CATEGORY 9—PROPULSION SYSTEMS, SPACE VEHICLES AND RELATED EQUIPMENT

A. Systems, Equipment and Components

(For propulsion systems designed or rated against neutron or transient ionizing radiation, see the U.S. Munitions List, 22 CFR part 121.)

9A001 Aero gas turbine engines incorporating any of the "technologies" controlled by 9E003.a, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies to only to those engines that meet the characteristics listed in 9A101	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions

LVS: N/A

GBS: N/A

CIV: N/A

List of Items Controlled

Unit: Equipment in number; parts and accessories in $ value

Related Controls: See also 9A101 and 9A991

Related Definitions: N/A

Items:

a. Not certified for the specific ''civil aircraft'' for which they are intended;

Note: For the purpose of the ''civil aircraft'' certification process, a number of up to 16 civil certified engines, assemblies, or components including spares is considered appropriate.

b. Not certified for civil use by the aviation authorities in Country Group A:1;

c. Designed to cruise at speeds exceeding Mach 1.2 for more than thirty minutes.

9A002 Marine gas turbine engines with an ISO standard continuous power rating of 24,245 kW or more and a specific fuel consumption not exceeding 0.219 kg/kWh in the power range from 35 to 100%, and specially designed assemblies and components therefor.

License Requirements

Reason for Control: NS, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

License Exceptions

LVS: $5,000

GBS: N/A

CIV: N/A

List of Items Controlled

Unit: Number

Related Controls: N/A

Related Definition: 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

Items: The list of items controlled is contained in the ECCN heading.

9A003 Specially designed assemblies and components, incorporating any of the "technologies" controlled by 9E003.a, for gas turbine engine propulsion systems, as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

License Exceptions

LVS: $5,000

GBS: N/A

CIV: N/A

List of Items Controlled

Unit: Number

Related Controls: N/A

Related Definition: N/A

Items:

a. Controlled by 9A001;

b. Whose design or production origins are either countries in Country Group D:1 or unknown to the manufacturer.

9A004 Space launch vehicles and "spacecraft".

License Requirements

Reason for Control: NS, SI, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
SI applies to commercial communications satellites controlled by 9A004 that include the individual munitions list systems, components, or parts identified on the United States Munitions List (USML). 22 CFR part 121. See §742.14 of the EAR for additional information.	
AT applies to entire entry	AT Column 1

License Exceptions

LVS: N/A

GBS: N/A

CIV: N/A

List of Items Controlled

Unit: Equipment in number; components, parts and accessories in $ value

Related Controls: (1) See also 9A104 (2) This entry describes space launch vehicles (not including their payloads) and other ''spacecraft''. (3) Commercial communications satellites are subject to Commerce licensing jurisdiction even if they include the individual munitions list systems, components, or parts identified on the United States Munitions List (USML). In all other cases, these systems, components, or parts remain on the USML, except that satellite fuel, ground support equipment, test equipment, payload adapter/interface hardware, replacement parts for the preceding items, and non-embedded, solid propellant orbit transfer orbit transfer engines (''kick motors'') are subject to Commerce licensing jurisdiction (and not controlled on the USML) when they are to be utilized for the specific commercial communications satellite launch, provided the solid propellant ''kick motor'' being utilized is not specifically designed or modified for military use or capable of being restarted after achievement of mission orbit (such orbit transfer engines are always controlled on USML). Technical data (as defined in 120.10 of the International Traffic in Arms Regulations (ITAR)) and defense services (as defined in 120.9 of the ITAR) related to the systems, components, or parts on the USML are always controlled under the USML, even when the satellite itself is licensed by the Department of Commerce. (4) Military communications satellites or multi-mission satellites, including commercial communications satellites having additional non-communication mission(s) or payload(s) are under the jurisdiction of the Department of State. (5) Other ''spacecraft'' not subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls under 22 CFR part 121. This entry includes the international space station being developed, launched and operated under the supervision of the U.S. National Aeronautics and Space Administration. Exporters requesting a license from the Department of Commerce for spacecraft other than the international space station or a commercial communications satellite specified in 9A004 must provide a statement from the Department of State, Office of Defense Trade Controls, verifying that the item intended for export is under the licensing jurisdiction of the Department of Commerce. (6) All other spacecraft, including all other satellites not controlled under 9A004 and components, parts, accessories, attachments, associated equipment, and ground support equipment therefor are subject to the export licensing authority of the Department of State. (7) Items on the USML that are included in a commercial communications satellite to be exported under a Commerce license must be specifically listed on the Commerce license application. Such items when not included in a specific commercial communications satellite are under the jurisdiction of the

