

{(To be published in the Gazette of India Extraordinary Part II Section-3, Sub-Section (ii))}

Government of India
Ministry of Commerce & Industry
Department of Commerce
Directorate General of Foreign Trade
Udyog Bhavan

Notification No. 17/2015-2020
New Delhi, dated: 03 July, 2018

Subject: Amendment in Appendix 3 (SCOMET items) to Schedule- 2 of ITC (HS) Classification of Export and Import Items, 2018

S.O.(E) In exercise of the powers conferred by Section 5 and Section 14A of the Foreign Trade (Development and Regulation) Act, 1992, as amended, read with Para 1.02 of the Foreign Trade Policy 2015-2020, the Central Government hereby makes the following amendments, with immediate effect, in the Appendix 3 to Schedule -2 of ITC (HS) Classifications of Export and Import Items 2018, as notified in DGFT Notification No.47/2015-20 dated 31.01.2018 :

1. Under the heading “Items on the SCOMET List are organized in the following categories”:

i. The entry Category 2 shall be substituted as follows:

‘Category 2 Micro-organisms, toxins	
2A	Bacteria, related technology and software
2B	Fungi, related technology and software
2C	Parasites
2D	Viruses, related technology and software
2E	(Reserved)
2F	Toxins, related technology and software
2G	Plant pathogens, related technology and software
2H	Genetic Elements and Genetically-modified Organisms, related technology and software’.

ii. SCOMET entry 3D shall be substituted as follows:

‘Category 3D: Chemical and biomaterial manufacturing and handling equipment and related technology and software’

iii. SCOMET entry 5D shall be substituted as follows:

‘Category 5D (Reserved)’

2. The following expressions shall be deleted from the SCOMET Glossary (these have been incorporated as *Technical Notes* under respective SCOMET entries):

"Automatic target tracking", "Carbon fibre preforms", "Commingled", "Comminution", "Compound rotary table", "Deformable mirrors", "Direct-acting hydraulic pressing", "Effective gram", "Electronically steerable phased array antenna", "Flight control optical sensor array", "Flight path optimization", "Frequency mask trigger", "Frequency synthesiser", "Gas atomisation", "Geographically dispersed", "Hot isostatic densification", "Linearity", "Main storage", "Mechanical alloying", "Melt extraction", "Melt spinning", "Neural computer", "Optical computer", "Plasma atomisation", "Power management", "Previously separated", "Primary flight control", "Real-time bandwidth", "Resolution", "Rotary atomisation", "Settling time", "Solidify rapidly", "Splat quenching", "Systolic array computer", "Transfer laser", "Vacuum atomisation", "Variable geometry airfoils".

3. In the SCOMET Glossary, the expression "Compensation systems" shall be substituted as follows:

‘**"Compensation systems"**: consist of the primary scalar sensor, one or more reference sensors (e.g. vector "magnetometers") together with software that permit reduction of rigid body rotation noise of the platform.’

4. In the SCOMET Glossary, the expression "Cryptographic activation" shall be substituted as follows:

‘**"Cryptographic activation"**: Any technique that specifically activates or enables cryptographic capability of an item, by means of a mechanism implemented by the manufacturer of the item, where this mechanism is uniquely bound to any of the following:

1. A single instance of the item; or
2. One customer, for multiple instances of the item.

Technical Notes:

1. "Cryptographic activation" techniques and mechanisms may be implemented as hardware, "software" or "technology".
2. Mechanisms for cryptographic activation can, for example, be serial number-based licence keys or authentication instruments such as digitally signed certificates’.

5. In the SCOMET Glossary, after the expression "Interior lining" and the entry relating thereto, the following expression shall be inserted:

‘**"Interleaved Analogue-to-Digital Converter (ADC)"**: Devices that have 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’.

6. In the SCOMET Glossary, after the expression "Multichip integrated circuit" and the entry relating thereto, the following expression shall be inserted:

‘ **"Multiple channel Analogue-to-Digital Converter (ADC)"**: Devices that integrate more than one ADC, designed so that each ADC has a separate analogue input’.

7. In the SCOMET Glossary, the expression "Military use" shall be substituted as follows:
‘ **"Military use"** shall mean incorporation into military items listed in SCOMET Category 6 or for the use, development, or production of military items listed in this category.’

8. In SCOMET Glossary, after the expression "Run out (out-of-true running)" and the entry relating thereto, the following expression shall be inserted:

‘ **"Sample rate"**: For an Analogue-to-Digital Converter (ADC) the maximum number of samples that are measured at the analogue input over a period of one 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)’.

9. In the SCOMET Glossary, after the expression "Stability" and the entry relating thereto, the following expression shall be inserted:

‘ **"Steady State Mode"**: The term "steady state mode" defines 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’.

10. In the SCOMET acronyms and abbreviations, after the abbreviation, 'RNC' and the entry relating thereto, the following abbreviation shall be inserted:

‘**RNSS Regional Navigation Satellite System e.g. 'NavIC'** – Indian Regional Navigation Satellite System 'QZSS' – Quasi Zenith Satellite System’

11. SCOMET entry 1A, shall be substituted as follows:

‘Category 1 Toxic chemical agents and other chemicals

1A Export of the following chemicals is prohibited:

(This corresponds to Schedule 1 to the Chemical Weapons Convention (CWC))

Note: Where reference is made below to groups of di-alkylated chemicals, followed by a list of alkyl groups in parentheses, all chemicals possible by all possible combinations and alkyl groups listed in parentheses are considered prohibited unless explicitly exempted.

Sl. No.	Schedule-1 Toxic Chemicals of CWC	CAS number
(1)	O-Alkyl (<C10 , incl. cycloalkyl) alkyl (Me, Et,n-Pr or i-Pr) phosphonofluoridates	
	e.g. Sarin: O-Isopropyl methylphosphonofluoridate	(107-44-8)
	Soman: O-Pinacolyl methylphosphonofluoridate	(96-64-0)
(2)	O-Alkyl, (<C10, incl. cycloalkyl) N,N-dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidocyanidates	
	e.g. Tabun: O-Ethyl N,N,-dimethyl phosphoramidocyanidate	(77-81-6)
(3)	O-Alkyl (H or < C10, incl. cycloalkyl) S-2-Dialkyl (Me, Et, n-Pr or i -Pr)- aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonothiolates and corresponding alkylated or protonated salts	
	e.g. VX: O-Ethyl S- 2 diisopropylaminoethyl methyl phosphonothiolate	(50782-69-9)
(4)	Sulphur mustards:	
	2-Chloroethylchloromethylsulphide	(2625-76-5)
	Mustard gas: Bis (2-chloroethyl) sulphide	(505-60-2)
	Bis (2-chloroethylthio) methane	(63869-13-6)
	Sesquimustard:1,2-Bis (2-chloroethylthio) ethane	(3563-36-8)
	1,3-Bis (2-chloroethylthio)-n-propane	(63905-10-2)
	1,4-Bis (2-chloroethylthio)-n-butane	(142868-93-7)
	1,5-Bis (2-chloroethylthio)-n-Pentane	(142868-94-8)
	Bis (2-Chloroethylthiomethyl) ether	(63918-90-1)
	O-Mustard: Bis (2-Chloroethylthiomethyl) ether	(63918-89-8)
(5)	Lewisites:	
	Lewisite 1: 2-Chlorovinyl dichloroarsine	(541-25-3)
	Lewisite 2: Bis (2-Chlorovinyl) chloroarsine	(40334-69-8)
	Lewisite 3: Tris (2-Chlorovinyl) arsine	(40334-70-1)
(6)	Nitrogen mustards:	
	HN1: Bis (2-chloroethyl) ethylamine	(538-07-8)
	HN2: Bis (2-chloroethyl) Chloroarsine	(51-75-2)
	HN3: Tris (2-chloroethyl) amine	(555-77-1)
(7)	Saxitoxin	(35523-89-8)
(8)	Ricin	(9009-86-3)

Sl. No.	Schedule-1 CWC Precursors	CAS number
(9)	Alkyl (Me, Et, n-Pr or I-Pr) phosphonyldifluorides	
	e.g. DF: Methyl phosphonyldifluoride	(676-99-3)
(10)	O-Alkyl (H or < C10, incl. cycloalkyl) O-2 dialkyl (Me, Et, n-Pr or i-Pr)- aminoethylalkyl (Me, Et N-Pr or i -Pr) phosphonites and corresponding alkylated or protonated salts	
	e.g. QL: O-Ethyl O-2-diisopropylaminoethyl methyl phosphonite	(57856-11-8)
(11)	Chlorosarin: O-Isopropyl methylphosphonochloridate	(1445-76-7)
(12)	Chlorosoman: O-Pinacolyl methylphosphonochloridate	(7040-57-5)

12. SCOMET entry 1B, shall be substituted as follows

1B Export of chemicals listed in 1B below is permitted only to States party to the Chemical Weapons Convention, against an export authorisation.

(This corresponds to Schedule 2 to the Chemicals Weapons Convention)

Note to exporters:

- a. A list of States Parties can be obtained from the Disarmament & International Security Affairs Division of the Ministry of External Affairs (Room No. 40G, South Block, New Delhi) or at the official website of the Organization for the Prohibition of Chemical Weapons at www.opcw.org.
- b. A prior authorization will be required for export of chemicals in this category. This permission shall be subject to the condition that for each export consignment, exporters shall, within 30 days of exports, notify the details to the National Authority, Chemical Weapons Convention, Cabinet Secretariat; Ministry of External Affairs (D&ISA); Department of Chemicals and Petrochemicals and the Directorate General of Foreign Trade and submit to DGFT, a copy of Bill of Entry into the destination State Party within 30 days of delivery'.

Note: Where reference is made below to groups of dialkylated chemicals, followed by a list of alkyl groups in parentheses, all chemicals possible by all possible combinations and alkyl groups listed in parentheses are included unless explicitly exempted.

