (A) divided by the mass in

kilograms. 'Continuous power density' is also referred to as specific power.”.

- (196) Schedule 1, Dual-use Goods List, Category 3, 3A001(f)—

Repeal

“±1.0 second of arc”

Substitute

“1.0 second of arc and specially designed encoder rings, discs or scales for such encoders”.

- (197) Schedule 1, Dual-use Goods List, Category 3, after 3A001(h)—

Add

“(i) Intensity, amplitude, or phase electro-optic modulators, designed for analogue signals and having any of the following:

- (1) A maximum operating frequency of more than 10 GHz but less than 20 GHz, an optical insertion loss equal to or less than 3 dB and having any of the following:

- (a) A 'half-wave voltage' ($V\pi$) less than 2.7 V when measured at a frequency of 1 GHz or below;
- (b) A $V\pi$ less than 4 V when measured at a frequency of more than 1 GHz;

- (2) A maximum operating frequency equal to or greater than 20 GHz, an optical insertion loss equal to or less than 3 dB and having any of the following:

- (a) A $V\pi$ less than 3.3 V when measured at a frequency of 1 GHz or below;
- (b) A $V\pi$ less than 5 V when measured at a frequency of more than 1 GHz;

Note:

3A001(i) includes electro-optic modulators having optical input and output connectors (e.g. fibre-optic pigtailed).

Technical Note:

For the purposes of 3A001(i), a 'half-wave voltage' ($V\pi$) is the applied voltage necessary to make a phase change of 180 degrees in the wavelength of light propagating through the optical modulator.”.

- (198) Schedule 1, Dual-use Goods List, Category 3, 3A002—

Repeal

“electronic equipment”

Substitute

““electronic assemblies”, modules and equipment”.

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

Repeal 3A002(a)(5)

Substitute

“(5) Deleted;

N.B.:

For waveform digitizers and transient recorders, see 3A002(h).”.

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

Repeal 3A002(a)(6)

Substitute

“(6) Digital data recorders having all of the following:

- (a) A sustained 'continuous throughput' of more than 6.4 Gbit/s to disk or solid-state drive memory;

- (b) “Signal processing” of the radio frequency signal data while it is being recorded;

Technical Notes:

1. For recorders with a parallel bus architecture, the ‘continuous throughput’ rate is the highest word rate multiplied by the number of bits in a word.
2. ‘Continuous throughput’ is the fastest data rate the instrument can record to disk or solid-state drive memory without the loss of any information while sustaining the input digital data rate or digitizer conversion rate.”.

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

Repeal

“10”

Substitute

“40”.

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

Repeal 3A002(c)(4)(b)

Substitute

“(b) Having any of the following:

- (1) 100% probability of discovery with less than a 3 dB reduction from full amplitude due to gaps or windowing effects of signals having a duration of 15 μ s or less;
- (2) A “frequency mask trigger” function with 100% probability of trigger (capture) for signals having a duration of 15 μ s or less;

Technical Notes:

1. Probability of discovery in 3A002(c)(4)(b)(1) is also referred to as probability of intercept or probability of capture.
2. For the purposes of 3A002(c)(4)(b)(1), the duration for 100% probability of discovery is equivalent to the minimum signal duration necessary for the specified level measurement uncertainty.”.

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

Repeal 3A002(c)(5).

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

Repeal 3A002(d)(5)

Substitute

“(5) ‘RF modulation bandwidth’ of digital baseband signals, specified as being any of the following:

- (a) Exceeding 2.2 GHz within the frequency range exceeding 4.8 GHz but not exceeding 31.8 GHz;
- (b) Exceeding 550 MHz within the frequency range exceeding 31.8 GHz but not exceeding 37 GHz;
- (c) Exceeding 2.2 GHz within the frequency range exceeding 37 GHz but not exceeding 90 GHz;

Technical Note:

‘RF modulation bandwidth’ is the Radio Frequency (RF) bandwidth occupied by a digitally encoded baseband signal modulated onto an RF signal. It is also referred to as information bandwidth or vector modulation bandwidth. I/Q digital modulation is the technical method for producing a vector-modulated RF output signal, and that output signal is typically specified as having an ‘RF modulation bandwidth’.

(6) A maximum frequency exceeding 90 GHz;”.

(205) Schedule 1, Dual-use Goods List, Category 3, after 3A002(g)—

Add

“(h) “Electronic assemblies”, modules, or equipment, specified to perform all of the following:

(1) Analogue-to-digital conversions meeting any of the following:

(a) A resolution of 8 bit or more, but less than 10 bit, with a “sample rate” greater than 1.3 Giga Samples Per Second (GSPS);

(b) A resolution of 10 bit or more, but less than 12 bit, with a “sample rate” greater than 1.0 GSPS;

(c) A resolution of 12 bit or more, but less than 14 bit, with a “sample rate” greater than 1.0 GSPS;

(d) A resolution of 14 bit or more, but less than 16 bit, with a “sample rate” greater than 400 Mega Samples Per Second (MSPS);

(e) A resolution of 16 bit or more with a “sample rate” greater than 180 MSPS;

(2) Any of the following:

(a) Output of digitized data;

(b) Storage of digitized data;

(c) Processing of digitized data;

N.B.:

Digital data recorders, oscilloscopes, “signal analysers”, signal generators, network analysers and microwave test

receivers are specified in 3A002(a)(6), 3A002(a)(7), 3A002(c), 3A002(d), 3A002(e) and 3A002(f), respectively.

Technical Notes:

1. A resolution of n bit corresponds to a quantization of 2^n levels.

2. The resolution of the ADC is the number of bits of the digital output of the ADC that represents the measured analogue input. Effective Number of Bits (ENOB) is not used to determine the resolution of the ADC.

3. For non-interleaved multiple-channel “electronic assemblies”, modules, or equipment, the “sample rate” is not aggregated and the “sample rate” is the maximum rate of any single-channel.

4. For interleaved channels on multiple-channel “electronic assemblies”, modules, or equipment, the “sample rates” are aggregated and the “sample rate” is the maximum combined total rate of all the interleaved channels.

Note:

3A002(h) includes ADC cards, waveform digitizers, data acquisition cards, signal acquisition boards and transient recorders.”.

(206) Schedule 1, Dual-use Goods List, Category 3, 3A101(b)—

Repeal

“, usable for ‘missiles’ and their subsystems”.

(207) Schedule 1, Dual-use Goods List, Category 3, 3A101(b)—

Repeal the Technical Note.

(208) Schedule 1, Dual-use Goods List, Category 3, 3B001, before 3B001(a)—

Add

“*N.B.*:

See also 2B226.”

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

Repeal 3B001(c).

(210) Schedule 1, Dual-use Goods List, Category 3, 3B001(e)(1)—

Repeal

“, 3B001(b) or 3B001(c)”

Substitute

“or 3B001(b)”.

(211) Schedule 1, Dual-use Goods List, Category 3, 3B001(e), Technical Note 1—

Repeal

“etch.”.

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

Repeal

“or semiconductor device processing using direct writing methods.”.

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

Repeal 3B001(f)(3)(b)(1)

Substitute

“(1) A full-width half-maximum (FWHM) spot size smaller than 65 nm and an image placement less than 17 nm (mean + 3 sigma);”.

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

Repeal 3B001(f)(3)(b)(2).

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

Repeal 3B001(f)(3)(b)(3)

Substitute

“(3) A second-layer overlay error of less than 23 nm (mean + 3 sigma) on the mask;

(4) Equipment designed for device processing using direct writing methods, having all of the following:

(a) A deflected focused electron beam;

(b) Having any of the following:

(1) A minimum beam size equal to or smaller than 15 nm;

(2) An overlay error less than 27 nm (mean + 3 sigma);”.

(216) Schedule 1, Dual-use Goods List, Category 3, 3B001(h)—

Repeal

“having any of the following:”

Substitute

“designed to be used by lithography equipment having a light source wavelength less than 245 nm;”.

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

Repeal 3B001(h)(1) and (2).