Department of State. (8) Technical data provided to the launch provider (form, fit, function, mass, electrical, mechanical, dynamic/environmental, telemetry, safety, facility, launch pad access, and launch parameters) for commercial communications satellites that describe the interfaces for mating of the satellite to the launch vehicle and parameters for launch (e.g. orbit, timing) of the satellite, are under Commerce jurisdiction. Other technical data and all defense services and technical assistance for satellite and/or launch vehicles, including compatibility, integration, or processing data are controlled and subject to licensing by the Department of State, in accordance with 22 CFR parts 120 through 130. Approval for such technical assistance will require a Technical Assistance Agreement (TAA) and may require U.S. Government oversight. (9) Once a satellite is launched, items remaining unlaunched are required to be returned immediately to the United States. If the satellite launch is canceled or unduly delayed, the satellite and all support equipment must be returned immediately to the United States. (10) Detailed design, development, production, or manufacturing data for all spacecraft, including satellites, regardless of which agency has jurisdiction over the export, and all systems components, parts, accessories, attachments, and associated equipment (including ground support equipment) specifically designed or modified for articles on the USML (including software source code and operating algorithms) are subject to licensing by the Department of State. This does not include that level of technical data (including marketing data) necessary and reasonable for a purchaser to have assurance that a U.S.-built item intended to operate in space has been designed, manufactured and tested in conformance with specified contract requirements (e.g., operational performance, reliability, lifetime, product quality, or delivery expectations) as well as data necessary for normal in-orbit satellite operations, to evaluate in-orbit anomalies, and to operate and maintain associated ground station equipment (except encryption hardware). (11) For the control status of products contained in ''spacecraft'' payloads, see the appropriate categories

Related Definitions: Transferring registration or operational control to any foreign person of any commercial communications satellite controlled by this entry must be authorized on a license issued by the Bureau of Export Administration. This requirement applies whether the commercial communications satellite is physically located in the United States or abroad

Items: The list of items controlled is contained in the ECCN heading.

9A005 Liquid rocket propulsion systems containing any of the systems or components controlled by 9A006. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A006 Systems and components specially designed for liquid rocket propulsion systems. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A007 Solid rocket propulsion systems. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A008 Components specially designed for solid rocket propulsion systems. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A009 Hybrid rocket propulsion systems. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A010 Specially designed components, systems and structures for launch vehicles, launch vehicle propulsion systems or "spacecraft". (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A011 Ramjet, scramjet or combined cycle engines and specially designed components therefor. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A018 Equipment on the International Munitions List.

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	Country chart
NS applies to entire entry	NS Column 1
RS applies to 9A018.a and b	RS Column 2
AT applies to entire entry	AT Column 1
UN applies to entire entry	Rwanda; Federal Republic of Yugoslavia (Serbia and Montenegro)

License Exceptions

LVS: $1,500, except N/A for Rwanda and for the Federal Republic of Yugoslavia (Serbia and Montenegro)

GBS: N/A

CIV: N/A

List of Items Controlled

Unit: Equipment in number; parts and accessories in $ value

Related Controls: (a) Parachute systems designed for use in dropping military equipment, braking military aircraft, slowing spacecraft descent, or retarding weapons delivery; AND (b) Instrument flight trainers for combat simulation are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121, Category VIII.)

Related Definition: This entry controls parachute systems designed for use in dropping personnel only.