Sl. No.	Schedule 2 CWC Precursors	CAS number
(1)	Amiton 0,0-Diethyl S-[2-(diethylamino) ethyl]] phosphorothiolate and corresponding alkylated or protonated salts	(78-53-5)
(2)	PFIB: 1,1,3,3,3,-Pentafluoro-2-(trifluoromethyl)1-propene	(382-21-8)
(3)	BZ: 3-Quinuclidinyl benzilate	(6581-06-2)
(4)	Chemicals, except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal or iso) group but not further carbon atoms	
	e.g. Methylphosphonyl dichloride	(676-97-1)
	Dimethyl methylphosphonate	(756-79-6)
	Exemption:- Fonofos: O-Ethyl S-phenyl ethylphosphonothiolothionate	(944-22-9)
(5)	N, N-Dialkyl (ME, Et, n-Pr or i -Pr) phosphoramidic dihalides	
(6)	Dialkyl (Me, Et, n- Pr or i-Pr) N, N- dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates	
(7)	Arsenic trichloride	(7784-34-)1

(8)	2,2-Diphenyl-2 hydroxyacetic acid	(76-93-7)
(9)	Quinuclidine-3- ol	(1619-34-7)
(10)	N,H-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2 -chlorides and corresponding protonated salts	
(11)	N, N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding protonated salts	
	Exemptions: N,N-Dimethylaminoethanol and corresponding protonated salts	(108-01-0)
	N,N-Diethylaminoethanol and corresponding protonated salts	(100-37-8)
(12)	N, N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding protonated salts	
(13)	Thiodiglycol: Bis(2-hydroxyethyl) sulphide	(111-07-3)
(14)	Pinacolyl alcohol: 3,3-Dimethylbutane-2-ol	(464-07-3)

A list of commercially important Schedule-2 Chemicals of CWC is given below:

Sl.No.	SCOMET Entry	Name of Chemical	Entry into Schedule	CAS number	ITC (HS) code
1	1B001	2-Chloro N, N -Di-isopropyl ethylamine	2B10	(96-79-7)	29211910
2	1B002	Diethyl amino Ethanethiol	2B12	(100-38-9)	29221910
3	1B003	O, O, Dimethyl Methyl Phosphonate	2B04	(756-79-6)	29209045
4	1B004	2-Hydroxy N, N-Diisopropyl Ethylamine	2B11	(96-80-0)	29221111
5	1B005	N, N-Diethyl Amino ethyl Chloride Hydrochloride	2B10	(869-24-9)	29221112
6	1B006	Di-ethyl Amino ethanethiol Hydrochloride	2B12	(1942-52-5)	29221113
7	1B007	Di-Methyl Amino ethyl chloride Hydrochloride	2B10	(4584-46- 7)	29221114
8	1B008	Di-Methyl Amino ethanethiol	2B12	(108-02-1)	29221115
9	1B009	Di-Methyl Amino ethanethiol Hydrochloride	2B12	(13242-44- 9)	29221116
10	1B010	Phosphorothioic acid, S [2-(diethylamino) ethyl] O, O – diethyl ester	2A01	(78-53-5)	29201910
11	1B011	1-Propene, 1,1, 3, 3, 3, - Pentafluoro – 2- (trifluoromethyl) (PFIB)	2A02	(382-21-8)	29033911
12	1B012	phenyl, 1 – azabicyclo [2.2.2.] oct-3-yl ester	2A03	(1709855)	29392050
13	1B013	Phosphonic Acid, Methyl- compound with (aminoimino methyl) urea (1: 1)	2B04	(84402-58-4)	29209047
14	1B014	1-Propanaminium N, N, N-trimethyl – 3- [1- oxo-9 octadecenyl) amino]-. (Z)-methyl methylphosphonate	2B04	(70055-71-9)	29209048

15	1B015	Phosphonic acid, [methyl bis (5-ethyl-2- methyl-2-oxido-1, 3, 2-dioxaphosphorinan- 5-yl) methyl] ester	2B04	(42595-45-9)	29209051
16	1B016	Phosphonic acid, [methyl-(5-ethyl-2-methyl 2-oxido-1,3,2-dioxaphosphorinan- 5-yl) methyl] ester	2B04	(41203-81-0)	29209052
17	1B017	Phosphonic acid, propyl-dimethyl ester	2B04	(18755-43- 6)	29209053
18	1B018	Phosphonous acid, methyl-diethyl ester	2B04	(15715-41-0)	29209054
19	1B019	Phosphonic acid, ethyl-	2B04	(1782267)	29209055
20	1B020	Phosphonic acid, propyl-	2B04	(4672-38-2)	29209056
21	1B021	Phosphinic acid, methyl-	2B04	(4206-94-4)	29209057
22	1B022	Phosphonochloridic acid, methyl-, methyl ester	2B04	(1066-52- 0)	29209058
23	1B023	Phosphonothioic dichloride, ethyl-	2B04	(993-43-1)	29209061
24	1B024	Phosphonic acid methyl-	2B04	(993-13-5)	29209062
25	1B025	Phosphonic acid, methyl-, dimethyl ester	2B04	(756-79-6)	29209063
26	1B026	Phosphonic dichloride, methyl-	2B04	(676-97-1)	29209064
27	1B027	Phosphonous dichloride, methyl -	2B04	(676-83- 5)	29209065
28	1B028	Phosphonic acid, ethyl-, diethyl ester	2B04	(78-38-6)	29209066
29	1B029	Arsenous trichloride	2B07	(7784-34-1)	28121930
30	1B030	Phenyl	2B08	(76-93-7)	29181900
31	1B031	1-Azabicyclo (2.2.2.) octan-3-ol	2B09	(1619-34-7)	29333930
32	1B032	Ethanamine, 2-Chloro-N, N-dimethyl-	2B10	(107-99-3)	29211920
33	1B033	Ethanol, 2-[bis(1-methylethyl) amino]-	2B11	(96-80-0)	29221920
34	1B034	Ethanethiol, 2-(diethylamino)-	2B12	(100-38-9)	29221930
35	1B035	Ethanol, 2, 2'-thiobis-	2B13	(111-48-8)	29309091
36	1B036	2-Butanol, 3, 3-dimethyl-	2B14	(464-07-3)	29051910
37	1B037	Others	-	-	-

13. The SCOMET entry 1D shall be substituted as follows:

1D Export of chemicals, related technology and software in this category is allowed to countries specified in Table 1 without an export authorisation subject to the condition that the exporter shall notify the Department of Chemicals & Petro-chemicals, Ministry of External Affairs (D&ISA) and the DGFT within 30 days of such export in the prescribed format (Aayat Niryat Form) along with the End-Use Certificate and submit to the DGFT a copy of the bill of entry into the destination country within 30 days of delivery.

Export of chemicals, related technology and software in this category to other countries shall be allowed only against an export authorisation, and in that case the exporter shall submit to the DGFT a copy of the bill of entry into the destination country within 30 days of delivery.


Sl.No.	SCOMET Entry	Chemical	CAS Number
1	1D001	2-Chloroethanol	(107-07-3)
2	1D002	3-Hydroxy-1-methylpiperidine	(3554-74-3)
3	1D003	3-Quinuclidone	(3731-38-2)
4	1D004	Ammonium bifluoride	(1341-49-7)
5	1D005	Diethylaminoethanol	(100-37-8)
6	1D006	Diisopropylamine	(108-18-9)
7	1D007	Dimethylamine	(124-40-3)
8	1D008	Dimethylamine hydrochloride	(506-59-2)
9	1D009	Hydrogen fluoride	(7664-39-3)
10	1D010	Methyl benzilate	(76-89-1)
11	1D011	O,O-Diethyl phosphorothioate	(2465-65-8)
12	1D012	O,O-Diethyl phosphorodithioate	(298-06-6)
13	1D013	Pinacolone	(75-97-8)
14	1D014	Phosphorus pentasulphide	(1314-80-3)
15	1D015	Potassium bifluoride	(7789-23-3)
16	1D016	Potassium cyanide	(151-50-8)
17	1D017	Potassium fluoride	(7789-23-3)
18	1D018	Sodium bifluoride	(1333-83-1)
19	1D019	Sodium cyanide	(143-33-9)
20	1D020	Sodium fluoride	(7681-49-4)
21	1D021	Sodium hexafluorosilicate	(16893-85-9)
22	1D022	Sodium sulphide	(1313-82-2)
23	1D023	Triethanolamine hydrochloride	(637-39-8)
24	1D024	Triisopropyl phosphite	(116-17-6)
25	1D025	Diethylamine	(109-89-7)

Table 1

Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Republic of Korea, Latvia, Lithuania, Luxembourg, Malta, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States'.

14. The SCOMET heading 2A shall be substituted as follows:

'2A Bacteria (including Rickettsials), whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures, related technology and software:'



15. The SCOMET heading 2B shall be substituted as follows:

'2B Fungi, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures, related technology and software.'

16. The SCOMET heading 2D shall be substituted as follows:

'2D Viruses, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures, related technology and software.'

17. The SCOMET heading 2F shall be substituted as follows:

'2F Toxins, related technology and software'

18. The SCOMET heading 2G shall be substituted as follows:

'2G Genetic Elements and Genetically-modified Organisms, related technology and software'

19. SCOMET entry 3A107 shall be substituted as follows:

'3A107 Titanium-stabilised Duplex Stainless Steel (Ti-DSS) and specially designed components therefor having all of the following:

a. Having all of the following characteristics:

1. Containing 17.0 - 23.0% by weight of chromium and 4.5 - 7.0% by weight of nickel;
2. Having a titanium content of greater than 0.10% by weight; and
3. A ferritic-austenitic microstructure (also referred to as a two-phase microstructure) of which at least 10% by volume (according to ASTM E-1181-87 or national equivalents) is austenite; and

b. Any of the following forms:

1. Ingots or bars having a size of 100 mm or more in each dimension;
2. Sheets having a width of 600 mm or more and a thickness of 3 mm or less; or
3. Tubes having an outer diameter of 600 mm or more and a wall thickness of 3 mm or less'.