(218) Schedule 1, Dual-use Goods List, Category 3, after 3B001(i)—

Add

- “(j) Mask “substrate blanks” with multilayer reflector structure consisting of molybdenum and silicon, and having all of the following:
- (1) Specially designed for ‘Extreme Ultraviolet’ (‘EUV’) lithography;
 - (2) Compliant with SEMI Standard P37;
- Technical Note:*
‘Extreme Ultraviolet’ (‘EUV’) refers to electromagnetic spectrum wavelengths greater than 5 nm and less than 124 nm.”.
- (219) Schedule 1, Dual-use Goods List, Category 3, 3B002(a)—
Repeal
“transistor devices at frequencies exceeding 31.8 GHz”
Substitute
“items controlled by 3A001(b)(3)”.
- (220) Schedule 1, Dual-use Goods List, Category 3, 3B002(c)—
Repeal
“microwave integrated circuits”
Substitute
“items”.
- (221) Schedule 1, Dual-use Goods List, Category 3, 3C001(d), Note, after “GaP”—
Add
“, GaAs, AlGaAs, InP”.
- (222) Schedule 1, Dual-use Goods List, Category 3, 3C002(a)(1)—
Repeal
“245”

- Substitute**
“193”.
- (223) Schedule 1, Dual-use Goods List, Category 3, 3C002(d)—
Repeal the Technical Note.
- (224) Schedule 1, Dual-use Goods List, Category 3—
Repeal 3C005
Substitute
“3C005 High resistivity materials as follows:
- (a) Silicon carbide (SiC), gallium nitride (GaN), aluminium nitride (AlN) or aluminium gallium nitride (AlGaN) semiconductor “substrates”, or ingots, boules, or other preforms of those materials, having resistivities greater than 10 000 ohm-cm at 20°C;
 - (b) Polycrystalline “substrates” or polycrystalline ceramic “substrates”, having resistivities greater than 10 000 ohm-cm at 20°C and having at least one non-epitaxial single-crystal layer of silicon (Si), silicon carbide (SiC), gallium nitride (GaN), aluminium nitride (AlN), or aluminium gallium nitride (AlGaN) on the surface of the “substrate”;
- (225) Schedule 1, Dual-use Goods List, Category 3, 3C006—
Repeal
““Substrate””
Substitute
“Materials, not specified in 3C001, consisting of a “substrate””.

- (226) Schedule 1, Dual-use Goods List, Category 3, 3D001—
Repeal
“3A002(g)”
Substitute
“3A002(h)”.
- (227) Schedule 1, Dual-use Goods List, Category 3, 3D002—
(a) **Repeal**
“3A225,”;
(b) **Repeal**
“3B001(c),”.
- (228) Schedule 1, Dual-use Goods List, Category 3, 3D003—
Repeal
“Physics-based simulation”
Substitute
“‘Physics-based’ simulation”.
- (229) Schedule 1, Dual-use Goods List, Category 3, after 3D004—
Add
“3D005 “Software” specially designed to restore normal operation of a microcomputer, “microprocessor microcircuit” or “microcomputer microcircuit” within 1 ms after an Electromagnetic Pulse (EMP) or Electrostatic Discharge (ESD) disruption, without loss of continuation of operation;”.
- (230) Schedule 1, Dual-use Goods List, Category 3, 3D101, after “designed”—
Add
“or modified”.

- (231) Schedule 1, Dual-use Goods List, Category 3, 3E001, Note 1—
Repeal
“the “production” of”.
- (232) Schedule 1, Dual-use Goods List, Category 3, 3E001, Note 2—
Repeal
“the “development” or “production” of”.
- (233) Schedule 1, Dual-use Goods List, Category 3, 3E001, after Note 2—
Add
“3. 3E001 does not control ‘Process Design Kits’ (‘PDKs’) unless they include libraries implementing functions or technologies for items specified in 3A001.
Technical Note:
A ‘Process Design Kit’ (‘PDK’) is a software tool provided by a semiconductor manufacturer to ensure that the required design practices and rules are taken into account in order to successfully produce a specific integrated circuit design in a specific semiconductor process, in accordance with technological and manufacturing constraints (each semiconductor manufacturing process has its particular ‘PDK’).”.
- (234) Schedule 1, Dual-use Goods List, Category 3, 3E002(a), Technical Note, after “logic unit”—
Add
“and vector registers of at least 32 elements each”.
- (235) Schedule 1, Dual-use Goods List, Category 3, 3E002(c)—
Repeal
“four”

Substitute

“eight”.

- (236) Schedule 1, Dual-use Goods List, Category 3, 3E002(c)—

Repeal the Note.

- (237) Schedule 1, Dual-use Goods List, Category 3, 3E002—

Repeal Notes 1 and 2

Substitute

- “1. 3E002 does not control “technology” for multimedia extensions.
2. 3E002 does not include “technology” for microprocessor cores, having all of the following characteristics:
- (a) Using “technology” at or above 0.130 µm;
 - (b) Incorporating multi-layer structures with 5 or fewer metal layers.
3. 3E002 includes “technology” for the “development” or “production” of digital signal processors and digital array processors.”.

- (238) Schedule 1, Dual-use Goods List, Category 3, 3E003(b), Note—

Repeal

“technology”

Substitute

““technology””.

- (239) Schedule 1, Dual-use Goods List, Category 3, 3E003(g)—

Repeal

“Electronic vacuum tubes”

Substitute

““Vacuum electronic devices””.

- (240) Schedule 1, Dual-use Goods List, Category 4—

Repeal Note 3.

- (241) Schedule 1, Dual-use Goods List, Category 4, 4A003—

Repeal Note 1(f).

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

Repeal

“8.0”

Substitute

“29”.

- (243) Schedule 1, Dual-use Goods List, Category 4, 4A003(c), Note 1—

Repeal

everything after “unintegrated”

Substitute

““electronic assemblies””.

- (244) Schedule 1, Dual-use Goods List, Category 4—

Repeal 4A003(e)

Substitute

“(e) Deleted;

N.B.:

For “electronic assemblies”, modules or equipment, performing analogue-to-digital conversions, see 3A002(h).”.

- (245) Schedule 1, Dual-use Goods List, Category 4, 4A005—

Repeal

“operation or delivery of, or communication with,”

Substitute

“command and control or delivery of”.

(246) Schedule 1, Dual-use Goods List, Category 4, 4A101—

Repeal

“, “unmanned aerial vehicles” controlled by 9A012”.

(247) Schedule 1, Dual-use Goods List, Category 4, 4A102—

Repeal

“, “unmanned aerial vehicles” controlled by 9A012”.

(248) Schedule 1, Dual-use Goods List, Category 4, 4D001(b)(1)—

Repeal

“1.0”

Substitute

“15”.

(249) Schedule 1, Dual-use Goods List, Category 4—

Repeal 4D004

Substitute

“4D004 “Software” specially designed or modified for the generation, command and control or delivery of “intrusion software”;

Note:

4D004 does not apply to “software” specially designed and limited to provide “software” updates or upgrades meeting all of the following:

(1) The update or upgrade operates only with the authorization of the owner or administrator of the system receiving it;

(2) After the update or upgrade, the “software” updated or upgraded is not any of the following:

(a) “Software” specified in 4D004;

(b) “Intrusion software”.

(250) Schedule 1, Dual-use Goods List, Category 4, 4E001(b)—

Repeal

“other than that controlled by 4E001(a), specially designed or modified”

Substitute

“according to the General Technology Note, other than that controlled by 4E001(a),”.

(251) Schedule 1, Dual-use Goods List, Category 4, 4E001(b)(1)—

Repeal

“1.0”

Substitute

“15”.

(252) Schedule 1, Dual-use Goods List, Category 4, after 4E001(c)—

Add

Note:

4E001(a) and 4E001(c) do not control ‘vulnerability disclosure’ or ‘cyber incident response’.

Technical Notes:

1. 'Vulnerability disclosure' means the process of identifying, reporting, or communicating a vulnerability to, or analyzing a vulnerability with, individuals or organizations responsible for conducting or co-ordinating remediation for the purpose of resolving the vulnerability.
2. 'Cyber incident response' means the process of exchanging necessary information on a cyber security incident with individuals or organizations responsible for conducting or co-ordinating remediation to address the cyber security incident."

(253) Schedule 1, Dual-use Goods List, Category 5, Part 1, 5A001(a)(3)—

Repeal

"outside the temperature range from 218 K (–55°C) to 397 K (124°C)"

Substitute

"below 218 K (–55°C)".

(254) Schedule 1, Dual-use Goods List, Category 5, Part 1, 5A001(a)(3)—

Repeal the Note.

(255) Schedule 1, Dual-use Goods List, Category 5, Part 1, after 5A001(a)(3)—

Add

"(4) Specially designed to operate above 397 K (124°C);".

(256) Schedule 1, Dual-use Goods List, Category 5, Part 1, 5A001(a)—

Repeal the Note

Substitute

Notes:

1. 5A001(a)(3) and 5A001(a)(4) apply only to electronic equipment.
2. 5A001(a)(2), 5A001(a)(3) and 5A001(a)(4) do not control equipment designed or modified for use on board satellites."

(257) Schedule 1, Dual-use Goods List, Category 5, Part 1, 5A001(b)(6)—

Repeal

"2 400"

Substitute

"700".

