

Abridged DSGI Index

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Part 2 – Dual Use List

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Part 1 – Munitions List		
Military platforms and components, weapons and ammunition, chemical and biological warfare agents, explosives, electronic systems and equipment, and software and technology.		
ML1	Smooth bore weapons calibre <20mm Other weapons calibre ≤ 12.7mm (calibre 0.50 inches) Components and accessories	29
ML2	Smooth bore weapons >20mm Other weapons calibre > 12.7mm (calibre 0.50 inches) Components and accessories	30
ML3	Ammunition and components for ML1, ML2 & ML12, Fuze settings for ML3	31
ML4	Bombs, torpedoes, rockets, missiles, other explosive devices and charges, components and accessories Equipment for handling, launching, deploying, decoying, disruption, detection or jamming etc.	31
ML5	Fire control systems, components and accessories and their countermeasure equipment; Radar, surveillance, tracking systems, and their countermeasure equipment	33
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ML7	Chemical or biological toxic agents, “riot control agents”, radioactive materials, related equipment, components and materials	34
ML8	“Energetic materials” (explosives & chemicals) and related substances	37
ML9	Vessels of war, special naval equipment, accessories, components and other surface vessels	47
ML10	Aircraft, unmanned airborne vehicles, aero-engines and aircraft equipment, and related equipment and components	49
ML11	Electronic equipment not specified elsewhere on the Munitions List specially designed for military use and components	51
ML12	High velocity kinetic energy weapon systems and related equipment and components	51
ML13	Armour plate, helmets, body armour and components	52
ML14	Simulators and training equipment Components and accessories	53
ML15	Imaging or countermeasure equipment, infrared, thermal imaging, image intensifier equipment and cameras Components and accessories	53
ML16	Forgings, castings and other unfinished products specially designed for any items specified by ML1 - ML4, ML6, ML9, ML10, ML12 or ML19	54

ML17	Miscellaneous goods, including diving equipment, robots, ferries, containers specially designed or modified for military use, goods treated for or providing signature suppression	54
ML18	Production and test equipment and components	55
ML19	Directed energy weapon systems, countermeasure and related equipment and test models (e.g. lasers and particle beam systems)	56
ML20	Cryogenic and superconductive equipment and specially designed components and accessories	57
ML21	Software for listed goods Software specially designed for military use, systems or in relation to other weapons (conventional, nuclear, chemical or biological)	58
ML22	Technology for listed goods Technology required for small arms (including reproductions of antique small arms)	58
Non-Military Lethal Goods		
ML901	Non-military firearms including rifles, carbines, muskets, pistols, revolvers, shotguns, and smooth bore weapons, not specified ML1 or ML2, and specially designed components	59
ML902	Ammunition, projectiles and specially designed components for firearms specified in ML901	59
ML904	Accessories, including silencers, mountings, magazines, sights and flash suppressors, for firearms specified in ML901	59
ML 905	Air guns with specific characteristics and specially designed components	59
ML908	“Energetic materials” other than those in ML8, excluding those specially formulated for toys, novelty goods and fireworks	59
ML909	Detonators or other equipment for the initiation of “energetic materials” specified in Item ML908	60
ML910	Charges and devices containing “energetic material” specified in ML908	60
Part 2 – Dual Use Goods		
Category 0 – Nuclear Materials, Facilities and Equipment		
Nuclear reactors, gas centrifuges, high-strength metals, equipment and materials especially designed for nuclear use.		
Systems, Equipment and Components	Nuclear reactors and specially designed or prepared equipment and components	64
Test Inspection and Production Equipment	Eg. Plant for the separation of isotopes of “natural uranium”, “depleted uranium” and “special fissile materials”, and specially designed or prepared equipment and components	65
Materials	Eg. Deuterium, heavy water (deuterium oxide), other compounds of deuterium or mixtures and solutions containing deuterium	76
Software	“Software” specially designed or modified for the “development”, “production” or “use” of goods specified in this Category	76