20. Under SCOMET entry 3A301.b and the entry relating thereto the following technical notes shall be inserted:

Technical Note 1: 3, 6-dihydrazino tetrazine nitrate is also referred to as 1, 4-dihydrazine nitrate

Technical Note 2: Substance groupings in Item 3A301 and 3A306 (e.g. fuels, oxidisers, etc.) describe typical applications of propellant substances. A substance remains specified

by 3A301 and 3A306 even when used in an application other than the typical one indicated by its grouping [e.g. hydrazinium perchlorate (CAS 27978-54-7) is grouped as a fuel but can also be used as an oxidizer]’.

21. SCOMET entry 3B014 shall be substituted as follows:

‘3B014 Equipment as follows, and specially designed components therefor:

- a. Batch mixers having all of the following:
 1. Designed or modified for mixing under vacuum in the range of zero to 13.326 kPa;
 2. Capable of controlling the temperature of the mixing chamber;
 3. A total volumetric capacity of 110 litres or more; and
 4. At least one 'mixing/kneading shaft' mounted off centre;

Note: In Item 3B014.a.4. the term 'mixing/kneading shaft' does not refer to deagglomerators or knife-spindles.

- b. Continuous mixers having all of the following:
 1. Designed or modified for mixing under vacuum in the range of zero to 13.326 kPa;
 2. Capable of controlling the temperature of the mixing chamber; and
 3. Any of the following:
 - a. Two or more mixing/kneading shafts; or
 - b. All of the following
 1. A single rotating and oscillating shaft with kneading teeth/pins, and
 2. Kneading teeth/pins inside the casing of the mixing chamber;

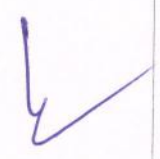
22. The SCOMET entry 3D003 shall be substituted as follows:

‘3D003 (Reserved)’

23. The SCOMET entry 3D015 shall read as follows:

‘3D015 Technology and software for the development, production or use of items in 3D001 to 3D014’.

24. The SCOMET entry 3D016 shall be substituted as follows:

- ‘3D016 Combustors or pyrolysers capable of a heat-zone (‘burner’) temperature greater than 1,273 K (1000 Degree Centigrade), and in which any surfaces that come into direct contact with material coming into the containing chamber are made from, or lined with, any of the following materials:
- a. Alloys with more than 25% nickel and 25% chromium by weight; (e.g., ‘Hastelloy’, ‘Illium’, ‘Inconel’, ‘Incoloy’)
 - b. Nickel, or alloys with more than 40% nickel by weight;
 - c. Titanium; or
 - d. Ceramics’
- 

25. SCOMET entry 4A024 shall be substituted as follows:

'Mass spectrometers capable of measuring ions of 230 u or greater and having a resolution of better than 2 parts in 230, as follows, and ion sources therefor:

N.B.: Mass spectrometers especially designed or prepared for analysing on-line samples of uranium hexafluoride (UF₆) are controlled under Prescribed Equipment (0B Category).

- a. Inductively coupled plasma mass spectrometers (ICP/MS);
- b. Glow discharge mass spectrometers (GDMS);
- c. Thermal ionisation mass spectrometers (TIMS);
- d. Electron bombardment mass spectrometers having both of the following features:
 1. A molecular beam inlet system that injects a collimated beam of analyte molecules into a region of the ion source where the molecules are ionised by an electron beam; and
 2. One or more cold traps that can be cooled to a temperature of 193 K (-80 °C) or less in order to trap analyte molecules that are not ionised by the electron beam;
- e. Mass spectrometers equipped with a microfluorination ion source designed for actinides or actinide fluorides.

Note: 'u' stands for unified atomic mass unit or dalton and is defined as one twelfth of the mass of an unbound neutral atom of Carbon-12 in its nuclear and electronic ground state and at rest, and has a value of 1.660539040 X 10⁻²⁷ kg. 'u' is a non-SI unit accepted for use with the SI units.

Technical Notes:

1. 4A024.d describes mass spectrometers that are typically used for isotopic analysis of UF₆ gas samples.
2. Electron bombardment mass spectrometers in Item 4A024.d. are also known as electron impact mass spectrometers or electron ionization mass spectrometers.
3. In 4A024.d.2, a 'cold trap' is a device that traps gas molecules by condensing or freezing them on cold surfaces. For the purposes of this entry, a closed-loop gaseous helium cryogenic vacuum pump is not a cold trap'.

26. After SCOMET entry 5A101 and the entries relating thereto, the following Notes shall be added:

Note 1: 5A101 does not control JATO units, propulsion units for flares, ejection seats, emergency escape equipment and rockets for display fireworks;

Note 2: As per the extant Guidelines for Sensitive Missile-Relevant Transfers of the Missile Technology Control Regime (MTCR)¹¹ license applications for the export of items in 5A101 shall be subject to a presumption of denial.'

27. SCOMET entry 5A102.c shall be substituted as follows:

'5A102.c Liquid, slurry and gel propellant (including oxidisers) control systems, and specially designed components therefor, usable in missiles and rockets, designed or modified to operate in vibration environments greater than 10 g rms between 20 Hz and 2 kHz.

Notes:


1. *The only servo valves, pumps and gas turbines specified in 5A102.c are the following:*
 - *Servo valves designed for flow rates equal to or greater than 24 litres per minute, at an absolute pressure equal to or greater than 7 MPa, that have an actuator response time of less than 100ms.*
 - *Pumps, for liquid propellants, with shaft speeds equal to or greater than 8,000 rpm at the maximum operating mode or with discharge pressures equal to or greater than 7 MPa*
 - *Gas turbines, for liquid propellant turbopumps, with shaft speeds equal to or greater than 8,000 rpm at the maximum operating mode.*
2. *Systems and components specified in this clause may be exported as part of a satellite'*

28. After SCOMET entry 5A202 and the entry relating thereto, the following Note shall be added:

Note: As per the extant Guidelines for Sensitive Missile-Relevant Transfers of the Missile Technology Control Regime (MTCR) license applications for transfer of items in 5A202 shall not be authorised.

29. SCOMET entry 5A205 shall be substituted as follows:

'5A205 Flow-forming machines, usable in the "production" of propulsion components and equipment (e.g. motor cases and interstages) and specially designed components therefor having all of the following:

- a. Equipped with, or according to the manufacturer's technical specification are capable of being equipped with, numerical control units or computer control; and
 - b. More than two axes which can be co-ordinated simultaneously for contouring control.
- 

¹¹<http://mtcr.info/guidelines-for-sensitive-missile-relevant-transfers/>

Technical Note:

Machines combining the function of spin-forming and flow-forming are, for the purpose of this item, regarded as flow-forming machines'.

30. After the SCOMET 5C006 and the entries relating thereto, the following Notes shall be inserted:

Note 1: *Systems, equipment or valves specified in 5C006 may be exported as part of a manned aircraft or satellite or in quantities appropriate for replacement parts for manned aircraft.*

Note 2: *For conversion of manned aircraft to operate as unmanned aerial vehicles specified in 5A101, entry 5C006 includes the systems, equipment and valves designed or modified to enable operation of manned aircraft as unmanned aerial vehicles'.*

31. SCOMET entry 5C007 (2) shall be substituted as follows:

'5C007

2. Three axis magnetic heading sensors having all of the following characteristics, and specially designed components therefor:
 - a. Internal tilt compensation in pitch (+/- 90 degrees) and having roll (+/- 180 degrees) axes;
 - b. Capable of providing azimuthal accuracy better (less) than 0.5 degrees rms at latitudes of +/- 80 degrees, referenced to local magnetic field; and
 - c. Designed or modified to be integrated with flight control and navigation systems.

Note:

Flight control and navigation systems in this item include gyrostabilizers, automatic pilots and inertial navigation systems'.

32. SCOMET entry 5C010.e shall be substituted as follows:

'5C010

e. Receiving equipment for 'navigation satellite systems' and specially designed components therefor, usable in missiles and rockets or for airborne applications and having any of the following characteristics:

1. Capable of providing navigation information at speeds in excess of 600 m/s;
2. Employing decryption, designed or modified for military or governmental services, to gain access to a 'navigation satellite system' secure signal/data; or

3. Being specially designed to employ anti-jam features (e.g. null steering antenna or electronically steerable antenna) to function in an environment of active or passive countermeasures.

Note:

5C010.e.2 and e.3 do not control equipment designed for commercial, civil or 'Safety of Life' (e.g. data integrity, flight safety) 'navigation satellite system' services.

Technical Note:

In entry 5C010.e, '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)'.

33. SCOMET entry 5C017 shall be substituted as follows:

- '5C017 Motion simulators/rate tables (equipment capable of simulating motion) having all of the following characteristics:
1. Two or more axes;
 2. Designed or modified to incorporate sliprings or integrated non-contact devices capable of transferring electrical power, signal information, or both; and
 3. Having any of the following characteristics:
 - a. For any single axis having all of the following:
 1. Capable of rates of 400 degrees/s or more, or 30 degrees/s or less; and
 2. A rate resolution equal to or less than 6 degrees/s and an accuracy equal to or less than 0.6 degrees/s;
 - b. Having a worst-case rate stability equal to or better (less) than plus or minus 0.05% averaged over 10 degrees or more; or
 - c. A positioning "accuracy" equal to or less (better) than 5 arc second;

Note:

5C017 applies whether or not sliprings or integrated non-contact devices are fitted at the time of export'.

34. SCOMET entry 5C018 shall be substituted as follows:

- '5C018 Positioning tables (equipment capable of precise rotary positioning in any axes) having all of the following characteristics:
1. Two or more axes; and
 2. A positioning "accuracy" equal to or less (better) than 5 arc second;

Note 1: *5C017 and 5C018 do not control rotary tables designed or modified for machine tools or for medical equipment.*

Note 2: Rate tables not controlled by 5C017 and providing the characteristics of a positioning table are to be evaluated according to 5C018.