(258) Schedule 1, Dual-use Goods List, Category 5, Part 1—

Repeal 5A001(d)

Substitute

"(d) "Electronically steerable phased array antennae" as follows:

- (1) Rated for operation above 31.8 GHz, but not exceeding 57 GHz, and having an Effective Radiated Power (ERP) equal to or greater than +20 dBm (22.15 dBm Effective Isotropic Radiated Power (EIRP));
- (2) Rated for operation above 57 GHz, but not exceeding 66 GHz, and having an ERP equal to or greater than +24 dBm (26.15 dBm EIRP);
- (3) Rated for operation above 66 GHz, but not exceeding 90 GHz, and having an ERP equal to or greater than +20 dBm (22.15 dBm EIRP);

(4) Rated for operation above 90 GHz;

Notes:

1. 5A001(d) does not control “electronically steerable phased array antennae” for landing systems with instruments meeting ICAO standards covering microwave landing systems (MLS).
2. 5A001(d) does not control antennae specially designed for any of the following:
 - (a) Civil cellular or WLAN radiocommunications systems;
 - (b) IEEE 802.15 or wireless HDMI;
 - (c) Fixed or mobile satellite earth stations for commercial civil telecommunications.”.

(259) Schedule 1, Dual-use Goods List, Category 5, Part 1—

Repeal 5B001(b)(2)(b) and (c).

(260) Schedule 1, Dual-use Goods List, Category 5, Part 1,
5B001(b)(4)—

Repeal

“256”

Substitute

“1 024”.

(261) Schedule 1, Dual-use Goods List, Category 5, Part 1,
5D001(d)(2)(b), Note, after “designed”—

Add

“or modified”.

(262) Schedule 1, Dual-use Goods List, Category 5, Part 1,
5D001(d)(4)—

Repeal

“256”

Substitute

“1 024”.

(263) Schedule 1, Dual-use Goods List, Category 5, Part 1—

Repeal 5E001(c)(1).

(264) Schedule 1, Dual-use Goods List, Category 5, Part 1—

Repeal 5E001(c)(2)(b) and (c).

(265) Schedule 1, Dual-use Goods List, Category 5, Part 1,
5E001(c)(2)(e), Note—

Repeal

“the “development” or “production” of”.

(266) Schedule 1, Dual-use Goods List, Category 5, Part 1,
5E001(c)(4)(a)—

Repeal

“256”

Substitute

“1 024”.

(267) Schedule 1, Dual-use Goods List, Category 5, Part 1,
5E001(c)(4)(b), Note—

Repeal

“the “development” or “production” of”.

(268) Schedule 1, Dual-use Goods List, Category 5, Part 1,
5E001(d)—

Repeal

“Microwave “Monolithic Integrated Circuit” (MMIC) power”

Substitute

““Monolithic Microwave Integrated Circuit” (“MMIC”)”.

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

Repeal Note 1.

- (270) Schedule 1, Dual-use Goods List, Category 5, Part 2, Note 3—

Repeal

“and 5D002”

Substitute

“, 5D002(a)(1), 5D002(b) and 5D002(c)(1)”.

- (271) Schedule 1, Dual-use Goods List, Category 5, Part 2, Note 3, Note to the Cryptography Note, Note 1(b), after “supplier.”—

Add

“A simple price enquiry is not considered to be a consultation.”.

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

Repeal Note 4.

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

Repeal 5A002

Substitute

“5A002 “Information security” systems, equipment and components, as follows:

N.B.:

For “satellite navigation system” receiving equipment containing or employing decryption, see 7A005, and for related decryption “software” and “technology”, see 7D005 and 7E001.

- (a) Designed or modified to use ‘cryptography for data confidentiality’ having a ‘described security

algorithm’, where that cryptographic capability is usable, has been activated, or can be activated by means of “cryptographic activation” not employing a secure mechanism, as follows:

- (1) Items having “information security” as a primary function;
- (2) Digital communication or networking systems, equipment or components, not specified in 5A002(a)(1);
- (3) Computers, other items having information storage or processing as a primary function, and components of those items, not specified in 5A002(a)(1) or 5A002(a)(2);

N.B.:

For operating systems, see also 5D002(a)(1) and 5D002(c)(1).

- (4) Items, not specified in 5A002(a)(1), 5A002(a)(2) and 5A002(a)(3), where the ‘cryptography for data confidentiality’ having a ‘described security algorithm’ meets all of the following:

- (a) It supports a non-primary function of the item;
- (b) It is performed by incorporated equipment or “software” that would, as a stand-alone item, be specified in Category 5—Part 2;

Technical Notes:

1. For the purposes of 5A002(a), ‘cryptography for data confidentiality’ means

- “cryptography” that employs digital techniques and performs any cryptographic function other than any of the following:
- (a) “Authentication”;
 - (b) Digital signature;
 - (c) Data integrity;
 - (d) Non-repudiation;
 - (e) Digital rights management, including the execution of copy-protected “software”;
 - (f) Encryption or decryption in support of entertainment, mass commercial broadcasts or medical records management;
 - (g) Key management in support of any function described in paragraphs (a) to (f) of this Note.
2. For the purposes of 5A002(a), ‘described security algorithm’ means any of the following:
- (a) A “symmetric algorithm” employing a key length in excess of 56 bits, not including parity bits;
 - (b) An “asymmetric algorithm” where the security of the algorithm is based on any of the following:
 - (1) Factorization of integers in excess of 512 bits (e.g. RSA);

- (2) Computation of discrete logarithms in a multiplicative group of a finite field of size greater than 512 bits (e.g. Diffie-Hellman over Z/pZ);
 - (3) Discrete logarithms in a group other than mentioned in paragraph (b)(2) of this Note in excess of 112 bits (e.g. Diffie-Hellman over an elliptic curve);
- (c) An “asymmetric algorithm” where the security of the algorithm is based on any of the following:
- (1) Shortest vector or closest vector problems associated with lattices (e.g. NewHope, Frodo, NTRUEncrypt, Kyber, Titanium);
 - (2) Finding isogenies between Supersingular elliptic curves (e.g. Supersingular Isogeny Key Encapsulation);
 - (3) Decoding random codes (e.g. McEliece, Niederreiter).

Technical Note:

An algorithm described by Technical Note 2(c) may be referred to as being post-quantum, quantum-safe or quantum-resistant.

Notes:

1. When necessary as determined by the appropriate authority in the exporter's country, details of items must be accessible and provided to the authority on request, in order to establish any of the following:
 - (a) Whether the item meets the criteria of 5A002(a)(1) to 5A002(a)(4);
 - (b) Whether the cryptographic capability for data confidentiality specified in 5A002(a) is usable without "cryptographic activation".
2. 5A002(a) does not control any of the following items, or specially designed "information security" components of those items:
 - (a) Smart cards and smart card 'readers/writers' as follows:
 - (1) A smart card or an electronically readable personal document (e.g. token coin, e-passport) that meets any of the following:
 - (a) The cryptographic capability meets all of the following:
 - (1) It is restricted for use in any of the following:
 - (a) Equipment or systems not described by 5A002(a)(1) to 5A002(a)(4);

- (b) Equipment or systems not using 'cryptography for data confidentiality' having a 'described security algorithm';
 - (c) Equipment or systems, excluded from 5A002(a), by paragraphs (b) to (f) of this Note;
 - (2) It cannot be reprogrammed for any other use;
 - (b) Having all of the following:
 - (1) It is specially designed and limited to allow protection of 'personal data' stored within;
 - (2) Has been, or can only be, personalized for public or commercial transactions or individual identification;
 - (3) Where the cryptographic

capability is not user-accessible;

Technical Note:

‘Personal data’ includes any data specific to a particular person or entity, such as the amount of money stored and data necessary for “authentication”.

- (2) ‘Readers/writers’ specially designed or modified, and limited, for items specified in paragraph (a)(1) of this Note;

Technical Note:

‘Readers/writers’ include equipment that communicates with smart cards or electronically readable documents through a network.

- (b) Cryptographic equipment specially designed and limited for banking use or ‘money transactions’;

Technical Note:

‘Money transactions’ in 5A002(a) Note 2(b) includes the collection and settlement of fares or credit functions.