Items:

a. Military trainer aircraft bearing ''T'' designations:

a.1. Using reciprocating engines; *or*

a.2. Turbo prop engines with less than 600 horsepower (h.p.);

a.3. T-37 model jet trainer aircraft; and

a.4. Specially designed component parts.

b. Vehicles specially designed or modified for military purposes. (See §770, Interpretation 8)

c. Pressure refuelers, pressure refueling equipment, and equipment specially designed to facilitate operations in confined areas; and ground equipment, n.e.s, developed specially for military aircraft and helicopters, and specially designed parts and accessories, n.e.s.;

d. Pressurized breathing equipment specially designed for use in military aircraft and helicopters;

e. Military parachutes and complete canopies, harnesses, and platforms and electronic release mechanisms therefor, except such types as are in normal sporting use;

f. Military instrument flight trainers, except for combat simulation; and components, parts, attachments and accessories specially designed for such equipment.

9A101 Lightweight turbojet and turbofan engines (including turbocompound engines) usable in "missiles", other than those controlled by 9A001, as follows (see List of Items Controlled).

License Requirements

Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions

LVS: N/A

GBS: N/A

CIV: N/A

List of Items Controlled

Unit: Equipment in number; parts and accessories in $ value

Related Controls: (1) Items controlled in 9A101.b are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121). (2) Engines designed or modified for missiles (except engines for non-military unmanned air vehicles [UAVs] or remotely piloted vehicles [RPVs]), regardless of thrust or specific fuel consumption, are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.)

Related Definitions: N/A
Items:
a. Engines having both of the following characteristics:
a.1. Maximum thrust value greater than 1000 N (achieved un-installed) excluding civil certified engines with a maximum thrust value greater than 8,890 N (achieved un-installed), and
a.2. Specific fuel consumption of 0.13 kg/N/hr or less (at sea level static and standard conditions); or
b. Engines designed or modified for use in ''missiles''.

9A104 Sounding rockets, capable of a range of at least 300 km. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A105 Liquid propellant rocket engines. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A106 Liquid rocket propulsion systems or components, other than those controlled by 9A006, usable in rockets with a range capability of 30 Km or greater, as follows (see List of Items Controlled).
License Requirements
Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Equipment and components in number; parts and accessories in $ value
Related Controls: Items described in 9A106.a, .b, and .c are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (See 22 CFR part 121)
Related Definitions: N/A
Items:
a. Ablative liners for thrust or combustion chambers;
b. Rocket nozzles;
c. Thrust vector control sub-systems;

Technical Note: Examples of methods of achieving thrust vector control controlled by 9A106.c includes:

1. Flexible nozzle;

2. Fluid or secondary gas injection;

3. Movable engine or nozzle;

4. Deflection of exhaust gas steam (jet vanes or probes); *or*

5. Thrust tabs.

d. Liquid and slurry propellant (including oxidizers) control systems, and specially designed components therefor, designed or modified to operate in vibration environments of more than 10 g rms between 20 Hz and 2000 Hz.

Note: The only servo valves and pumps controlled by 9A106.d, are the following:

a. Servo valves designed for flow rates of 24 liters per minute or greater, at an absolute pressure of 7 Mpa or greater, that have an actuator response time of less than 100 ms;

b. Pumps, for liquid propellants, with shaft speeds equal to or greater than 8,000 rpm or with discharge pressures equal to or greater than 7 Mpa.

9A107 Solid propellant rocket engines, usable in rockets with a range capability of 300 Km or greater, other than those controlled by 9A007, having total impulse capacity of 0.841 Mns or greater. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A108 Solid rocket propulsion components, other than those controlled by 9A008, usable in rockets with a range capability of 300 Km or greater. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A109 Hybrid rocket motors, usable in rockets with a range capability of 300 Km or greater, other than those controlled by 9A009, and specially designed components therefor. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A110 Composite structures, laminates and manufactures thereof, other than those controlled by entry 9A010, specially designed for use in "missiles" or the subsystems controlled by entries 9A005, 9A007, 9A105.a, 9A106 to 9A108, 9A116 or 9A119, and resin impregnated fiber prepregs and metal coated fiber preforms therefor, made either with organic matrix or metal matrix utilizing fibrous or filamentary reinforcements having a specific tensile strength greater than $7.62x10^4$ m and a specific modulus greater than $3.18x10^6$ m.
License Requirements
Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Kilograms
Related Controls: (1) See also 1A002, 1C010, and 1C210. (2) The only resin impregnated fiber prepregs controlled by entry 9A110 are those using resins with a glass transition temperature (T_g), after cure, exceeding 418 K (145°C) as determined by ASTM D4065 or equivalents. (3) ''Composite structures, laminates, and manufactures thereof, specially designed for use in missile systems are under the licensing authority of the Office of Defense Trade Controls, U.S. Department of State, except those specially designed for non-military unmanned air vehicles controlled in 9A120
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9A111 Pulse jet engines, usable in "missiles", and specially designed components therefor. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A115 Launch support equipment, designed or modified for "missiles". (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A116 Reentry vehicles, usable in "missiles", and equipment designed or modified therefor. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A117 Staging mechanisms, separation mechanisms, and interstages, usable in "missiles". (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A118 Devices to regulate combustion usable in engines which are usable in rockets with a range capability greater than 300 Km or greater, controlled by 9A011 or 9A111. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A119 Individual rocket stages, usable in rockets with a range capability greater than 300 Km or greater, other than those controlled by 9A005, 9A007, 9A009, 9A105, 9A107 and 9A109.