Note 3: Equipment that has the characteristics specified in 5C018 which also meets the characteristics of 5C017 will be treated as equipment specified in 5C017'.

35. SCOMET entry 5C019 shall be substituted as follows:

'5C019 Centrifuges capable of imparting accelerations greater than 100 g and designed or modified to incorporate sliprings or integrated non-contact devices capable of transferring electrical power, signal information, or both

Note: 5C019 applies whether or not sliprings or integrated non-contact devices are fitted at the time of export'.

36. SCOMET entry 5D shall be substituted as follows:

'5D (Reserved)'

37. In SCOMET Category 6 Munitions List, after Note 6 and the entry relating thereto, the following Notes 7& 8 shall be added:

'Note 7: Notwithstanding anything contained in Note 3 above, export of item 6A010 will be subject to 'No Objection' from Defence Research and Development Organisation.'

Note 8: Notwithstanding anything contained in Note 3 above, export of item 6A011.c would be subject to 'No Objection' from ISRO, Department of Space and Defence Research and Development Organisation.'

38. The SCOMET entry 6A001.d shall be substituted as follows:

'6A001.d Accessories designed for arms specified by 6A001.a 6A001.b or 6A001.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'

39. After SCOMET 6A008.a.41 and the entry relating thereto, the following SCOMET entry 6A008.a.42 shall be inserted:

'6A008.a.42 EDNA (Ethylenedinitramine) (CAS 505-71-5);'

40. In SCOMET 6A008.c.1, the following Note 1 shall be inserted:
- 'Note 1: 6A008.c.1 does not apply to the following "aircraft" fuels: JP-4, JP-5, and JP-8.'*
41. In SCOMET 6A008.c.10.b the existing Note shall be substituted as follows:
- 'Note: 6A008.c.10.b does not apply to fossil refined fuels or biofuels, or fuels for engines certified for use in civil aviation.'*
42. The SCOMET entry 6A008.e.16 shall be substituted as follows:
- '6A008.e.16 Poly-NIMMO (poly (nitratomethylmethyloxetane), poly-NMMO or poly (3-Nitratomethyl-3-methyloxetane)) (CAS 84051-81-0);'*
43. After SCOMET 6A008.e.20 and the entry relating thereto, the following SCOMET entry 6A008.e.21 shall be inserted:
- '6A008.e.21 TMETN (Trimethylolethane trinitrate) (CAS 3032-55-1);'*
44. The SCOMET entry 6A008.f.5 shall be substituted as follows:
- '6A008.f.5 Lead beta-resorcyate (CAS 20936-32-7) or copper beta-resorcyate (CAS 70983-44-7);'*
45. The SCOMET entry 6A009.b.1 shall be substituted as follows:
- '6A009.b.1 Diesel engines specially designed for submarines;'*
46. In SCOMET 6A013.a, the existing N.B. shall be substituted as follows:
- 'N.B. For body armour plates, see 6A013.d.2.'*
47. In SCOMET 6A015, the existing Note 1 shall be substituted as follows:
- 'Note 1: 6A015.f includes equipment designed to degrade the operation or effectiveness of military imaging systems or to minimise such degrading effects.'*
48. The SCOMET entry 6A017.l shall be substituted as follows:
- '6A017.l ISO intermodal containers or demountable vehicle bodies (i.e., swap bodies), specially designed or 'modified' for military use;'*

49. The SCOMET entry 6A017.o shall be substituted as follows:

'6A017.o "Laser" protection equipment (e.g., eye or sensor protection) specially designed for military use;'

50. The SCOMET entry 6A020.b shall be substituted as follows:

'6A020.b "Superconductive" electrical equipment (rotating machinery or transformers) specially designed or configured to be installed in a vehicle for military ground, marine, airborne or space applications and capable of operating while in motion.'

51. The SCOMET entry 8A102 shall be substituted as follows:

'8A102 "Composite" structures or laminates, as follows:

a. Made from any of the following:

1. An organic "matrix" and "fibrous or filamentary materials" specified by 8C110.c, 8C110.d or
2. Prepregs or preforms specified by 8C110.e;

b. Made from a metal or carbon "matrix", and any of the following:

1. Carbon "fibrous or filamentary materials" having all of the following:
 - a. A "specific modulus" exceeding 10.15×10^6 m; and
 - b. A "specific tensile strength" exceeding 17.7×10^4 m; or
2. Materials specified by 8C110.c.'

52. SCOMET entry 8C101 shall be substituted as follows:

'8C101 Materials specially designed for absorbing electromagnetic radiation, or intrinsically conductive polymers, as follows:

- a. Materials for absorbing frequencies exceeding 2×10^8 Hz but less than 3×10^{12} Hz;

Note 1: 8C101.a does not apply to:

- a. Hair type absorbers, constructed of natural or synthetic fibres, with non-magnetic loading to provide absorption;
- b. Absorbers having no magnetic loss and whose incident surface is non-planar in shape, including pyramids, cones, wedges and convoluted surfaces;
- c. Planar absorbers, having all of the following:
 1. Made from any of the following:
 - a. Plastic foam materials (flexible or non-flexible) with carbon-loading, or organic materials, including binders, providing more than

5% echo compared with metal over a bandwidth exceeding $\pm 15\%$ of the centre frequency of the incident energy, and not capable of withstanding temperatures exceeding 450 K (177°C); or

b. Ceramic materials providing more than 20% echo compared with metal over a bandwidth exceeding $\pm 15\%$ of the centre frequency of the incident energy, and not capable of withstanding temperatures exceeding 800 K (527°C);

2. Tensile strength less than $7 \times 10^6 \text{ N/m}^2$; and

3. Compressive strength less than $14 \times 10^6 \text{ N/m}^2$;

d. Planar absorbers made of sintered ferrite, having all of the following:

1. A specific gravity exceeding 4.4; and

2. A maximum operating temperature of 548 K (275°C).

Note 2: Nothing in Note 1 releases magnetic materials to provide absorption when contained in paint.

8C101.b Materials not transparent to visible light and specially designed for absorbing near-infrared radiation having a wavelength exceeding 810 nm but less than 2000 nm (frequencies exceeding 150 THz but less than 370 THz);

Note: 8C101.b does not apply to materials, specially designed or formulated for any of the following applications:

a. "Laser" marking of polymers; or

b. "Laser" welding of polymers.

8C101.c Intrinsically conductive polymeric materials with a 'bulk electrical conductivity' exceeding 10,000 S/m (Siemens per metre) or a 'sheet (surface) resistivity' of less than 100 ohms/square, based on any of the following polymers:

1. Polyaniline;

2. Polypyrrole;

3. Polythiophene;

4. Poly phenylene-vinylene; or

5. Poly thienylene-vinylene.

Technical Note:

'Bulk electrical conductivity' and 'sheet (surface) resistivity' should be determined using ASTM D-257 or national equivalents.

Note: 8C101.c does not apply to materials in a liquid form'.

53. SCOMET entry 8C101.b shall be substituted as follows:

'8C101.b Materials not transparent to visible light and specially designed for absorbing near-infrared radiation having a wavelength exceeding 810 nm but less than 2000 nm (frequencies exceeding 150 THz but less than 370 THz);

Note: 8C101.b does not apply to materials, specially designed or formulated for any of the following applications:

- a. "Laser" marking of polymers; or
- b. "Laser" welding of polymers.'

54. SCOMET entry 8C102.c.2 shall be substituted as follows:


'8C102.c.2 Made in a controlled environment by any of the following processes:
a. 'Vacuum atomisation';
b. 'Gas atomisation';
c. 'Rotary atomisation';
d. 'Splat quenching';
e. 'Melt spinning' and 'comminution';
f. 'Melt extraction' and 'comminution';
g. 'Mechanical alloying'; or
h. 'Plasma atomisation'; and'

55. SCOMET entry 8C102.d.3 shall be substituted as follows:

'8C102.d.3 Produced in a controlled environment by any of the following:
a. 'Splat quenching';
b. 'Melt spinning'; or
c. 'Melt extraction';'

56. In SCOMET entry 8C102.d the following Technical Notes shall be inserted:

'Technical Notes:

1. 'Vacuum atomisation' is a process to reduce a molten stream of metal to droplets of a diameter of 500 μm or less by the rapid evolution of a dissolved gas upon exposure to a vacuum.
 2. 'Gas atomisation' is a process to reduce a molten stream of metal alloy to droplets of 500 μm diameter or less by a high pressure gas stream.
 3. 'Rotary atomisation' is a process to reduce a stream or pool of molten metal to droplets to a diameter of 500 μm or less by centrifugal force.
- 

4. 'Splat quenching' is a process to 'solidify rapidly' a molten metal stream impinging upon a chilled block, forming a flake-like product.
5. 'Melt spinning' is a process to 'solidify rapidly' a molten metal stream impinging upon a rotating chilled block, forming a flake, ribbon or rod-like product.
6. 'Comminution' is a process to reduce a material to particles by crushing or grinding.
7. 'Melt extraction' is a process to 'solidify rapidly' and extract a ribbon-like alloy product by the insertion of a short segment of a rotating chilled block into a bath of a molten metal alloy.
8. 'Mechanical alloying' is an alloying process resulting from the bonding, fracturing and rebonding of elemental and master alloy powders by mechanical impact. Non-metallic particles may be incorporated in the alloy by addition of the appropriate powders.
9. 'Plasma atomisation' is a process to reduce a molten stream or solid metal to droplets of 500 μm diameter or less, using plasma torches in an inert gas environment.
10. 'Solidify rapidly' is a process involving the solidification of molten material at cooling rates exceeding 1000 K/sec.'

57. After SCOMET entry 8C107.c.2, the following 'N.B' shall be inserted:

N.B. For items previously specified by 8C107.c see 8C107.c.1.b.'