- (c) Portable or mobile radiotelephones for civil use (e.g. for use with commercial civil cellular radio communication

systems) that are not capable of transmitting encrypted data directly to another radiotelephone or equipment (other than Radio Access Network (RAN) equipment), nor of passing encrypted data through RAN equipment (e.g. Radio Network Controller (RNC) or Base Station Controller (BSC));

- (d) Cordless telephone equipment not capable of end-to-end encryption where the maximum effective range of unboosted cordless operation (i.e. a single, unrelayed hop between terminal and home base station) is less than 400 metres according to the manufacturer’s specifications;
- (e) Portable or mobile radiotelephones and similar client wireless devices for civil use, that implement only published or commercial cryptographic standards (except for anti-piracy functions, which may be non-published) and also meet the provisions of paragraphs (a)(2) to (4) of the Cryptography Note (Note 3 in Category 5—Part 2), that have been customized for a specific civil industry application with features that do not affect the cryptographic functionality of these original non-customized devices;
- (f) Items, where the “information security” functionality is limited to wireless

- “personal area network” functionality, meeting all of the following:
- (1) Implement only published or commercial cryptographic standards;
 - (2) The cryptographic capability is limited to a nominal operating range not exceeding 30 metres according to the manufacturer’s specifications, or not exceeding 100 metres according to the manufacturer’s specifications for equipment that cannot interconnect with more than 7 devices;
- (g) Mobile telecommunications Radio Access Network (RAN) equipment designed for civil use, which also meet the provisions of paragraphs (a)(2) to (4) of the Cryptography Note (Note 3 in Category 5—Part 2), having an RF output power limited to 0.1 W (20 dBm) or less, and supporting 16 or fewer concurrent users;
- (h) 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;

- (i) General purpose computing equipment or servers, where the “information security” functionality meets all of the following:
- (1) Uses only published or commercial cryptographic standards;
 - (2) Is any of the following:
 - (a) Integral to a CPU that meets the provisions of Note 3 in Category 5—Part 2;
 - (b) Integral to an operating system that is not specified in 5D002;
 - (c) Limited to “OAM” of the equipment;
- (j) Items specially designed for a ‘connected civil industry application’, meeting all of the following:
- (1) Being any of the following:
 - (a) A network-capable end-point device meeting any of the following:
 - (1) The “information security” functionality is limited to securing ‘non-arbitrary data’ or the tasks of “Operations, Administration or

- Maintenance”
 (“OAM”);
- (2) The device is limited to a specific ‘connected civil industry application’;
- (b) Networking equipment meeting all of the following:
- (1) Being specially designed to communicate with the devices specified in paragraph (j)(1)(a) of this Note;
- (2) The “information security” functionality is limited to supporting the ‘connected civil industry application’ of devices specified in paragraph (j)(1)(a) of this Note, or the tasks of “OAM” of this networking equipment or of other items specified in paragraph (j) of this Note;
- (2) Where the “information security” functionality implements only published or commercial cryptographic standards, and the

cryptographic functionality cannot easily be changed by the user.

Technical Notes:

1. ‘Connected civil industry application’ means a network-connected consumer or civil industry application other than “information security”, digital communication, general purpose networking or computing.
2. ‘Non-arbitrary data’ means sensor or metering data directly related to the stability, performance or physical measurement of a system (e.g. temperature, pressure, flow rate, mass, volume, voltage, physical location, etc.), that cannot be changed by the user of the device.

- (b) Being a ‘cryptographic activation token’;

Technical Note:

A ‘cryptographic activation token’ is an item designed or modified for any of the following:

- (a) Converting, by means of “cryptographic activation”, an item not specified in Category 5—Part 2 into an item specified in 5A002(a) or 5D002(c)(1), and not released by the Cryptography Note (Note 3 in Category 5—Part 2);

(b) Enabling, by means of “cryptographic activation”, additional functionality specified in 5A002(a) of an item already specified in Category 5—Part 2.

(c) Designed or modified to use or perform “quantum cryptography”;

Technical Note:

“Quantum cryptography” is also known as Quantum Key Distribution (QKD).

(d) Designed or modified to use cryptographic techniques to generate channelizing codes, scrambling codes or network identification codes, for systems using ultra-wideband modulation techniques and having any of the following:

(1) A bandwidth exceeding 500 MHz;

(2) A “fractional bandwidth” of 20% or more;

(e) Designed or modified to use cryptographic techniques to generate the spreading code for “spread spectrum” systems, other than those specified in 5A002(d), including the hopping code for “frequency hopping” systems;”.

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

Add

“5A003 Systems, equipment and components, for non-cryptographic “information security”, as follows:

(a) Communications cable systems designed or modified using mechanical, electrical or

electronic means to detect surreptitious intrusion;

Note:

5A003(a) only controls physical layer security. For the purposes of 5A003(a), the physical layer includes Layer 1 of the Reference Model of Open Systems Interconnection (OSI) (ISO/IEC 7498-1).

(b) Specially designed or modified to reduce the compromising emanations of information-bearing signals beyond what is necessary for health, safety or electromagnetic interference standards;

5A004 Systems, equipment and components, for defeating, weakening or by-passing “information security”, as follows:

(a) Designed or modified to perform ‘cryptanalytic functions’;

Note:

5A004(a) includes systems or equipment, designed or modified to perform ‘cryptanalytic functions’ by means of reverse engineering.

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.”.

(275) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5B002(a), after “5A002”—

Add

“, 5A003, 5A004”.

(276) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5B002(b)—

Repeal

“5A002 or”

Substitute

“5A002, 5A003 or 5A004, or of”.

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

Repeal 5D002(a), (b) and (c)

Substitute

“(a) “Software” specially designed or modified for the “development”, “production” or “use” of any of the following:

- (1) Equipment specified in 5A002 or “software” specified in 5D002(c)(1);
- (2) Equipment specified in 5A003 or “software” specified in 5D002(c)(2);
- (3) Equipment specified in 5A004 or “software” specified in 5D002(c)(3);

(b) “Software” having the characteristics of a ‘cryptographic activation token’ specified in 5A002(b);

(c) “Software” having the characteristics of, or performing or simulating the functions of, any of the following:

- (1) Equipment specified in 5A002(a), 5A002(c), 5A002(d) or 5A002(e);

Note:

5D002(c)(1) does not control “software” limited to the tasks of “OAM” implementing only published or commercial cryptographic standards.

(2) Equipment specified in 5A003;

(3) Equipment specified in 5A004;”.

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

Repeal 5D002(d).

(279) Schedule 1, Dual-use Goods List, Category 5, Part 2, 5E002(a)—

Repeal

“5A002 or 5B002 or”

Substitute

“5A002, 5A003, 5A004 or 5B002, or of”.

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

Repeal 5E002(b)

Substitute

“(b) “Technology” having the characteristics of a ‘cryptographic activation token’ specified in 5A002(b);”.

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

Repeal

“±0.5°”

Substitute

“0.5°”.

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

Add

“*N.B.*:

For inertial heading systems, see 7A003(c).”.

- (283) Schedule 1, Dual-use Goods List, Category 6, 6A002(a)(3),
Note 2(b)(5)—

Repeal

“variants; *and*”

Substitute

“variants;”.

- (284) Schedule 1, Dual-use Goods List, Category 6, 6A002(a)(3),
Note 2(c)(2)(b)—

Repeal

“place.”

Substitute

“place;”.

- (285) Schedule 1, Dual-use Goods List, Category 6, 6A002(a)(3),
after Note 2(c)—

Add

“(d) Thermopile arrays having less than 5 130 elements.”.

- (286) Schedule 1, Dual-use Goods List, Category 6, at the end of
6A002—

Add

“(f) ‘Read-out integrated circuits’ (‘ROIC’) specially
designed for “focal plane arrays” (‘FPA’) specified in
6A002(a)(3);

Note:

6A002(f) does not control ‘read-out integrated circuits’
specially designed for civil automotive applications.

Technical Note:

A ‘Read-out integrated circuit’ (‘ROIC’) is an integrated
circuit designed to underlie or be bonded to a “focal plane
array” (‘FPA’) and used to read-out (i.e. extract and
register) signals produced by the detector elements. At a
minimum the ‘ROIC’ reads the charge from the detector
elements by extracting the charge and applying a
multiplexing function in a manner that retains the relative
spatial position and orientation information of the
detector elements for processing inside or outside the
‘ROIC’.”.

- (287) Schedule 1, Dual-use Goods List, Category 6, 6A003, Nota
Bene—

Repeal

“For television and film-based photographic still cameras
specially designed or modified for underwater use, see
8A002(d)(1) and 8A002(e).”.

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

Repeal 6A003(a)(1) and (2).

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

Repeal 6A003(a)(3)

Substitute

“(3) Electronic streak cameras having temporal resolution
better than 50 ns;”.