Technology	“Technology” for the “development”, “production” or “use” of goods specified in this Category	77
Category 1 – Materials, Chemicals, Microorganisms and Toxins		
Protective and detection equipment, body armour, precursor chemicals, toxins, casings, pump bodies, impellers and rotors, viruses, bacteria, protective and detection equipment, radiation shielding windows and metal powder production equipment.		
Systems, Equipment and Components	Eg. Components made from fluorinated compounds, “composite” structures or laminates, manufactures of non-“fusible” aromatic polyimides in film, sheet, tape or ribbon form	78
Test Inspection and Production Equipment	Eg. Equipment for the production of fibres, prepregs, preforms or “composites”; equipment for producing metal alloys; tools, dies, moulds or fixtures, for “superplastic forming” or “diffusion bonding” titanium, aluminium or their alloys	84
Materials	Eg. Materials specially designed for use as absorbers of electromagnetic waves, or intrinsically conductive polymers; fluids and lubricating materials; chemicals, which may be used as precursors for toxic chemical agents; human pathogens, zoonoses and “toxins”; animal pathogens; genetic elements and genetically modified organisms; plant pathogens; toxic chemicals and toxic chemical precursors	90
Software	Eg. “Software” for the “development” of organic “matrix”, metal “matrix” or carbon “matrix” laminates or “composites”; software specially designed for analysis of reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures	122
Technology	Eg. “Technology” for the “development” or “production” of polybenzothiazoles or polybenzoxazoles; fluoroelastomer compounds containing at least one vinyl ether monomer; base materials or non-“composite” ceramic materials; aromatic polyamide fibres	123
Category 2 – Materials Processing		
Machine tools for milling, computer numerical controlled machines and components; reaction vessels or reactors, agitators, storage tanks, containers, distillation or absorption columns, valves, multi-walled piping, multiple seal or seal-less pumps, crucibles, robots, vibration test systems, vacuum pumps, chemical processing and handling equipment.		
Systems, Equipment and Components	Eg. Anti-friction bearings and bearing systems; crucibles made of materials resistant to liquid actinide metals	126
Test Inspection and Production Equipment	Eg. Machine tools and any combination thereof, for removing (or cutting) metals, ceramics or “composites”, which, according to the manufacturer’s technical specification, can be equipped with electronic devices for “numerical control”, and specially designed components	127
Materials	None	152

Software	Eg. "Software" for electronic devices, even when residing in an electronic device or system, enabling such devices or systems to function as a "numerical control" unit, capable of co-ordinating simultaneously more than four axes for "contouring control"	152
Technology	Eg. "Technology" for the "development" of interactive graphics as an integrated part in "numerical control" units for preparation or modification of part programs; hydraulic stretch-forming machines and dies therefor, for the manufacture of airframe structures	153
Category 3 – Electronics		
Microwave components, acoustic wave devices, high-energy devices, switching devices, detonators, certain integrated circuits, spectrometers electronic detonators, integrated circuits, microwave power modules and mass spectrometers.		
Systems, Equipment and Components	Eg. "Microprocessor microcircuits", "microcomputer microcircuits", microcontroller microcircuits, storage integrated circuits manufactured from a compound semiconductor, analogue-to-digital converters, 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 control status of the equipment in which the integrated circuit will be used is unknown, Fast Fourier Transform (FFT) processors, electrical erasable programmable read-only memories (EEPROMs), flash memories or static random-access memories (SRAMs)	164
Test Inspection and Production Equipment	Eg. Equipment for the manufacturing of semiconductor devices; plasma enhanced Chemical Vapour Deposition (CVD) equipment	189
Materials	Eg. Hetero-epitaxial materials consisting of a "substrate" having stacked epitaxially grown multiple layers; organo-inorganic compounds; hydrides of phosphorus, arsenic or antimony; silicon carbide (SiC), gallium nitride (GaN), aluminium nitride (AlN) or aluminium gallium nitride (AlGaIn) "substrates", or ingots, boules, or other preforms of those materials	191
Software	Eg. 'Physics-based' simulation "software" specially designed for the "development" of lithographic, etching or deposition processes for translating masking patterns into specific topographical patterns in conductors, dielectrics or semiconductor materials	192
Technology	Eg. "Technology" for the "development" or "production" of a "microprocessor microcircuit", "microcomputer microcircuit" or microcontroller microcircuit core	193
Category 4 – Computers		
High-performance computers, related electronic assemblies and other specially-designed components, radiation hardened computers, neural and optical computers and related equipment.		