58. After SCOMET entry 8C107.d the following 'N.B' shall be inserted:

N.B. For items previously specified by 8C107.d see 8C107.c.2.'

59. After SCOMET entry 8C107.f the following 'N.B' shall be inserted:

N.B. For items previously specified by 8C107.f see 8C107.c.1.a.'

60. The SCOMET entry 8C110.d.2 shall be substituted as follows:

'8C110 d.2 Composed of materials specified by 8C110.d.1.a or 8C110.d.1.b and 'commingled' with other fibres specified by 8C110.a, 8C110.b or 8C110.c'

61. In SCOMET entry 8C110.d.2 the following Technical Note shall be inserted:

Technical Note:
'Commingled' is filament to filament blending of thermoplastic fibres and reinforcement fibres in order to produce a fibre reinforcement "matrix" mix in total fibre form.'

62. SCOMET entry 8C110.e shall be substituted as follows:

'8C110

- e. Fully or partially resin-impregnated or pitch-impregnated "fibrous or filamentary materials" (prepregs), metal or carbon-coated "fibrous or filamentary materials" (preforms) or 'carbon fibre preforms', having all of the following:
1. Having any of the following:
 - a. Inorganic "fibrous or filamentary materials" specified by 8C110.c;
or
 - b. Organic or carbon "fibrous or filamentary materials", having all of the following:
 1. "Specific modulus" exceeding 10.15×10^6 m; and
 2. "Specific tensile strength" exceeding 17.7×10^4 m;
and
 2. Having any of the following:
 - a. Resin or pitch, specified by 8C108 or 8C109.b;
 - b. 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' equal to or exceeding 453 K (180°C) and having a phenolic resin; or
 - c. 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' equal to or exceeding 505 K (232°C) and having a resin or pitch, not specified by 8C108 or 8C109.b, and not being a phenolic resin;

Note 1: *Metal or carbon-coated "fibrous or filamentary materials" (preforms) or 'carbon fibre preforms', not impregnated with resin or pitch, are specified by "fibrous or filamentary materials" in 8C110.a, 8C110.b or 8C110.c.*

Note 2: *8C110.e does not apply to:*

- a. *Epoxy resin "matrix" impregnated carbon "fibrous or filamentary materials" (prepregs) for the repair of "civil aircraft" structures or laminates, having all of the following;*
 1. *An area not exceeding 1 m^2 ;*
 2. *A length not exceeding 2.5 m; and*
 3. *A width exceeding 15 mm;*
- b. *Fully or partially resin-impregnated or pitch-impregnated mechanically chopped, milled or cut carbon "fibrous or filamentary materials" 25.0 mm or less in length when using a resin or pitch other than those specified by 8C108 or 8C109.b.*

Technical Notes:

1. 'Carbon fibre preforms' are an ordered arrangement of uncoated or coated fibres intended to constitute a framework of a part before the "matrix" is introduced to form a "composite".
2. The 'Dynamic Mechanical Analysis glass transition temperature (DMA T_g)' for materials specified by 1.C.10.e. is determined using the method described in ASTM D 7028-07, or equivalent national standard, on a dry test specimen. In the case of thermoset materials, degree of cure of a dry test specimen shall be a minimum of 90% as defined by ASTM E 2160-04 or equivalent national standard'.

63. In the SCOMET entry 8C112.a, 'Note b' shall be substituted as follows:

'Note b: Shipments of 3 'effective grams' or less when contained in a sensing component in instruments'

64. In SCOMET entry 8C112.a, the following Technical Note shall be inserted:

'Technical Note:

'Effective grams' for plutonium isotope is defined as the isotope weight in grams.'

65. The SCOMET entry 8C112.b shall be substituted as follows:

'8C112.b 'Previously separated' neptunium-237 in any form.'

66. In SCOMET entry 8C112.a, the following Technical Note shall be inserted:

'Technical Note:

'Previously separated' is the application of any process intended to increase the concentration of the controlled isotope.'

67. In SCOMET entry 8A201, the existing Note shall be substituted as follows:

'Note: 8A201 does not apply to balls with tolerances specified by the manufacturer in accordance with ISO 3290 as grade 5 (or national equivalents) or worse.'

68. In SCOMET entry 8B201.a, the existing Note 2 shall be substituted as follows:

'Note 2: 8B201.a does not apply to 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.'

69. The SCOMET entry 8B201.c.1.b shall be substituted as follows:

'8B201.c.1.b Three or more axes which can be coordinated simultaneously for "contouring control"; or'

70. The SCOMET entry 8B206 shall be substituted as follows:

'8B206 Dimensional inspection or measuring systems, equipment, position feedback units and "electronic assemblies", as follows:

- a. Computer controlled or "numerical controlled" Coordinate Measuring Machines (CMM), having a three dimensional (volumetric) maximum permissible error of length measurement ($E_{0,MPE}$) at any point within the operating range of the machine (i.e., within the length of axes) equal to or less (better) than $1.7 + L/1,000 \mu m$ (L is the measured length in mm), according to ISO 10360-2 (2009);

Technical Note:

The $E_{0,MPE}$ of the most accurate configuration of the CMM specified by the manufacturer (e.g., best of the following: probe, stylus length, motion parameters, environment) and with "all compensations available" shall be compared to the $1.7 + L/1,000 \mu m$ threshold.

- 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 8B206.b.3.*

1. 'Non-contact type measuring systems' with a 'resolution' equal to or less (better) than $0.2 \mu m$ within a measuring range up to $0.2 mm$;

Technical Note:

For the purposes of 8B206.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);
- and

- 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

Technical Note:

For the purposes of 8B206.b, 'resolution' is the least increment of a measuring device; on digital instruments, the least significant bit.

- 8B206 b. 4 "Electronic assemblies" specially designed to provide feedback capability in systems specified by 8B206.b.3;
- 8B206 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: *8B206.c does not apply to optical instruments, such as autocollimators, using collimated light (e.g., laser light) to detect angular displacement of a mirror.*

- 8B206 d. Equipment for measuring surface roughness (including surface defects), by measuring optical scatter with a sensitivity of 0.5 nm or less (better).

Note: *8B206 includes machine tools, other than those specified by 8B201 that can be used as measuring machines if they meet or exceed the criteria specified for the measuring machine function.'*

71. SCOMET entry 8B207.a and the Technical Note shall substituted as follows:
'8B207.a (Reserved)'

72. SCOMET entry 8B208 shall be substituted as follows:

- '8B208 'Compound rotary tables' and "tilting spindles", specially designed for machine tools, as follows:
- a. (Reserved)
 - b. (Reserved)
 - c. 'Compound rotary tables' having all of the following:
 - 1. Designed for machine tools for turning, milling or grinding; and
 - 2. Two rotary axes designed to be coordinated simultaneously for "contouring control";

Technical Note:

A 'compound rotary table' is a table allowing the workpiece to rotate and tilt about two non-parallel axes.

d. "Tilting spindles" having all of the following:

1. Designed for machine tools for turning, milling or grinding;
and
2. Designed to be coordinated simultaneously for "contouring control".'

73. The SCOMET entry 8E203.a shall be deleted and substituted as follows:

'8E203.a (Reserved)'

74. The SCOMET entry 8E203.b.1.c shall be substituted as follows:

'8E203.b.1.c 'Direct-acting hydraulic pressing';'

75. The SCOMET entry 8E203.b.2.c shall be substituted as follows:

'8E203.b.2.c 'Direct-acting hydraulic pressing' of aluminium alloys or titanium alloys:
1. Pressure;
2. Cycle time;'

76. In the SCOMET entry 8E203.b.2 the following Technical Notes shall be inserted:

'Technical Notes:

1. 'Direct-acting hydraulic pressing' is a deformation process which uses a fluid-filled flexible bladder in direct contact with the workpiece.
2. 'Hot isostatic densification' is a process of pressurising a casting at temperatures exceeding 375 K (102°C) in a closed cavity through various media (gas, liquid, solid particles, etc.) to create equal force in all directions to reduce or eliminate internal voids in the casting'.

77. The SCOMET entry 8E203.b.2.d shall be substituted as follows:

'8E203.b.2.d 'Hot isostatic densification' of titanium alloys, aluminium alloys or "superalloys":
1. Temperature;
2. Pressure;
3. Cycle time;'

78. The SCOMET entry 8E203.d shall be deleted and substituted as follows:

'8E203.d (Reserved)'

79. In SCOMET entry 8A3 the existing Notes a and b shall be substituted as follows:

'Note 1: The status of equipment and components described in 8A3, other than those described in 8A301.a.3 to 8A301.a.10, or 8A301.a.12 to 8A301.a.14, which are specially designed for or

which have the same functional characteristics as other equipment is determined by the status of the other equipment.

Note 2: *The status of integrated circuits described in 8A301.a.3 to 8A301.a.9, or 8A301.a.12 to 8A301.a.14 which are unalterably programmed or designed for a specific function for another equipment is determined by the status of the other equipment.*

N.B. *When the manufacturer or applicant cannot determine the status of the other equipment, the status of the integrated circuits is determined in 8A301.a.3 to 8A301.a.9 and 8A301.a.12 to 8A301.a.14'.*

80. The SCOMET entry 8A301.a.2 shall be substituted as follows:

'8A301.a.2 "Microprocessor microcircuits", "microcomputer microcircuits", microcontroller microcircuits, storage integrated circuits manufactured from a compound semiconductor, analogue-to-digital converters, integrated circuits that contain analogue-to-digital converters and store or process the digitized data, digital-to-analogue converters, electro-optical or "optical integrated circuits" designed for "signal processing", field programmable logic devices, custom integrated circuits for which either the function is unknown or the status of the equipment in which the integrated circuit will be used is unknown, Fast Fourier Transform (FFT) processors, Static Random-Access Memories (SRAMs) or 'non- volatile memories', having any of the following:

Technical Note:

'Non-volatile memories' are memories with data retention over a period of time after a power shutdown.