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

Repeal

- “/pixel” (wherever appearing).
- (291) Schedule 1, Dual-use Goods List, Category 6, at the end of 6A004(a)(2)—
Add
“*Note:*
6A004(a)(2) does not control mirrors specially designed to direct solar radiation for terrestrial heliostat installations.”
- (292) Schedule 1, Dual-use Goods List, Category 6, at the end of 6A004(a)(3)—
Add
“*Note:*
6A004(a)(3) does not control mirrors specially designed to direct solar radiation for terrestrial heliostat installations.”
- (293) Schedule 1, Dual-use Goods List, Category 6, 6A004(a)(4)—
Repeal
“633 nm”
Substitute
“633 nm”.
- (294) Schedule 1, Dual-use Goods List, Category 6, 6A004(a)(4)(b)—
Repeal
“either”
Substitute
“all”.
- (295) Schedule 1, Dual-use Goods List, Category 6, after 6A004(e)—
Add

- “(f) Dynamic wavefront measuring equipment having all of the following:
(1) ‘Frame rates’ equal to or more than 1 kHz;
(2) A wavefront accuracy equal to or less (better) than $\lambda/20$ at the designed wavelength;
Technical Note:
For the purposes of 6A004(f), ‘frame rate’ is a frequency at which all “active pixels” in the “focal plane array” are integrated for recording images projected by the wavefront sensor optics.”
- (296) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(6)(a)—
Repeal
“200”
Substitute
“500”.
- (297) Schedule 1, Dual-use Goods List, Category 6, 6A005(a)(8), after “1 555 nm”—
Add
“but not exceeding 1 850 nm”.
- (298) Schedule 1, Dual-use Goods List, Category 6, after 6A005(a)(8)—
Add
“(9) Output wavelength exceeding 1 850 nm but not exceeding 2 100 nm and any of the following:
(a) Single transverse mode and output power exceeding 1 W;

- (b) Multiple transverse mode output and output power exceeding 120 W;
- (10) Output wavelength exceeding 2 100 nm and output power exceeding 1 W;”.
- (299) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(5)(b)(1)—
Repeal
“20”
Substitute
“50”.
- (300) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(6)(a)(2)—
Repeal
“10”
Substitute
“30”.
- (301) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(6)(b)(2)—
Repeal
“10”
Substitute
“50”.
- (302) Schedule 1, Dual-use Goods List, Category 6, 6A005(b)(8), after “1 555”—
Add
“nm but not exceeding 1 850”.

- (303) Schedule 1, Dual-use Goods List, Category 6, after 6A005(b)(8)—
Add
“(9) Output wavelength exceeding 1 850 nm but not exceeding 2 100 nm and:
(a) Single transverse mode and any of the following:
(1) Output energy exceeding 100 mJ per pulse and “peak power” exceeding 1 W;
(2) “Average output power” exceeding 1 W; *or*
(b) Multiple transverse mode and any of the following:
(1) Output energy exceeding 100 mJ per pulse and “peak power” exceeding 10 kW;
(2) “Average output power” exceeding 120 W;
- (10) Output wavelength exceeding 2 100 nm and any of the following:
(a) Output energy exceeding 100 mJ per pulse and “peak power” exceeding 1 W;
(b) “Average output power” exceeding 1 W;”.
- (304) Schedule 1, Dual-use Goods List, Category 6, at the end of 6A005(d)(1)(d)(1)(d)—
Add
“*Note:*
6A005(d)(1)(d)(1)(d) does not control epitaxially-fabricated monolithic devices.”.
- (305) Schedule 1, Dual-use Goods List, Category 6, at the end of 6A005(d)(1)(d)(2)(d)—
Add

Note:

6A005(d)(1)(d)(2)(d) does not control epitaxially-fabricated monolithic devices.”.

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

Repeal

“at least”

Substitute

“less than or equal to”.

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

Repeal 6A005(f)(1).

- (308) Schedule 1, Dual-use Goods List, Category 6, 6A005(f)(2)—

Repeal

“capable of measuring “SHPL” system angular beam steering errors of equal to or less than 10 μ rad”

Substitute

“specially designed for dynamic measurement of “SHPL” system angular beam steering errors and having an angular “accuracy” of 10 μ rad (microradians) or less (better)”.

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

Repeal 6A005(f)(3)

Substitute

“(3) Optical equipment and components, specially designed for coherent beam combination in a phased-array “SHPL” system and having any of the following:

- (a) An “accuracy” of 0.1 μ m or less, for wavelengths greater than 1 μ m;

- (b) An “accuracy” of $\lambda/10$ or less (better) at the designed wavelength, for wavelengths equal to or less than 1 μ m;”.

- (310) Schedule 1, Dual-use Goods List, Category 6, 6A108(a)—

Repeal

“, “unmanned aerial vehicles” controlled by 9A012”.

- (311) Schedule 1, Dual-use Goods List, Category 6, 6A108(a), Note—

Repeal paragraphs (b), (c) and (d)

Substitute

“(b) Scene mapping and correlation (both digital and analogue) equipment;

(c) Doppler navigation radar equipment;

(d) Passive interferometer equipment;

(e) Imaging sensor equipment (both active and passive).”.

- (312) Schedule 1, Dual-use Goods List, Category 6, 6A108(b)(2)(a)—

Repeal

“3”

Substitute

“1.5”.

- (313) Schedule 1, Dual-use Goods List, Category 6, 6A203, Note—

Repeal

“6A003”

Substitute

“6A203(a), 6A203(b) and 6A203(c)”.

- (314) Schedule 1, Dual-use Goods List, Category 6, 6A226(a)—

Repeal

“bifluoride (PVBF, PVF₂)”

Substitute

“fluoride (PVDF)/polyvinyl difluoride (PVF₂)”.

- (315) Schedule 1, Dual-use Goods List, Category 6, 6B004(a)—

Repeal

“accuracy of $\pm 0.1\%$ ”

Substitute

““accuracy” of equal to or better than 0.1%”.

- (316) Schedule 1, Dual-use Goods List, Category 6, 6D102, after
“designed”—

Add

“or modified”.

- (317) Schedule 1, Dual-use Goods List, Category 6, 6E101, Note,
before “6A008”—

Add

“6A002, 6A007 and”.

- (318) Schedule 1, Dual-use Goods List, Category 6, at the end of
6E201—

Add

“Notes:

1. 6E201 only controls “technology” for cameras specified in 6A003 if the cameras are also specified in any of the control parameters of 6A203.
2. 6E201 only controls “technology” for “lasers” in 6A005(b)(6) that are neodymium-doped and specified in any of the control parameters of 6A205(f).”.

- (319) Schedule 1, Dual-use Goods List, Category 7, 7A004, before
7A004(a)—

Add

“N.B.:

See also 7A104.”.

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

Repeal

“services”

Substitute

“service”.

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

Repeal

“Inertial or other equipment, using accelerometers or gyros as follows, and systems incorporating the equipment”

Substitute

““Inertial measurement equipment or systems”, using accelerometers or gyros as follows”.

- (322) Schedule 1, Dual-use Goods List, Category 7, at the end of
7A103(a)(1)—

Add

“Note:

7A103(a)(1) does not control equipment containing accelerometers controlled by 7A001(a)(3) that are designed to measure vibration or shock.”.

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

Repeal

“‘missiles’;

Note:

7A103(a) does not include equipment containing accelerometers specified in 7A001 where such accelerometers are specially designed and developed as MWD (Measurement While Drilling) Sensors for use in downhole well services operations.”

Substitute

“‘missiles’;

Note:

7A103(a)(2) does not include equipment containing accelerometers specified in 7A001(a)(1) or 7A001(a)(2) where such accelerometers are specially designed and developed as MWD (Measurement While Drilling) Sensors for use in downhole well service operations.”

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

Add

“Technical Note:

‘Inertial measurement equipment or systems’ controlled by 7A103(a) incorporate accelerometers or gyros to measure changes in velocity and orientation in order to determine or maintain heading or position without requiring an external reference once aligned.

Note:

‘Inertial measurement equipment or systems’ in 7A103(a) include:

—Attitude and Heading Reference Systems (AHRSS)

—Gyrocompasses

—Inertial Measurement Units (IMUs)

—Inertial Navigation Systems (INSs)

—Inertial Reference Systems (IRSs)

—Inertial Reference Units (IRUs)”.

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

Repeal

“Global Navigation Satellite Systems (GNSS; e.g. GPS, GLONASS or Galileo)”

Substitute

“‘navigation satellite systems’”.

(326) Schedule 1, Dual-use Goods List, Category 7, 7A105(b)(2)—

Repeal

“GNSS”

Substitute

“a ‘navigation satellite system’”.

(327) Schedule 1, Dual-use Goods List, Category 7, 7A105(b), Note—

Repeal

“GNSS”

Substitute

“‘navigation satellite system’”.