(These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9A120 Non-military unmanned air vehicle systems (UAVs) and remotely piloted vehicles (RPVs) that are capable of a maximum range of at least 300 kilometers (km), regardless of payload.

License Requirements
Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Equipment in number; parts and accessories in $ value
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9A980 Nonmilitary mobile crime science laboratories; and parts and accessories, n.e.s.

License Requirements
Reason for Control: CC

Control(s)	Country Chart
CC applies to entire entry	CC Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9A990 Diesel engines, n.e.s., and tractors and specially designed parts therefor, n.e.s.

License Requirements
Reason for Control: AT

Control(s)	Country Chart
AT applies to entire entry except 9A990.a	AT Column 1
AT applies to 9A990.a only	AT Column 2

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items:

a. Diesel engines, n.e.s., for trucks, tractors, and automotive applications of continuous brake horsepower of 400 BHP (298 kW) or greater (performance based on SAE J1349 standard conditions of 100 Kpa and 25°)

b. Off highway wheel tractors of carriage capacity 9 mt (20,000 lbs) or more; and parts and accessories, n.e.s.

c. On-Highway tractors, with single or tandem rear axles rated for 9 mt per axel (20,000 lbs.) or greater and specially designed parts.

9A991 "Aircraft", n.e.s., and gas turbine engines not controlled by 9A001 or 9A101 and parts and components, n.e.s.

License Requirements
Reason for Control: AT, UN

Control(s)	Country chart
AT applies to entire entry	AT Column 1
UN applies to 9A991.a	Rwanda; Federal Republic of Yugoslavia (Serbia and Montenegro)

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Number
Related Controls: N/A
Related Definitions: N/A
Items:

a. Military aircraft, demilitarized (not specifically equipped or modified for military operation), as follows:

a.1. Cargo, ''C-45 through C-118'' inclusive, and ''C-121,''

a.2. Trainers, bearing a ''T'' designation and using piston engines,

a.3. Utility, bearing a ''U'' designation and using piston engines,

a.4. Liaison, bearing an ''L'' designation, and

a.5. Observation, bearing an ''O'' designation and using piston engines;

b. Civil aircraft; *and*

Note: Specify make and model of aircraft and type of avionic equipment on aircraft.

c. Aero gas turbine engines, and specially designed parts therefor.

Note: 9A991.c does not control aero gas turbine engines that are destined for use in civil ''aircraft'' and that have been in use in bona fide civil ''aircraft'' for more than eight years.

d. Aircraft parts and components, n.e.s.

e. Pressurized aircraft breathing equipment, n.e.s.; and specially designed parts therefor, n.e.s.

9A992 Complete canopies, harnesses, and platforms and electronic release mechanisms therefor, except such types as are in normal sporting use.

License Requirements
Reason for Control: AT

Control(s)	Country Chart
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Number
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlledis contained in the ECCN heading.

B. Test, Inspection and Production Equipment

9B001 Specially designed equipment, tooling and fixtures, as follows (see List of Items Controlled), for manufacturing or measuring gas turbine blades, vanes or tip shroud castings.