- 8A301.a.2
- a. Rated for operation at an ambient temperature above 398 K (+125°C);
 - b. Rated for operation at an ambient temperature below 218 K (-55°C); or
 - c. Rated for operation over the entire ambient temperature range from 218 K (-55°C) to 398 K (+125°C);

Note: *8A301.a.2 does not apply to integrated circuits for civil automobile or railway train applications'.*

81. The SCOMET entry 8A301.a.5.a shall be substituted as follows:

'8A301.a.5.a ADCs having 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 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; or
5. A resolution of 16 bit or more with a "sample rate" greater than 65 MSPS;

N.B. For integrated circuits that contain analogue-to-digital converters and store or process the digitized data, see 8A301.a.14.

Technical Notes:

1. A resolution of n bit corresponds to a quantisation of 2^n levels.
2. The resolution of the ADC is the number of bits of the digital output 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'.

82. SCOMET entry 8A301.a.5.b.2 shall be substituted as follows:

'8A301 a.5.b.2 A resolution of 12 bit or more with an 'adjusted update rate' of greater than 1,250 MSPS and having any of the following:

- a. A settling time less than 9 ns to arrive at or within 0.024% of full scale from a full scale step; or
- b. A 'Spurious Free Dynamic Range' (SFDR) greater than 68 dBc (carrier) when synthesizing a full scale analogue signal of 100 MHz or the highest full scale analogue signal frequency specified below 100 MHz;

83. In SCOMET entry 8A301.a.7, the Notes shall be substituted as follows:

Note: 8A301.a.7 includes:
- Complex Programmable Logic Devices (CPLDs)
- Field Programmable Gate Arrays (FPGAs)
- Field Programmable Logic Arrays (FPLAs)
- Field Programmable Interconnects (FPICs)'

84. The SCOMET entry 8A301.a.14 shall be substituted as follows:


'8A301 a.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); or
 5. A resolution of 16 bit or more with a "sample rate" greater than 180 MSPS; and
- b. Any of the following:
 1. Storage of digitized data; or
 2. Processing of digitized data.

N.B.1 For analogue-to-digital converter integrated circuits see 8A301.a.5.a.

N.B.2 For field programmable logic devices see 8A301.a.7.

Technical Notes:

1. A resolution of n bit corresponds to a quantisation 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.'

85. In SCOMET entry 8A301.b.2, the existing Notes 2&3 shall be substituted as follows:

Note 2: The status of the "MMIC" whose rated operating frequency includes frequencies listed in more than one frequency range, as defined by 8A301.b.2.a through 8A301.b.2.h, is determined by the lowest peak saturated power output threshold.

Note 3: Notes 1 and 2 in 8A3 mean that 8A301.b.2 does not apply to "MMICs" if they are specially designed for other applications, e.g., telecommunications, radar, automobiles.'

86. In SCOMET 8A301.b.4 the following N.B.3 shall be inserted:

N.B.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 8A301.b.7.


87. The SCOMET entry 8A301.b.11 shall be substituted as follows:

'8A301 b.11 'Frequency synthesiser' "electronic assemblies" having a "frequency switching time" as specified by any of the following:

- a. Less than 143 ps;
- b. Less than 100 μ s for any frequency change exceeding 2.2 GHz within the synthesised frequency range exceeding 4.8 GHz but not exceeding 31.8 GHz;
- c. (Reserved)
- d. Less than 500 μ s for any frequency change exceeding 550 MHz within the synthesised frequency range exceeding 31.8 GHz but not exceeding 37 GHz;
- e. Less than 100 μ s for any frequency change exceeding 2.2 GHz within the synthesised frequency range exceeding 37 GHz but not exceeding 90 GHz; or
- f. (Reserved)
- g. Less than 1 ms within the synthesised frequency range exceeding 90 GHz;

Technical Note:

A 'frequency synthesiser' is any kind of frequency source, regardless of the actual technique used, providing a multiplicity of simultaneous or alternative output frequencies, from one or more outputs, controlled by, derived from or disciplined by a lesser number of standard (or master) frequencies.



N.B. For general purpose "signal analysers", signal generators, network analysers and microwave test receivers, see 8A302.c, 8A302.d, 8A302.e and 8A302.f respectively'.

88. The SCOMET entry 8A301.e shall be substituted as follows:

'8A301.e High energy devices as follows:

1. 'Cells' as follows:

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; or
2. 'Energy density' exceeding 50 Wh/kg and a 'continuous power density' exceeding 350 W/kg;

b. 'Secondary cells' having an 'energy density' exceeding 350 Wh/kg at 20°C;

Technical Notes:

1. For the purpose of 8A301.e.1, 'energy density' (Wh/kg) is calculated from the nominal voltage multiplied by the nominal capacity in ampere-hours (Ah) divided by the mass in kilograms. If the nominal capacity is not stated, energy density is calculated from the nominal voltage squared then multiplied by the discharge duration in hours divided by the discharge load in Ohms and the mass in kilograms.
2. For the purpose of 8A301.e.1, a 'cell' is defined as an electrochemical device, which has positive and negative electrodes, an electrolyte, and is a source of electrical energy. It is the basic building block of a battery.
3. For the purpose of 8A301.e.1.a, a 'primary cell' is a 'cell' that is not designed to be charged by any other source.
4. For the purpose of 8A301.e.1.b, a 'secondary cell' is a 'cell' that is designed to be charged by an external electrical source.
5. For the purpose of 8A301.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.

Note: 8A301.e does not apply to batteries, including single-cell batteries'.

89. The SCOMET entry 8A301.i shall be inserted after the entry 8A301.h as follows:

'8A301.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; or
 - b. A ' $V\pi$ ' of less than 4 V when measured at a frequency of more than 1 GHz; or
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; or
 - b. A ' $V\pi$ ' less than 5 V when measured at a frequency of more than 1 GHz.

Note: 8A301.i includes electro-optic modulators having optical input and output connectors (e.g., fibre-optic pigtails).

Technical Note:

For the purposes of 8A301.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'.

90. The SCOMET entry 8A302.c.1 shall be substituted as follows:

'8A302.c.1 "Signal analysers" having a 3 dB resolution bandwidth (RBW) exceeding 40 MHz anywhere within the frequency range exceeding 31.8 GHz but not exceeding 37 GHz;'

91. The SCOMET entry 8A302.c.4 and the Technical Notes shall be substituted as follows:

'8A302.c.4 "Signal analysers" having all of the following:

- a. 'Real-time bandwidth' exceeding 170 MHz; and
- 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; or
 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. 'Real-time bandwidth' is the widest frequency range for which the analyser can continuously transform time-domain data entirely into frequency-domain results, using a Fourier or other discrete time transform that processes every incoming time point, without a reduction of measured amplitude of more than 3 dB below

the actual signal amplitude caused by gaps or windowing effects, while outputting or displaying the transformed data.

2. *Probability of discovery in 8A302.c.4.b.1 is also referred to as probability of intercept or probability of capture.*
3. *For the purposes of 8A302.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.*
4. *A 'frequency mask trigger' is a mechanism where the trigger function is able to select a frequency range to be triggered on as a subset of the acquisition bandwidth while ignoring other signals that may also be present within the same acquisition bandwidth. A 'frequency mask trigger' may contain more than one independent set of limits.*

Note: *8A302.c.4 does not apply to those "signal analysers" using only constant percentage bandwidth filters (also known as octave or fractional octave filters)'.*

92. The SCOMET entry 8A302.h shall be substituted as follows:

'8A302.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); or
 - e. A resolution of 16 bit or more with a "sample rate" greater than 180 MSPS; and'
2. Any of the following:
 - a. Output of digitized data;
 - b. Storage of digitized data; or
 - c. Processing of digitized data;

N.B. *Digital data recorders, oscilloscopes, "signal analysers", signal generators, network analysers and microwave test receivers, are specified by 8A302.a.6, 8A302.a.7, 8A302.c, 8A302.d, 8A302.e and 8A302.f, respectively.*

Technical Note:

1. *A resolution of n bit corresponds to a quantisation 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.'*

93. After SCOMET 8B301.i and the entry relating thereto, the following SCOMET entry 8B301.j shall be:

- '8B301.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; and
 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.'

94. The SCOMET entry 8B302 shall be substituted as follows:

- '8B302 Test equipment specially designed for testing finished or unfinished semiconductor devices as follows and specially designed components and accessories therefor:
- a. For testing S-parameters of items specified by 8A301.b.3;
 - b. (Reserved)
 - c. For testing items specified by 8A301.b.2'.

95. The SCOMET entry 8C302.a.1 shall be substituted as follows:

- '8C302.a.1 Positive resists adjusted (optimised) for use at wavelengths less than 193 nm but equal to or greater than 15 nm'.

96. The SCOMET entry 8C305 shall be substituted as follows:

- '8C305 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".'

97. The SCOMET entry 8C306 shall be substituted as follows:

'8C306 Materials, not specified by 8C301, consisting of a "substrate" specified by 8C305 with at least one epitaxial layer of silicon carbide, gallium nitride, aluminium nitride or aluminium gallium nitride.'

98. The SCOMET entry 8E301 shall be substituted as follows:

'8E301 "Technology" according to the General Technology Note for the "development" or "production" of equipment or materials specified by 8A3, 8B3 or 8C3;

Note 1: 8E301 does not apply to "technology" for equipment or components specified by 8A303.

Note 2: 8E301 does not apply to "technology" for integrated circuits specified by 8A301.a.3 to 8A301.a.12, having all of the following:
a. Using "technology" at or above 0.130 μm ; and
b. Incorporating multi-layer structures with three or fewer metal layers.

Note 3: 8E301 does not apply to 'Process Design Kits' ('PDKs') unless they include libraries implementing functions or technologies for items specified by 8A301.

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').

99. In the SCOMET category 8A4 the existing Note 2 shall be substituted as follows:

Note 2: Control units which directly interconnect the buses or channels of central processing units, 'main storage' or disk controllers are not regarded as telecommunications equipment described in (8A501,8B501,8C5,8D501,8E5)- Part 1 (Telecommunications).