(328) Schedule 1, Dual-use Goods List, Category 7, after 7A105(b)—

Add

“Technical Note:

In 7A105, ‘navigation satellite system’ includes Global Navigation Satellite Systems (GNSS; e.g. GPS, GLONASS,

- Galileo or BeiDou) and Regional Navigation Satellite Systems (RNSS; e.g. NavIC, QZSS).”.
- (329) Schedule 1, Dual-use Goods List, Category 7, 7A115—
Repeal the Note
Substitute
“*Note:*
Equipment controlled by 7A105, 7A106 and 7A115 includes the following:
(a) Terrain contour mapping equipment;
(b) Scene mapping and correlation (both digital and analogue) equipment;
(c) Doppler navigation radar equipment;
(d) Passive interferometer equipment;
(e) Imaging sensor equipment (both active and passive).”.
- (330) Schedule 1, Dual-use Goods List, Category 7, 7A116, after “9A104”—
Add
“or “missiles””.
- (331) Schedule 1, Dual-use Goods List, Category 7—
Repeal 7A116(a)
Substitute
“(a) Pneumatic, hydraulic, mechanical, electro-optical, or electro-mechanical flight control systems (including fly-by-wire and fly-by-light systems);”.
- (332) Schedule 1, Dual-use Goods List, Category 7, after 7A116(c)—
Add
“*Note:*

- For conversion of manned aircraft to operate as “missiles”, 7A116 includes the systems, equipment and valves designed or modified to enable operation of manned aircraft as unmanned aerial vehicles.”.
- (333) Schedule 1, Dual-use Goods List, Category 7, 7D103—
Repeal
“, “unmanned aerial vehicles” controlled by 9A012”.
- (334) Schedule 1, Dual-use Goods List, Category 7, after 7D103—
Add
“7D104 “Software” specially designed or modified for the operation or maintenance of “guidance sets” controlled by 7A117;
Note:
7D104 includes “software”, specially designed or modified to enhance the performance of “guidance sets” to achieve or exceed the accuracy controlled by 7A117.”.
- (335) Schedule 1, Dual-use Goods List, Category 8, 8A001, Note—
(a) **Repeal**
“*Note*”
Substitute
“*N.B.*”;
- (b) **Repeal**
“Category 5, Part 2 “Information Security” for encrypted communication equipment;”.
- (336) Schedule 1, Dual-use Goods List, Category 8—
Repeal 8A002(d)

Substitute

“(d) Underwater vision systems specially designed or modified for remote operation with an underwater vehicle, employing techniques to minimize the effects of back scatter and including range-gated illuminators or “laser” systems;”.

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

Repeal 8A002(e).

(338) Schedule 1, Dual-use Goods List, Category 8, 8A002(h)(2)—

Repeal

““fibrous or filamentary” “composite” materials”

Substitute

““composite” “fibrous or filamentary materials””.

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

Repeal 9A002

Substitute

“9A002 ‘Marine gas turbine engines’ designed to use liquid fuel and having all of the following, and specially designed assemblies and components of those items:

- (a) Maximum continuous power when operating in “steady state mode” at standard reference conditions specified in ISO 3977-2 (1997) (or national equivalent) of 24 245 kW or more;
- (b) ‘Corrected specific fuel consumption’ not exceeding 0.219 kg/kWh at 35% of the

maximum continuous power when using liquid fuel;

Note:

The term ‘marine gas turbine engines’ includes those industrial, or aero-derivative, gas turbine engines adapted for a ship’s electric power generation or propulsion.

Technical Note:

For the purposes of 9A002, ‘corrected specific fuel consumption’ is the specific fuel consumption of the engine corrected to a marine distillate liquid fuel having a net specific energy (i.e. net heating value) of 42 MJ/kg (ISO 3977-2 (1997)).”.

(340) Schedule 1, Dual-use Goods List, Category 9, 9A004(d)—

Repeal

“5A002(a)(5), 5A002(a)(9),”

Substitute

“5A002(c), 5A002(e),”.

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

Repeal 9A004(f)(1) and (2)

Substitute

- “(1) Telemetry and telecommand equipment specially designed for any of the following data processing functions:
- (a) Telemetry data processing of frame synchronization and error corrections, for monitoring of operational status (also known as health and safe status) of the “spacecraft bus”;

(b) Command data processing for formatting command data being sent to the “spacecraft” to control the “spacecraft bus”;

(2) Simulators specially designed for ‘verification of operational procedures’ of “spacecraft”;

Technical Note:

For the purposes of 9A004(f)(2), ‘verification of operational procedures’ is any of the following:

- (a) Command sequence confirmation;
- (b) Operational training;
- (c) Operational rehearsals;
- (d) Operational analysis.”.

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

Repeal

“both”

Substitute

“all”.

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

Repeal

“un-installed); *and*”

Substitute

“uninstalled);”.

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

Repeal

“atmosphere); *or*”

Substitute

“atmosphere);”.

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

Add

“(3) ‘Dry weight’ less than 750 kg;

(4) ‘First-stage rotor diameter’ less than 1 m;”.

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

Repeal the Technical Note

Substitute

“Technical Notes:

1. For the purposes of 9A101(a)(1), ‘maximum thrust value’ is the manufacturer’s demonstrated maximum thrust for the engine type uninstalled at sea level static conditions using the ICAO standard atmosphere. The civil type certified thrust value will be equal to or less than the manufacturer’s demonstrated maximum thrust for the engine type.
2. ‘Dry weight’ is the weight of the engine without fluids (fuel, hydraulic fluid, oil, etc.) and does not include the nacelle (housing).
3. ‘First-stage rotor diameter’ is the diameter of the first rotating stage of the engine, whether a fan or compressor, measured at the leading edge of the blade tips.”.

(347) Schedule 1, Dual-use Goods List, Category 9, 9A105, before “, as follows:”—

Add

“or gel propellant rocket motors”.

(348) Schedule 1, Dual-use Goods List, Category 9, 9A105(a)—

- (a) After “engines”—
Add
“or gel propellant rocket motors”;
- (b) After “a liquid propellant”—
Add
“or gel propellant”;
- (c) Chinese text, after “該等引擎”—
Add
“或馬達”.
- (349) Schedule 1, Dual-use Goods List, Category 9, 9A105(b)—
- (a) After “engines”—
Add
“or gel propellant rocket motors”;
- (b) After “a liquid propellant”—
Add
“or gel propellant”;
- (c) Chinese text, after “該等引擎”—
Add
“或馬達”.
- (350) Schedule 1, Dual-use Goods List, Category 9, 9A106, after
“propulsion”—
Add
“or gel propellant rocket”.
- (351) Schedule 1, Dual-use Goods List, Category 9—
Repeal 9A106(a).
- (352) Schedule 1, Dual-use Goods List, Category 9—

- Repeal 9A106(b)**
Substitute
“(b) Rocket motor cases and “insulation” components and
nozzles for rocket motor cases, usable in rocket
propulsion subsystems specified in 9A007 or 9A107”.
- (353) Schedule 1, Dual-use Goods List, Category 9, 9A106(e)—
Repeal
“, usable in “missiles”, space launch vehicles controlled by
9A004 or sounding rockets specified in 9A104”
Substitute
“for liquid propellant rocket engines or gel propellant rocket
motors specified in 9A005 or 9A105”.
- (354) Schedule 1, Dual-use Goods List, Category 9, 9A108(a) and
(b)—
Repeal
““missiles”, space launch vehicles specified in 9A004 or
sounding rockets specified in 9A104”
Substitute
“subsystems controlled by 9A007 or 9A107”.
- (355) Schedule 1, Dual-use Goods List, Category 9, 9A115(a)—
Repeal
““unmanned aerial vehicles” specified in 9A012 or 9A112(a)”
Substitute
““missiles””.
- (356) Schedule 1, Dual-use Goods List, Category 9, at the end of
9A115(a)—
Add

“Technical Note:

In 9A115(a), ‘missile’ means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.”.

- (357) Schedule 1, Dual-use Goods List, Category 9, 9A115(b)—

Repeal

“or sounding rockets specified in 9A104”

Substitute

“, sounding rockets specified in 9A104 or “missiles””.

- (358) Schedule 1, Dual-use Goods List, Category 9, 9A120—

- (a) After “Liquid”—

Add

“or gel”;

- (b) After “liquid” (wherever appearing)—

Add

“or gel”.

- (359) Schedule 1, Dual-use Goods List, Category 9, 9A350, Note 2—

Repeal

“biological agents”

Substitute

““biological agents””.

- (360) Schedule 1, Dual-use Goods List, Category 9, 9B001—

Repeal

“blades, vanes or “tip shroud” castings, as follows:”

Substitute

“engine blades, vanes or “tip shroud”, as follows:

N.B.:

See also 2B226.”.