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies only to equipment for engines that meet the characteristics described in 9A001	MT Column 1
AT applies to entire entry	AT Column 1

License Requirement Notes: See §743.1 of the EAR for reporting requirements for exports under License Exceptions.
License Exceptions
LVS: $5,000, except N/A for MT
GBS: Yes, except N/A for MT
CIV: Yes, except N/A for MT
List of Items Controlled
Unit: $ value
Related Controls: For specially designed production equipment of systems, sub-systems and components controlled by 9A005 to 9A009, 9A011, 9A101, 9A105 to 9A109, 9A111, and 9A116 to 9A119 usable in ''missiles'' see 9B115. See also 9B991
Related Definitions: N/A
Items:
a. Directional solidification or single crystal casting equipment;
b. Ceramic cores or shells;
c. Ceramic core manufacturing equipment or tools;
d. Ceramic shell wax pattern preparation equipment.

9B002 On-line (real time) control systems, instrumentation (including sensors) or automated data acquisition and processing equipment, specially designed for the "development" of gas turbine engines, assemblies or components incorporating "technologies" controlled by 9E003.a.

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies only to equipment for engines that meet the characteristics described in 9A001	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: $3,000, except N/A for MT
GBS: Yes, except N/A for MT
CIV: Yes, except N/A for MT
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B003 Equipment specially designed for the "production" or test of gas turbine brush seals designed to operate at tip speeds exceeding 335 m/s, and temperatures in excess of 773 K (500 C), and specially designed components or accessories therefor.

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies only to equipment for engines that meet the characteristics described in 9A001	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: $5,000, except N/A for MT
GBS: Yes, except N/A for MT
CIV: Yes, except N/A for MT
List of Items Controlled
Unit: $ value
Related Controls: See also 9B115
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B004 Tools, dies or fixtures for the solid state joining of "superalloy", titanium or intermetallic airfoil-to-disk combinations described in 9E003.a.3 or 9E003.a.6 for gas turbines.

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies only to equipment for engines that meet the characteristics described in 9A001	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: $3,000, except N/A for MT
GBS: Yes, except N/A for MT
CIV: Yes, except N/A for MT
List of Items Controlled
Unit: Number
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B005 On-line (real time) control systems, instrumentation (including sensors) or automated data acquisition and processing equipment, specially designed for use with any of the following wind tunnels or devices (see List of Items Controlled).

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: See also 9B105
Related Definitions: N/A
Items:
a. Wind tunnels designed for speeds of Mach 1.2 or more, except those specially designed for educational purposes and having a test section size (measured laterally) of less than 250 mm;

Technical Note: Test section size in 9B005.a means the diameter of the circle, or the side of the square, or the longest side of the rectangle, at the largest test section location.

b. Devices for simulating flow-environments at speeds exceeding Mach 5, including hot-shot tunnels, plasma arc tunnels, shock tubes, shock tunnels, gas tunnels and light gas guns; *or*
c. Wind tunnels or devices, other than two-dimensional sections, capable of simulating Reynolds number flows exceeding $25x10^6$.

9B006 Acoustic vibration test equipment capable of producing sound pressure levels of 160 Db or more (referenced to 20 uPa) with a rated output of 4 kW or more at a test cell temperature exceeding 1,273 K (1,000 C), and specially designed quartz heaters therefor.

License Requirements
Reason for Control: NS, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

License Exceptions
LVS: $3,000
GBS: Yes
CIV: Yes
List of Items Controlled
Unit: Number
Related Controls: See also 9B106. Note that some items in 9B006 may also be controlled under 9B106
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B007 Equipment specially designed for inspecting the integrity of rocket motors using non-destructive test (NDT) techniques other than planar X-ray or basic physical or chemical analysis.

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Number
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B008 Transducers specially designed for the direct measurement of the wall skin friction of the test flow with a stagnation temperature exceeding 833 K (560 C).

License Requirements
Reason for Control: NS, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

License Exceptions
LVS: $5,000
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Number
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B009 Tooling specially designed for producing turbine engine powder metallurgy rotor components capable of operating at stress levels of 60% of ultimate tensile strength (UTS) or more and metal temperatures of 873 K (600 C) or more.

License Requirements
Reason for Control: NS, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 2
AT applies to entire entry	AT Column 1

License Exceptions
LVS: $5,000
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: Equipment in number; parts and accessories in $ value
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B105 Wind tunnels for speeds of Mach 0.9 or more, usable for "missiles" and their subsystems.