N.B. For the status of "software" specially designed for packet switching, see 8D501 (Telecommunications).

Technical Note:

'Main storage' is the primary storage for data or instructions for rapid access by a central processing unit. It consists of the internal storage of a "digital

computer" and any hierarchical extension thereto, such as cache storage or non-sequentially accessed extended storage.'

100. The SCOMET entry 8A403.b shall be substituted as follows:

'8A403.b. "Digital computers" having an 'Adjusted Peak Performance' ('APP') exceeding 29 Weighted TeraFLOPS (WT);'

101. After SCOMET 8A404 and the entry relating thereto, the following Technical Notes shall be inserted:

'Technical Notes:

- 1. 'Systolic array computers' are computers where the flow and modification of the data is dynamically controllable at the logic gate level by the user.*
- 2. 'Neural computers' are computational devices designed or modified to mimic the behaviour of a neuron or a collection of neurons, i.e., computational devices which are distinguished by their hardware capability to modulate the weights and numbers of the interconnections of a multiplicity of computational components based on previous data.*
- 3. 'Optical computers' are computers designed or modified to use light to represent data and whose computational logic elements are based on directly coupled optical devices'.*

102. The SCOMET entry 8D401.b.1 shall be substituted as follows:

'8D401.b.1 "Digital computers" having an 'Adjusted Peak Performance' ('APP') exceeding 15 Weighted TeraFLOPS (WT);'

103. In SCOMET entry 8D404 the following Note shall be inserted:

'Note: *8D404 does not apply to "software" specially designed and limited to provide "software" updates or upgrades meeting all the following:*

- a. The update or upgrade operates only with the authorisation of the owner or administrator of the system receiving it; and*
- b. After the update or upgrade, the "software" updated or upgraded is not any of the following:*
 - 1. "Software" specified by 8D404; or*
 - 2. "Intrusion software".'*

104. After SCOMET 8E401 and the entry relating thereto, the following Notes 1 and 2 and Technical Notes shall be inserted:

Note 1: *8E401.a and 8E401.c do not apply to 'vulnerability disclosure' or 'cyber incident response'.*

Note 2: *Note 1 does not diminish national authorities' rights to ascertain compliance with 8E401.a and 8E401.c.*

Technical Notes:

1. 'Vulnerability disclosure' means the process of identifying, reporting, or communicating a vulnerability to, or analysing a vulnerability with, individuals or organizations responsible for conducting or coordinating 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 coordinating remediation to address the cyber security incident.'

105. In the Technical Note on 'Adjusted Peak Performance' ('APP'), Note to paragraph 1 shall be substituted as follows:

Note: *In determining FPO, include only 64-bit or larger floating point additions or multiplications. All floating point operations must be expressed in operations per processor cycle; operations requiring multiple cycles may be expressed in fractional results per cycle. For processors not capable of performing calculations on floating point operands of 64-bit or more, the effective calculating rate R is zero'.*

106. The SCOMET entry 8A501.a shall be substituted as follows:

'8A501.a Any type of telecommunications equipment having any of the following characteristics, functions or features:

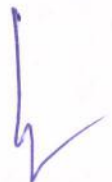
1. Specially designed to withstand transitory electronic effects or electromagnetic pulse effects, both arising from a nuclear explosion;
2. Specially hardened to withstand gamma, neutron or ion radiation;
3. Specially designed to operate below 218 K (-55° C); or
4. Specially designed to operate above 397 K (124° C);

Note 1: *8A501.a.3 and 8A501.a.4 apply only to electronic equipment.*

Note 2: *8A501.a.2, 8A501.a.3 and 8A501.a.4 do not apply to equipment designed or modified for use on board satellites.'*

107. The SCOMET entry 8A501.d shall be substituted as follows:

'8A501.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;

Note 1: 8A501.d does not apply to 'electronically steerable phased array antennae' for landing systems with instruments meeting ICAO standards covering Microwave Landing Systems (MLS).

Note 2: 8A501.d does not apply to antennae specially designed for any of the following:

- a. Civil cellular or WLAN radio-communications systems;
- b. IEEE 802.15 or wireless HDMI; or
- c. Fixed or mobile satellite earth stations for commercial civil telecommunications.

Technical Note:

For the purposes of 8A501.d 'electronically steerable phased array antenna' is an antenna which forms a beam by means of phase coupling, (i.e., the beam direction is controlled by the complex excitation coefficients of the radiating elements) and the direction of that beam can be varied (both in transmission and reception) in azimuth or in elevation, or both, by application of an electrical signal.'

108. The SCOMET entry 8A502.a shall be substituted as follows:

'8A502.a. Designed or modified to use 'cryptography for data confidentiality' having 'in excess of 56 bits of symmetric key length, or equivalent', 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 paragraph 8A502.a.1;
3. Computers, other items having information storage or processing as a primary function, and components therefor, not specified in paragraphs 8A502.a.1 or 8A502.a.2;

N.B. For operating systems, see also 8D502.a.1 and 8D502.c.1.

4. Items, not specified in paragraphs 8A502.a.1 to a.3., where the 'cryptography for data confidentiality' having 'in excess of 56 bits of symmetric key length, or equivalent' meets all of the following:
 - a. It supports a non-primary function of the item; and

- b. It is performed by incorporated equipment or "software" that would, as a standalone item, be specified by (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2.

Technical Notes:

1. For the purposes of 8A502.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; or
- g. Key management in support of any function described in paragraph a. to f. above.

2. For the purposes of 8A502.a, 'in excess of 56 bits of symmetric key length, or equivalent' means any of the following:

- a. A "symmetric algorithm" employing a key length in excess of 56 bits, not including parity bits; or
- b. An "asymmetric algorithm" where the security of the algorithm is based on any of the following:
 1. Factorisation 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 $\mathbb{Z}/p\mathbb{Z}$); or
 3. Discrete logarithms in a group other than mentioned in paragraph b.2. in excess of 112 bits (e.g., Diffie-Hellman over an elliptic curve).

Note 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 upon request, in order to establish any of the following:

- a. Whether the item meets the criteria of 8A502.a.1 to a.4.; or
- b. Whether the cryptographic capability for data confidentiality specified by 8A502.a is usable without "cryptographic activation".

Note 2: 8A502.a does not apply to any of the following items, or specially designed "information security" components therefor:

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 8A502.a.1 to a.4.;*

b. *Equipment or systems not using 'cryptography for data confidentiality' having 'in excess of 56 bits of symmetric key length, or equivalent'; or*

c. *Equipment or systems excluded from 8A502.a by entries b. to f. of this Note; and*

2. *It cannot be reprogrammed for any other use; or*

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; and*

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 by 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 8A502 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 a.4. of the Cryptography Note (Note 3 in Category 5 – Part 2), that have been customised for a specific civil industry application with features that do not affect the cryptographic functionality of these original non-customised 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; and*
 - 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 seven devices;*
- g. *Mobile telecommunications Radio Access Network (RAN) equipment designed for civil use, which also meet the provisions of paragraphs a.2. to a.4. of the Cryptography Note (Note 3 in Category 5 – Part 2), having an RF output power limited to 0.1W (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; or

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; and*

2. *Is any of the following:*

a. *Integral to a CPU that meets the provisions of Note 3 in (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2;*

b. *Integral to an operating system that is not specified by 5.D.2.; or*

c. *Limited to "OAM" of the equipment.'*

109. The SCOMET entry 8A502.b shall be substituted as follows:


'8A502.b Designed or modified for converting, by means of "cryptographic activation", an item not specified by (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2 into an item specified by 8A502.a or 8D502.c.1, and not released by the Cryptography Note (Note 3 in Category 5 – Part 2), or for enabling, by means of "cryptographic activation", additional functionality specified by 8A502.a of an item already specified by (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2;'

110. The SCOMET entry 8D502.b shall be substituted as follows:

'8D502.b "Software" designed or modified for converting, by means of "cryptographic activation", an item not specified by (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2 into an item specified by 8A502.a or 8D502.c.1, and not released by the Cryptography Note [Note 3 in (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2], or for enabling, by means of "cryptographic activation", additional functionality specified by 8A502.a of an item already specified by (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2;'

111. The SCOMET entry 8E502.b shall be substituted as follows:

'8E502.b "Technology" for converting, by means of "cryptographic activation", an item not specified by Category 5 – Part 2 into an item specified by 8A502.a or 8D502.c.1, and not released by the Cryptography Note (Note 3 in Category 5 – Part 2), or for enabling, by means of "cryptographic activation", additional functionality specified by 8A502.a of an item already specified by (8A502, 8A503, 8A504, 8B502, 8C5, 8D502 and 8E502)-Part 2.'



112. After SCOMET 8A602.e and the entry relating thereto, SCOMET entry 8A602.f shall be inserted:

'8A602.f 'Read-out integrated circuits' ('ROIC') specially designed for "focal plane arrays" specified by 8A602.a.3.

Note: 8A602.f does not apply to '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'.

113. The SCOMET entry 8A603.a.1 and 2 shall be deleted and substituted as follows:

'8A603.a.1 (Reserved)

8A603.a.2 (Reserved)'

114. The SCOMET entry 8A603.a.3 shall be substituted as follows:

'8A603.a.3 Electronic streak cameras having temporal resolution better than 50 ns;'

115. The SCOMET entry 8A604.a.1 shall be substituted as follows:

'8A604.a.1 'Deformable mirrors' having an active optical aperture greater than 10 mm and having any of the following, and specially designed components therefor:

- a. Having all the following:
 1. A mechanical resonant frequency of 750 Hz or more; and
 2. More than 200 actuators; or
- b. A Laser Induced Damage Threshold (LIDT) being any of the following:
 1. Greater than 1 kW/cm² using a "CW laser"; or
 2. Greater than 2 J/cm² using 20 ns "laser" pulses at 20 Hz repetition rate;

Technical Note:

'Deformable mirrors' are mirrors having any of the following:

- a. *A single continuous optical reflecting surface which is dynamically deformed by the application of individual torques or forces to*

compensate for distortions in the optical waveform incident upon the mirror; or

- b. Multiple optical reflecting elements that can be individually and dynamically repositioned by the application of torques or forces to compensate for distortions in the optical waveform incident upon the mirror.*

'Deformable mirrors' are also known as adaptive optic mirrors.'