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

Repeal 9B001(b)

Substitute

“(b) Casting tooling, manufactured from refractory metals or ceramics, as follows:

(1) Cores;

(2) Shells (moulds);

(3) Combined core and shell (mould) units;”.

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

Repeal 9B009

Substitute

“9B009 Tooling specially designed for producing gas turbine engine powder metallurgy rotor components having all of the following:

(a) Designed to operate at stress levels of 60% of Ultimate Tensile Strength (UTS) or more measured at a temperature of 873 K (600°C);

(b) Designed to operate at 873 K (600°C) or more;

Note:

9B009 does not control tooling for the production of powder.”.

- (363) Schedule 1, Dual-use Goods List, Category 9, after 9B106—

Add

“9B107 ‘Aerothermodynamic test facilities’, usable for ‘missiles’, ‘missile’ rocket propulsion systems, and re-entry vehicles and equipment specified in 9A116, having any of the following characteristics:

- (a) An electrical power supply equal to or greater than 5 MW;
- (b) A gas supply total pressure equal to or greater than 3 MPa;

Technical Notes:

- 1. ‘Aerothermodynamic test facilities’ include plasma arc jet facilities and plasma wind tunnels for the study of thermal and mechanical effects of airflow on objects.
- 2. In 9B107, ‘missile’ means complete rocket systems and unmanned aerial vehicle systems capable of a range exceeding 300 km.”.

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

Repeal 9C108

Substitute

“9C108 “Insulation” material in bulk form and “interior lining”, other than those specified in 9A008, for rocket motor cases usable in “missiles” or specially designed for solid propellant rocket engines specified in 9A007 or 9A107;”.

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

Repeal 9D001 and 9D002

Substitute

“9D001 “Software”, not specified in 9D003 or 9D004, specially designed or modified for the “development” of equipment or “technology” controlled by 9A001 to 9A012, 9A101, 9A102, 9A104 to 9A112, 9A115 to 9A119, 9B or 9E003;

9D002 “Software”, not specified in 9D003 or 9D004, specially designed or modified for the “production” of equipment controlled by 9A001 to 9A012, 9A101, 9A102, 9A104 to 9A112, 9A115 to 9A119, or 9B;”.

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

Repeal 9D004(b)

Substitute

“(b) “Software” for testing aero gas turbine engines, assemblies or components, having all of the following:

- (1) Specially designed for testing any of the following:
 - (a) Aero gas turbine engines, assemblies or components, incorporating “technology” specified in 9E003(a), 9E003(h) or 9E003(i);
 - (b) Multistage compressors providing either bypass or core flow, specially designed for aero gas turbine engines incorporating “technology” specified in 9E003(a) or 9E003(h);
- (2) Specially designed for all of the following:
 - (a) Acquisition and processing of data, in real time;

- (b) Feedback control of the test article or test conditions (e.g. temperature, pressure, flow rate) while the test is in progress;

Note:

9D004(b) does not control software for operation of the test facility or operator safety (e.g. overspeed shutdown, fire detection and suppression), or production, repair or maintenance acceptance-testing limited to determining if the item has been properly assembled or repaired.”.

- (367) Schedule 1, Dual-use Goods List, Category 9, 9D101, after “designed”—

Add

“or modified”.

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

Repeal 9D104

Substitute

“9D104 “Software” as follows:

- (a) “Software” specially designed or modified for the “use” of goods specified in 9A001, 9A005, 9A006(d), 9A006(g), 9A007(a), 9A009(a), 9A010(d), 9A011, 9A101, 9A102, 9A105, 9A106(d), 9A107, 9A109, 9A111, 9A115(a), 9A117 or 9A118;
- (b) “Software” specially designed or modified for the operation or maintenance of subsystems or equipment specified in 9A008(d), 9A106(c), 9A108(c) or 9A116(d);”.

- (369) Schedule 1, Dual-use Goods List, Category 9, 9D105, before the Technical Note—

Add

“Note:

9D105 includes “software” specially designed for a manned “aircraft” converted to operate as “unmanned aerial vehicle”, as follows:

1. “Software” specially designed or modified to integrate the conversion equipment with the “aircraft” system functions;
2. “Software” specially designed or modified to operate the “aircraft” as an “unmanned aerial vehicle”.”.

- (370) Schedule 1, Dual-use Goods List, Category 9, at the end of 9E003(a)(1)—

Add

“Technical Note:

For the purposes of 9E003(a)(1), stress-rupture life testing is typically conducted on a test specimen.”.

- (371) Schedule 1, Dual-use Goods List, Category 9, 9E003(a)(2)(a)—

Repeal

“Thermally decoupled liners”

Substitute

““Thermally decoupled liners””.

- (372) Schedule 1, Dual-use Goods List, Category 9, 9E003(a)(2)—

Repeal the Technical Note

Substitute

“Technical Notes:

1. ‘Thermally decoupled liners’ are liners that feature at least a support structure designed to carry mechanical loads and a combustion facing structure designed to protect the support structure from the heat of combustion. The combustion facing structure and support structure have independent thermal displacement (mechanical displacement due to thermal load) with respect to one another, i.e. they are thermally decoupled.
 2. ‘Combustor exit temperature’ is the bulk average gas path total (stagnation) temperature between the combustor exit plane and the leading edge of the turbine inlet guide vane (i.e. measured at engine station T40 as defined in SAE ARP 755A) when the engine is running in a ‘steady state mode’ of operation at the certificated maximum continuous operating temperature.”.
- (373) Schedule 1, Dual-use Goods List, Category 9—
Repeal the Technical Note after 9E003(a)(11).
- (374) Schedule 1, Dual-use Goods List, Category 9, 9E003(i),
Note—
Repeal
““development” or “production””.
- (375) Schedule 1, Definitions of terms, definition of *Active pixel*—
Repeal
“6 8 “Active pixel” (工作像元)”
Substitute
“6 “Active pixel” (工作像元)”.
- (376) Schedule 1, Definitions of terms, definition of *Critical temperature*—

Repeal

“1 3 6 “Critical temperature” (臨界溫度)”

Substitute

“1 3 5 “Critical temperature” (臨界溫度)”.

Def.

- (377) Schedule 1, Definitions of terms, definition of *Cryptography*,
Note—

Repeal

““fixed””

Substitute

““fixed””.

- (378) Schedule 1, Definitions of terms, definition of *Cryptography*—

Repeal

“Technical Note:

‘Secret parameter’:”

Substitute

“Technical Notes:

1. ‘Secret parameter’:”.

- (379) Schedule 1, Definitions of terms, definition of *Cryptography*,
after Technical Note 1—

Add

“2. ‘Fixed’: the coding or compression algorithm cannot accept externally supplied parameters (e.g. cryptographic or key variables) and cannot be modified by the user.”.

- (380) Schedule 1, Definitions of terms, definition of *Electronic assemblies*—

Repeal

- “2 3 4 5 “Electronic assemblies” (電子組件)”
Substitute
“2 3 4 “Electronic assemblies” (電子組件)”.
- (381) Schedule 1, Definitions of terms, definition of *FADEC Systems*—
Repeal
“7 9 “FADEC Systems” (FADEC 系統)”
Substitute
“9 “FADEC Systems” (FADEC 系統)”.
- (382) Schedule 1, Definitions of terms, definition of *Fractional bandwidth*—
Repeal
“3 “Fractional bandwidth” (分頻寬)”
Substitute
“3 5 “Fractional bandwidth” (分頻寬)”.
- (383) Schedule 1, Definitions of terms—
Repeal the definition of *Frequency switching time*
Substitute
“3 “Frequency switching time” (頻率切換時間)
The time (i.e. delay) taken by a signal when switched from an initial specified output frequency, to arrive at or within any of the following:
(a) ± 100 Hz of a final specified output frequency of less than 1 GHz;

- (b) ± 0.1 part per million of a final specified output frequency equal to or greater than 1 GHz.”.
- (384) Schedule 1, Definitions of terms, definition of *Information security*—
Repeal
“GSN “Information security” (資訊安全)”
4 5 8
Substitute
“NSN “Information security” (資訊安全)”.
GSN
GISN
4 5
- (385) Schedule 1, Definitions of terms, definition of *Laser*—
Repeal
“see “Chemical laser”
“Laser”
“Q-switched laser””
Substitute
“see also “Chemical laser”
“(CW) Laser”
“Pulsed laser””.
- (386) Schedule 1, Definitions of terms, definition of *Lighter-than-air vehicles*—
Repeal
“ML10 “Lighter-than-air vehicles” (輕於空氣載具)”
Substitute

- “9 “Lighter-than-air vehicles” (輕於空氣載具).
ML10
- (387) Schedule 1, Definitions of terms, definition of *Missiles*—
Repeal
“1-7 9 “Missiles” (導彈)”
Substitute
“1 2 3 6 “Missiles” (導彈).
7 9
- (388) Schedule 1, Definitions of terms, definition of *Nuclear reactor*—
Repeal
“0 “Nuclear reactor” (核反應堆)
ML17 The items”
Substitute
“0 1 “Nuclear reactor” (核反應堆)
ML9 A complete reactor capable of operation so
ML17 as to maintain a controlled self-sustaining
fission chain reaction. A “nuclear reactor”
includes the items”.
- (389) Schedule 1, Definitions of terms, definition of *Object code*—
Repeal
“GSN “Object code” (目標碼)”
Substitute
“NSN “Object code” (目標碼).
GSN
Def.