License Requirements
Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: See also 9B005
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B106 Environmental chambers and anechoic chambers, as follows (see List of Items Controlled).

License Requirements
Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items:
a. Environmental chambers capable of simulating the following flight conditions:
a.1. Altitudes of 15,000 m or greater; *or*
a.2. Temperature of at least 223 K (-50°C) to 398 K (+125°C) and vibration environments of 10 g rms or greater between 20 Hz and 2,000 Hz and imparting forces of 5 Kn or greater.
b. Anechoic chambers capable of simulating the following flight conditions:
b.1. Altitudes of 15,000 m or greater; or
b.2. Temperature of at least 223 K (50°C) to 398 K (+125°C) and acoustic environments at an overall sound pressure level of 140 Db or greater (referenced to 20 microPa) or with a rated power output of 4 kW or greater.

9B115 Specially designed "production equipment" for the systems, sub-systems and components controlled by 9A005 to 9A009, 9A011, 9A101, 9A105 to 9A109, 9A111, 9A116 to 9A119. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9B116 Specially designed "production facilities" for the systems, sub-systems, and components controlled by 9A004 to 9A009, 9A011, 9A101, 9A104 to 9A109, 9A111, 9A116 to 9A119. (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

9B117 Test benches and test stands for solid or liquid propellant rockets or rocket motors, having either of the following characteristics (see List of Items Controlled).

License Requirements
Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: See also 9B990
Related Definitions: N/A
Items:
a. The capacity to handle more than 90 Kn of thrust; *or*
b. Capable of simultaneously measuring the three axial thrust components.

9B990 Vibration test equipment and specially designed parts and components, n.e.s. License Requirements

Reason for Control: AT

Control(s)	Country Chart
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9B991 Specially designed equipment, tooling or fixtures, not controlled by 9B001, as described in the List of Items Controlled, for manufacturing or measuring gas turbine blades, vanes or tip shroud castings.

License Requirements
Reason for Control: AT

Control(s)	Country Chart
AT applies to entire entry	AT Column 1

License Exceptions
LVS: N/A
GBS: N/A
CIV: N/A
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items:
a. Automated equipment using non-mechanical methods for measuring airfoil wall thickness;
b. Tooling, fixtures or measuring equipment for the ''laser'', water jet or ECM/EDM hole drilling processes controlled by 9E003.c;
c. Ceramic core leaching equipment;
d. Ceramic shell burn out or firing equipment.

C. Materials [Reserved]

D. Software

9D001 "Software" required for the "development" of equipment or "technology" controlled by 9A (except 9A018, 9A990 or 9A991), 9B (except 9B990 or 9B991) or 9E003.

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to ''software'' for items controlled by 9A001 to 9A003, 9B001 to 9B009, 9E003	NS Column 1
MT applies to ''software'' for equipment controlled by 9A001, 9A101, 9A106, 9A110, 9A120, 9B001, 9B002, 9B003, 9B004, 9B005, 9B007, 9B105, 9B106, 9B116, and 9B117 for MT reasons	MT Column 1
AT applies to entire entry	AT Column 1

License Requirement Notes: See §743.1 of the EAR for reporting requirements for exports under License Exceptions.
License Exceptions
CIV: N/A
TSR: N/A
List of Items Controlled
Unit: $ value
Related Controls: (1) See also 9D101. (2) ''Software'' ''required'' for the ''development'' of items controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (3) ''Software'' ''required'' for the ''development'' of equipment or ''technology'' subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls is also subject to the same licensing jurisdiction. (See 22 CFR part 121.)
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9D002 "Software" required for the "production" of equipment controlled by 9A (except 9A018, 9A990 or 9A991) or 9B (except 9B990 or 9B991).