116. After SCOMET 8A604.e and the entry relating thereto, the following SCOMET entry 8A604.f shall be inserted:

- '8A604.f Dynamic wavefront measuring equipment having all of the following:
1. 'Frame rates' equal to or more than 1 kHz; and
 2. A wavefront accuracy equal to or less (better) than $\lambda/20$ at the designed wavelength.

Technical Note:

For the purposes of 8A604.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'.

117. In SCOMET entry 8A605.a.6.b, the existing Note 1 shall be substituted as follows:

Note 1: *8A605.a.6.b does not apply to multiple transverse mode, industrial "lasers" with output power exceeding 2 kW and not exceeding 6 kW with a total mass greater than 1,200 kg. For the purpose of this note, total mass includes all components required to operate the "laser", e.g., "laser", power supply, heat exchanger, but excludes external optics for beam conditioning or delivery.'*

118. The SCOMET entry 8A605.d.5.c shall be substituted as follows:

- '8A605.d.5.c 'Transfer lasers' as follows:
1. Oxygen Iodine (O₂-I) "lasers";
 2. Deuterium Fluoride-Carbon dioxide (DF-CO₂) "lasers";

Technical Note:

'Transfer lasers' are "lasers" in which the lasing species are excited through the transfer of energy by collision of a non-lasing atom or molecule with a lasing atom or molecule species.'

119. The SCOMET entry 8A605.f.1 shall be deleted and substituted as follows:

'8A605.f.1 (Reserved)

N.B. *For items previously specified by 8A605.f.1, see 8A604.f.'*

120. The SCOMET entry 8A605.f.2 shall be substituted as follows:

'8A605.f.2 "Laser" diagnostic equipment 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);'

121. The SCOMET entry 8A605.f.3 shall be substituted as follows:

'8A605.f.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;
or
- b. An "accuracy" of $\lambda/10$ or less (better) at the designed wavelength, for wavelengths equal to or less than 1 μ m';

122. The SCOMET entry 8A608.e shall be substituted as follows:

'8A608.e Incorporating electronically scanned array antennae;

Technical Note:

Electronically scanned array antennae are also known as electronically steerable array antennae'.

123. The SCOMET entry 8A608.l.1 shall be substituted as follows:

'8A608.l.1 'Automatic target tracking' providing, at any antenna rotation, the predicted target position beyond the time of the next antenna beam passage; or


Note: 8A608.l.1 does not apply to conflict alert capability in ATC systems, or 'marine radar'.

Technical Note:

'Automatic target tracking' is a processing technique that automatically determines and provides as output an extrapolated value of the most probable position of the target in real time.'

124. The SCOMET entry 8A608.l.4 shall be substituted as follows:

'8A608.l.4 Configured to provide superposition and correlation, or fusion, of target data within six seconds from two or more 'geographically dispersed' radar sensors to improve the aggregate performance beyond that of any single sensor specified by 8A608.f or 8A608.i.



Technical Note:

Sensors are considered 'geographically dispersed' when each location is distant from any other more than 1,500 m in any direction. Mobile sensors are always considered 'geographically dispersed'.

N.B. See also 6A005.b.

Note: 8A608.l does not apply to systems, equipment and assemblies used for 'vessel traffic services'.

125. The SCOMET entry 8D603.h.2 shall be substituted as follows:

- '8D603.h.2 "Software" for the design or "production" of radomes having all of the following:
- a. Specially designed to protect the electronically scanned array antennae specified by 8A608.e; and
 - b. Resulting in an antenna pattern having an 'average side lobe level' more than 40 dB below the peak of the main beam level.

Technical Note:

'Average side lobe level' in 8D603.h.2.b is measured over the entire array excluding the angular extent of the main beam and the first two side lobes on either side of the main beam.'

126. The SCOMET entry 8A706 shall be substituted as follows:

- '8A706 Airborne altimeters operating at frequencies other than 4.2 to 4.4 GHz inclusive and having any of the following:
- a. 'Power management'; or
 - b. Using phase shift key modulation.

Technical Note:

'Power management' is changing the transmitted power of the altimeter signal so that received power at the "aircraft" altitude is always at the minimum necessary to determine the altitude.'

127. The SCOMET entry 8E704.a.5 shall be substituted as follows:

- '8E704.a.5 Electric actuators (i.e., electromechanical, electrohydrostatic and integrated actuator package) specially designed for 'primary flight control';

Technical Note:

'Primary flight control' is "aircraft" stability or manoeuvring control using force/moment generators, i.e. aerodynamic control surfaces or propulsive thrust vectoring.'

128. The SCOMET entry 8E704.a.6 shall be substituted as follows:

'8E704.a.6 'Flight control optical sensor array' specially designed for implementing "active flight control systems"; or

Technical Note:

A 'flight control optical sensor array' is a network of distributed optical sensors, using "laser" beams, to provide real-time flight control data for on-board processing.'

129. In SCOMET 8E704.b.5, the existing Note shall be substituted as follows and a new Technical Note shall be inserted:

Note: 8E704.b.5 does not apply to:

1. "Technology" for integration of digital flight control, navigation and propulsion control data, into a digital flight management system for 'flight path optimisation';
2. "Technology" for "aircraft" flight instrument systems integrated solely for VOR, DME, ILS or MLS navigation or approaches.

Technical Note:

'Flight path optimisation' is a procedure that minimises deviations from a four-dimensional (space and time) desired trajectory based on maximising performance or effectiveness for mission tasks.'

130. The SCOMET entry 8E704.c.3 shall be substituted as follows:

'8E704.c.3 Rotor blades incorporating 'variable geometry airfoils', for use in systems using individual blade control.

Technical Note:

'Variable geometry airfoils' use trailing edge flaps or tabs, or leading edge slats or pivoted nose droop, the position of which can be controlled in flight.'

131. The SCOMET entry 8A902 shall be substituted as follows:

'8A902 'Marine gas turbine engines' designed to use liquid fuel and having all of the following, and specially designed assemblies and components therefor:

- a. Maximum continuous power when operating in "steady state mode" at standard reference conditions specified by ISO 3977-2:1997 (or national equivalent) of 24,245 kW or more; and
- 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 8A902, '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 42MJ/kg (ISO 3977-2:1997).'

132. The SCOMET entry 8A904.f shall be substituted as follows:

- '8A904.f Terrestrial equipment specially designed for "spacecraft", as follows:
1. Telemetry and telecommand equipment specially designed for any of the following data processing functions:
 - a. Telemetry data processing of frame synchronisation and error corrections, for monitoring of operational status (also known as health and safe status) of the "spacecraft bus"; or
 - 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 8A904.f.2, 'verification of operational procedures' is any of the following:

1. Command sequence confirmation;
2. Operational training;
3. Operational rehearsals; or
4. Operational analysis.'


133. SCOMET entry 8A911 shall be substituted as follows:

- '8A911 Ramjet/scramjet/pulse jet/'combined cycle engines', including devices to regulate combustion, and specially designed components therefor, usable in the systems specified in 5A101 or 5B.d or 5B.g

Technical Note:

In 8A911, 'combined cycle engines' are the engines that employ two or more cycles of the following types of engines: gas-turbine engine (turbojet, turboprop, turbofan and turbo shaft), ramjet, scramjet, pulse jet, pulse detonation engine, rocket motor (liquid/gel/solid-propellant and hybrid) '.

134. The SCOMET entry 8D901 shall be substituted as follows:

- '8D901 "Software", not specified in 8D903 or 8D904, specially designed or modified for the "development" of equipment or "technology", specified by 8A9, 8B9 or 8E903.'
- 

135. The SCOMET entry 8D902 shall be substituted as follows:

'8D902 "Software", not specified in 8D903 or 8D904, specially designed or modified for the "production" of equipment specified by 8A9 or 8B9.'

136. The SCOMET entry 8D904.b shall be substituted as follows:

'8D904.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 by 8E903.a, 8E903.h or 8E903.i; or
 - b. Multi-stage compressors providing either bypass or core flow, specially designed for aero gas turbine engines incorporating "technology" specified by 8E903.a or 8E903.h; and
2. Specially designed for all of the following:
 - a. Acquisition and processing of data, in real time; and
 - b. Feedback control of the test article or test conditions (e.g., temperature, pressure, flow rate) while the test is in progress;

Note: 8D904.b does not specify 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.

137. In the SCOMET entry 8E903.a.2, the existing Technical Note 2 shall be substituted as follows:

'Technical Note:

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.'

138. In SCOMET 8E903.a.5 the existing Technical Note 2 shall be deleted. The existing Technical Note 1 shall read as Technical Note.

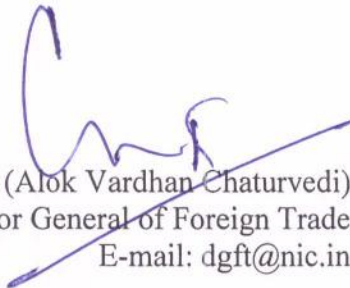
139. In SCOMET 8E903.c, the existing Technical Note 4 shall be substituted as follows:

'Technical Note:

4. Methods for manufacturing holes in 8E903.c include "laser" beam machining, water jet machining, Electro-Chemical Machining (ECM) or Electrical Discharge Machining (EDM).'

Effect of this Notification:-

Appendix 3 (SCOMET items) to Schedule - 2 of ITC (HS) Classification of Export and Import Items, 2018 has been amended.



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(Issued from F.No.01/91/171/37/AM10/EC)