- (390) Schedule 1, Definitions of terms, definition of *Principal element*—
Repeal
“An element”
Substitute
“As applied in Category 4, an element”.
- (391) Schedule 1, Definitions of terms, definition of *Production*—
Repeal
“GTN “Production” (生產)
NTB
All
Substitute
“NTN “Production” (生產).
GTN
All
- (392) Schedule 1, Definitions of terms, definition of *Programme*—
Repeal
“2 4 5 6 “Programme” (程式)”
Substitute
“6 “Programme” (程式).
Def.
- (393) Schedule 1, Definitions of terms, definition of *Real time processing*—
Repeal
“2 4 6 7 “Real time processing” (實時處理)”
Substitute
“6 “Real time processing” (實時處理).”

- (394) Schedule 1, Definitions of terms, definition of *Required*—
Repeal
“GTN “Required” (所需)”
1-9
ML22
Substitute
“GTN “Required” (所需)”.
5 6 7 9
ML22
- (395) Schedule 1, Definitions of terms, definition of *Software*—
Repeal
“GSN “Software” (軟件)”
All
Substitute
“NSN “Software” (軟件)”.
GSN
GISN
All
- (396) Schedule 1, Definitions of terms, definition of *Specific modulus*—
Repeal
“0 1 “Specific modulus” (比模數)”
Substitute
“0 1 9 “Specific modulus” (比模數)”.
- (397) Schedule 1, Definitions of terms, definition of *Specific tensile strength*—
Repeal

- “0 1 “Specific tensile strength” (比抗拉強度)”
Substitute
“0 1 9 “Specific tensile strength” (比抗拉強度)”.
- (398) Schedule 1, Definitions of terms, definition of *Superconductive*—
Repeal
“1 3 6 8 “Superconductive” (超導體)”
ML20
Substitute
“1 3 5 6 “Superconductive” (超導體)”.
8
ML20
Def.
- (399) Schedule 1, Definitions of terms, definition of *Symmetric algorithm*—
Repeal
“1 5 “Symmetric algorithm” (對稱演算法)”
Substitute
“5 “Symmetric algorithm” (對稱演算法)”.
- (400) Schedule 1, Definitions of terms, definition of *Three dimensional integrated circuit*—
Repeal
“die, integrated together, and having vias passing completely through at least one die to establish interconnections between die”
Substitute
“dies or active device layers, integrated together, and having through semiconductor via connections passing completely

through an interposer, substrate, die or layer to establish interconnections between the device layers. An interposer is an interface that enables electrical connections”.

- (401) Schedule 1, Definitions of terms, definition of *Unmanned aerial vehicles*—

Repeal

“1 4 5 6 “Unmanned aerial vehicles” (“UAVs”) (無人駕駛飛行載具)”

7 9
ML10

Substitute

“1 5 6 7 “Unmanned aerial vehicles” (“UAVs”) (無人駕駛飛行載具)”.

9
ML10

- (402) Schedule 1, Definitions of terms, definition of *Uranium enriched in the isotopes 235 or 233*—

Repeal

“0.72 percent”

Substitute

“0.71%”.

- (403) Schedule 1, Definitions of terms, definition of *User-accessible programmability*—

Repeal

“4 5 6 “User-accessible programmability” (由使用者進行程式更改)”

Substitute

“6 Def. “User-accessible programmability” (由使用者進行程式更改)”.

- (404) Schedule 1, Definitions of terms, definition of *Vaccine*—

Repeal

“product which is intended to stimulate a protective immunological response in humans or animals in order to prevent disease”

Substitute

“product in a pharmaceutical formulation licensed by, or having marketing or clinical trial authorization from, the regulatory authorities of either the country of manufacture or of use, which is intended to stimulate a protective immunological response in humans or animals in order to prevent disease in those to whom or to which it is administered”.

- (405) Schedule 1, Definitions of terms—

- (a) definition of *Adapted for use in war*;
- (b) definition of *Beat length*;
- (c) definition of *Composite theoretical performance (CTP)*;
- (d) definition of *Conventional unguided projectiles*;
- (e) definition of *CTP*;
- (f) definition of *Fixed*;
- (g) definition of *Media access unit*;
- (h) definition of *Multilevel security*;
- (i) definition of *Optical amplification*;
- (j) definition of *Optical fibre preforms*;
- (k) definition of *Settling time*;
- (l) definition of *Sputtering*;
- (m) definition of *Stabilizers*;
- (n) definition of *Systems tracks*—

Repeal the definitions.

(406) Schedule 1, Definitions of terms—

Add in alphabetical order

“5 “Authentication” (核證)

Verifying the identity of a user, process or device, often as a prerequisite to allowing access to resources in an information system. This includes verifying the origin or content of a message or other information, and all aspects of access control where there is no encryption of files or text except as directly related to the protection of passwords, Personal Identification Numbers (PINs) or similar data to prevent unauthorized access.

1 9 “Biological agents” (生物劑)

ML7

Pathogens or toxins, selected or modified (such as altering purity, shelf life, virulence, dissemination characteristics, or resistance to UV radiation) to produce casualties in humans or animals, degrade equipment or damage crops or the environment.

3 “Interleaved Analogue-to-Digital Converter (ADC)” (交叉模擬 - 數字轉換器)

A device that has multiple ADC units that sample the same analogue input at different times such that when the outputs are aggregated, the analogue input has been effectively sampled and converted at a higher sampling rate.

3 5 “Monolithic Microwave Integrated Circuit” (“MMIC”) (單塊微波集成電路)

A “monolithic integrated circuit” that operates at microwave or millimetre wave frequencies.

3 “Multiple channel Analogue-to-Digital Converter (ADC)” (多頻道模擬 - 數字轉換器)

A device that integrates more than one ADC, designed so that each ADC has a separate analogue input.

3 “Sample Rate” (樣本率)

For an Analogue-to-Digital Converter (ADC), the maximum number of samples that are measured at the analogue input over a period of 1 second, except for oversampling ADCs. For oversampling ADCs, the “sample rate” is taken to be its output word rate. “Sample rate” may also be referred to as sampling rate, usually specified in Mega Samples Per Second (MSPS) or Giga Samples Per Second (GSPS), or conversion rate, usually specified in Hertz (Hz).

5 “Satellite navigation system” (衛星導航系統)

ML11

A system consisting of ground stations, a constellation of satellites, and receivers, that enables receiver locations to be calculated on the basis of signals received from the satellites. It includes Global Navigation

Satellite Systems (GNSS) and Regional Navigation Satellite Systems (RNSS).

- 9 “Steady State Mode” (穩定狀態模式)
Engine operation conditions, where the engine parameters, such as thrust/power, rpm and others, have no appreciable fluctuations, when the ambient air temperature and pressure at the engine inlet are constant.
- 3 “Vacuum electronic devices” (真空電子裝置)
Electronic devices based on the interaction of an electron beam with an electromagnetic wave propagating in a vacuum circuit or interacting with radio-frequency vacuum cavity resonators. “Vacuum electronic devices” include klystrons, travelling-wave tubes, and their derivatives.”.

4. Schedule 2 amended

- (1) Schedule 2, paragraph 1(d)—
Repeal
“1B229,”.
- (2) Schedule 2, paragraph 1(d), after “1B233,”—
Add
“1B234, 1B235,”.
- (3) Schedule 2, paragraph 1(d), after “1C240,”—
Add
“1C241,”.

- (4) Schedule 2, paragraph 1(d), after “2B232,”—
Add
“2B233,”.
- (5) Schedule 2, paragraph 1(d)—
Repeal
“3E201,”
Substitute
“3A234, 3D225, 3E201, 3E225,”.
- (6) Schedule 2, paragraph 1(d)—
Repeal
“and 6E201”
Substitute
“, 6D203, 6E201 and 6E203”.

Director-General of Trade and Industry

7 June 2021



Explanatory Note

This Order amends Schedules 1 and 2 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 those Schedules.