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to ''software'' for equipment controlled by 9A001 to 9A003 or 9B001 to 9B009	NS Column 1
MT applies to ''software'' for equipment controlled by 9A001, 9A101, 9A106, 9A110, 9A120, 9B001, 9B002, 9B003, 9B004, 9B005, 9B007 9B105, 9B106, 9B116, and 9B117 for MT reasons	MT Column 1
AT applies to entire entry	AT Column 1

License Requirement Notes: See §743.1 of the EAR for reporting requirements for exports under License Exceptions.
License Exceptions
CIV: N/A
TSR: N/A
List of Items Controlled
Unit: $ value
Related Controls: (1) ''Software'' ''required'' for the ''production'' of items controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (2) ''Software'' ''required'' for the ''production'' of equipment or ''technology'' subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls is also subject to the same licensing jurisdiction. (See 22 CFR part 121.)
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9D003 "Software" required for the "use" of full authority digital electronic engine controls (FADEC) for propulsion systems controlled by 9A (except 9A018, 9A990 or 9A991) or equipment controlled by 9B (except 9B990 or 9B991), as follows (see List of Items Controlled).

License Requirements
Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to ''software'' for ''use'' of FADEC for equipment controlled by 9A001 to 9A003	NS Column 1
MT applies to ''software'' required for the ''use'' of FADEC for gas turbine engines controlled by 9A101, 9A106, or 9A110	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions
CIV: Yes, except N/A for MT
TSR: Yes, except N/A for MT
List of Items Controlled
Unit: $ value
Related Controls: (1) See also 9D103. (2) ''Software'' ''required'' for the ''use'' of items controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (3) ''Software'' ''required'' for the ''use'' of equipment or ''technology'' subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls is also subject to the same licensing jurisdiction. (See 22 CFR part 121.)
Related Definitions: N/A
Items:
a. ''Software'' in digital electronic controls for propulsion systems, aerospace test facilities or air breathing aero-engine test facilities;

control are: technical data, drawings or documentation for maintenance activities directly associated with calibration, removal or replacement of damaged or unserviceable line replaceable units, including replacement of whole engines or engine modules.

9E001 "Technology" according to the General Technology Note for the "development" of equipment or "software" controlled by 9A001.c, 9A004 to 9A011, 9B (except 9B990 or 9B991), or 9D (except 9D990 or 9D991).

License Requirements

Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to "technology" for items controlled by 9A001.c, 9B001 to 9B009, 9D001 to 9D004 ..	NS Column 1
MT applies to "technology" for items controlled by 9B001, 9B002, 9B003, 9B004 9B005, 9B007, 9B105, 9B106, 9B116, 9B117, 9D001, 9D002, 9D003, and 9D004 for MT reasons	MT Column 1
AT applies to entire entry	AT Column 1

License Requirement Notes: See §743.1 of the EAR for reporting requirements for exports under License Exceptions.

License Exceptions

CIV: N/A

TSR: N/A

List of Items Controlled

Unit: N/A

Related Controls: (1) See also 9E101 and 1E002.f (for controls on "technology" for the repair of controlled structures, laminates or materials). (2) The "technology" required for the "development" of equipment controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (3) "Technology", required for the "development" of equipment or "software" subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls, is also subject to the same licensing jurisdiction. (See 22 CFR part 121)

Related Definitions: "Development" or "production" "technology" controlled by 9E for gas turbine engines remains controlled when used as "use" "technology" for repair, rebuild and overhaul. Excluded from control are: technology, drawings or documentation for maintenance activities directly associated with calibration, removal or replacement of damaged or unserviceable line replaceable units, including replacement of whole engines or engine modules

Items: The list of items controlled is contained in the ECCN heading.

9E002 "Technology" according to the General Technology Note for the "production" of equipment controlled by 9A001.c, 9A004 to 9A011 or 9B (except 9B990 or 9B991).

License Requirements

Reason for Control: NS, MT, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
MT applies to "technology" for equipment controlled by 9B001, 9B002, 9B003, 9B004, 9B005, 9B007, 9B105, 9B106, 9B116, and 9B117 for MT reasons	MT Column 1
AT applies to entire entry	AT Column 1

License Requirement Notes: See §743.1 of the EAR for reporting requirements for exports under License Exceptions.

License Exceptions

CIV: N/A

TSR: N/A

List of Items Controlled

Unit: N/A

Related Controls: (1) See also 9E102. (2) The "technology" required for the "development" of equipment controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (3) "Technology", required for the "development" of equipment or "software" subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls, is also subject to the same licensing jurisdiction. (See 22 CFR part 121)

Related Definitions: N/A

Items: The list of items controlled is contained in the ECCN heading.