Systems, Equipment and Components	Eg. Electronic computers and related equipment and “electronic assemblies”; “digital computers”, “electronic assemblies” and related equipment and specially designed components; “systolic array computers”, “neutral computers”, “hybrid computers”, “optical computers”	196
Test Inspection and Production Equipment	None	198
Materials	None	198
Software	Eg. Software specifically designed or modified for the “development”, “production” or “use” of “digital computers” having an “adjusted peak performance” or “electronic assemblies” specifically designed or modified for enhancing performance by aggregation of processors	199
Technology	Eg. Technology specifically designed and modified for “digital computers” having an “adjusted peak performance” or “electronic assemblies” specifically designed or modified for enhancing performance by aggregation of processors	199
Category 5 – Telecommunications and Information Security		
<p><u>Part 1</u> – Telecommunications. Telecommunications systems, optical fibre cables, radio equipment, jamming equipment, and telemetry and telecontrol equipment. <u>Part 2</u> – Information Security (Cryptography). Cryptographic equipment and communications cables systems.</p>		
Part 1 – Telecommunications		
Systems, Equipment and Components	Eg. Telecommunications equipment specifically designed to withstand transitory electronic effects or electromagnetic pulse effects; equipment hardened to withstand gamma, neutron or ion radiation	202
Test Inspection and Production Equipment	Eg. A transmission wavelength exceeding 1750 nm; performing “optical amplification” using praseodymium-doped fluoride fibre amplifiers (PDFFA); employing coherent optical transmission or coherent optical detection techniques (also called optical heterodyne or homodyne techniques)	206
Materials	None	208
Software	Eg. “Software” specially designed or modified for the “development” of equipment employing a “laser”; radio equipment employing Quadrature-Amplitude-Modulation (QAM) techniques above level 256	208
Technology	Eg. “Required” “technology” for the “development” or “production” of telecommunications equipment specially designed to be used on board satellites; “laser” communication techniques with the capability of automatically acquiring and tracking signals and maintaining communications through exoatmosphere or sub-surface (water) media	208
Part 2 – Information Security		

Systems, Equipment and Components	Eg. Systems, equipment, application specific “electronic assemblies”, modules and integrated circuits for “information security”	214
Test Inspection and Production Equipment	Eg. Measuring equipment specially designed to evaluate and validate “information security”	217
Materials	None	218
Software	Eg. “Software” specially designed or modified for the “development”, “production” or “use” of goods specified in this Category	218
Technology	Eg. “Technology” for the “development”, “production” or “use” of goods specified in this Category	218
Category 6 – Sensors and Lasers		
Marine acoustic systems, hydrophones, high-speed cameras, optical mirrors and lasers, imaging cameras and magnetometers.		
Systems, Equipment and Components	Eg. Acoustic systems, equipment and components; marine acoustic systems, equipment and specially designed components; optical sensors or equipment and components; cameras, systems or equipment, and components	219
Test Inspection and Production Equipment	Eg. Optical equipment; equipment to produce, align and calibrate land-based gravity meters with a static accuracy of better than 0.1 mgal; pulse radar cross-section measurement systems; systems, specially designed for radar cross section measurement usable for “missiles” and their subsystems	259
Materials	Eg. Optical sensor materials; single crystals (including epitaxial wafers); synthetic crystalline “laser” host material in unfinished form	259
Software	Eg. “Software” specially designed for acoustic beam forming for the “real time processing” of acoustic data for passive reception using towed hydrophone arrays	261
Technology	Eg. Optical surface coating and treatment “technology”, “required” to achieve an ‘optical thickness’ uniformity of 99.5% or better for optical coatings 500 mm or more in diameter; “technology” “required” for the “development”, “production” or “use” of specially designed diagnostic instruments or targets in test facilities for “SHPL” testing or testing or evaluation of materials irradiated by “SHPL” beams	263
Category 7 – Navigation and Avionics		
Gyros, accelerometers, inertial navigation systems, flight control systems, equipment used in oceanographic and hydrographic surveying, encrypted global positioning systems.		
Systems, Equipment and Components	Eg. Accelerometers; gyros or angular rate sensors; inertial systems; gyro-astro compasses and other devices which derive position or orientation by means of automatically tracking celestial bodies or satellites, with an azimuth accuracy of equal to or less (better) than 5 seconds of arc	264

Test Inspection and Production Equipment	Eg. Test, calibration or alignment equipment; equipment specially designed to characterise mirrors for ring “laser” gyros; reflectometers specially designed to characterise mirrors, for “laser” gyros	271
Materials	None	272
Software	Eg. “Source code” for the “use” of any inertial navigation equipment; “source code” for hybrid integrated systems which improves the operational performance or reduces the navigational error of systems	272
Technology	Eg. Airborne automatic direction finding equipment; “development” “technology” for “active flight control Systems”; “technology” for the integration of the flight control, guidance, and propulsion data into a flight management system for optimisation of rocket system trajectory	274
Category 8 – Marine		
Submersible vehicles, underwater vision systems, photographic still cameras, remotely controlled manipulators, noise reduction systems and air independent power systems.		
Systems, Equipment and Components	Eg. Submersible vehicles and surface vessels; marine systems, equipment and components	277
Test Inspection and Production Equipment	Eg. Water tunnels having a background noise of less than 100 dB (reference 1 µPa, 1 Hz), in the frequency range from 0 to 500 Hz and designed for measuring acoustic fields generated by a hydro-flow around propulsion system models	284
Materials	Eg. ‘Syntactic foam’ designed for underwater use	284
Software	Eg. Specific “software” specially designed or modified for the “development”, “production”, repair, overhaul or refurbishing (re-machining) of propellers specially designed for underwater noise reduction	284
Technology	Eg. “Technology” for the “development”, “production”, repair, overhaul or refurbishing (re-machining) of propellers specially designed for underwater noise reduction	284
Category 9 – Aerospace and Propulsion		
Aero and marine gas turbine engines, liquid rocket propulsion systems, unmanned aerial vehicles, hybrid rocket motors, missiles, re-entry vehicles, UAVs, rocket motors, ramjet engines, sounding rockets and acoustic vibration test equipment.		
Systems, Equipment and Components	Eg. Aero gas turbine engines; ‘marine gas turbine engines’; space launch vehicles and “spacecraft”; liquid rocket propulsion systems; solid rocket propulsion systems; spraying or fogging systems	285
Test Inspection and Production Equipment	Eg. Equipment, tooling and fixtures, specially designed for manufacturing gas turbine blades, vanes or tip shroud castings; on-line (real time) control systems, instrumentation (including sensors) or automated data acquisition and processing equipment	293

Materials	Eg. "Insulation" material in bulk form and "interior lining", for rocket motor cases usable in "missiles" or specially designed for "missiles"; resin impregnated fibre prepregs and metal coated fibre preforms for composite structures, laminates and manufactures, made either with organic matrix or metal matrix utilising fibrous or filamentary reinforcements	296
Software	Eg. "Software" specially designed to control directional solidification or single crystal casting; "software" specially designed to design the internal cooling passages of aero gas turbine blades, vans and tip shrouds	297
Technology	Eg. "Technology" "required" for the "development" or "production" of helicopter power transfer systems or tilt rotor or tilt wing "aircraft" power transfer systems	298

Note 1 – Each of the above Dual-Use Goods categories (0-9), has the following divisions:

- A – Systems, Equipment and Components
- B – Test, Inspection and Production Equipment
- C – Materials
- D – Software
- E – Technology

Note 2 – Materials, software and technology related to controlled goods are also controlled.

Note 3 – Terms with specific meaning are enclosed in double quotation marks where they appear throughout the DSG. An index of these terms appears in the front pages of the DSG.