9E003 Other "technology", as follows (see List of Items Controlled).

License Requirements

Reason for Control: NS, SI, AT

Control(s)	Country Chart
NS applies to entire entry	NS Column 1
SI applies to 9E003.a.1 through a.12 and f. See § 742.14 of the EAR for additional information	
AT applies to entire entry	AT Column 1

License Requirement Notes: See §743.1 of the EAR for reporting requirements for exports under **License Exceptions**.

License Exceptions

CIV: N/A

TSR: N/A

List of Items Controlled

Unit: N/A

Related Controls: (1) Hot section "technology" specifically designed, modified, or equipped for military uses or purposes, or developed principally with U.S. Department of Defense funding, is subject to the licensing authority of the U.S. Department of State. (2) "Technology" is subject to the EAR when actually applied to a commercial aircraft engine program. Exporters may seek to establish commercial application either on a case-by-case basis through submission of documentation demonstrating application to a commercial program in requesting an export license from the Department Commerce in respect to a specific export, or in the case of use for broad categories of aircraft, engines, or components, a commodity jurisdiction determination from the Department of State.

Related Definitions: N/A

Items:

a. "Technology" "required" for the "development", "production", or overhaul of the following commercial aircraft engines, components or systems:

a.1. Gas turbine blades, vanes or tip shrouds made from directionally solidified (DS) or single crystal (SC) alloys having (in the 001 Miller Index Direction) a stress-rupture life exceeding 400 hours at 1,273 K (1,000°C) at a stress of 200 MPa, based on the average property values;

a.2. Multiple domed combustors operating at average burner outlet temperatures exceeding 1,643 K (1,370°C) or combustors incorporating thermally decoupled combustion liners, non-metallic liners or non-metallic shells;

a.3. Components manufactured from organic "composite" materials designed to operate above 588 K (315°C), or from metal "matrix" "composite", ceramic "matrix", intermetallic or intermetallic reinforced materials controlled by 1A002 or 1C007;

a.4. Uncooled turbine blades, vanes, tip-shrouds or other components designed to operate at gas path temperatures of 1,323 K (1,050°C) or more;

a.5. Cooled turbine blades, vanes or tip-shrouds, other than those described in 9E003.a.1, exposed to gas path temperatures of 1,643 K (1,370°C) or more;

a.6. Airfoil-to-disk blade combinations using solid state joining;

a.7. Gas turbine engine components using "diffusion bonding" "technology" controlled by 2E003.b;

a.8. Damage tolerant gas turbine engine rotating components using powder metallurgy materials controlled by 1C002.b;

a.9. Full authority digital electronic engine control (FADEC) for gas turbine and combined cycle engines and their related diagnostic components, sensors and specially designed components;

a.10. Adjustable flow path geometry and associated control systems for:

a.10.a. Gas generator turbines;

a.10.b. Fan or power turbines;

a.10.c. Propelling nozzles;

Notes: 1. Adjustable flow path geometry and associated control systems do not include inlet guide vanes, variable pitch fans, variable stators or bleed valves for compressors.

2. 9E003.a.10 does not control "development" or "production" "technology" for adjustable flow path geometry for reverse thrust.

a.11. Rotor blade tip clearance control systems employing active compensating casing "technology" limited to a design and development data base; or

a.12 Gas bearing for gas turbine engine rotor assemblies;

a.13. Wide chord hollow fan blades without part-span support;

b. "Technology" "required" for the "development" or "production" of any of the following:

b.1. Wind tunnel aero-models equipped with non-intrusive sensors capable of transmitting data from the sensors to the data acquisition system; or

b.2. ''Composite'' propeller blades or propfans capable of absorbing more than 2,000 kW at flight speeds exceeding Mach 0.55;

c. ''Technology'' ''required'' for the ''development'' or ''production'' of gas turbine engine components using ''laser'', water jet, ECM or EDM hole drilling processes to produce holes having any of the following sets of characteristics:

c.1. All of the following:

c.1.a. Depths more than four times their diameter;

c.1.b. Diameters less than 0.76 mm; and

c.1.c. Incidence angles equal to or less than 25° or

c.2. All of the following:

c.2.a. Depths more than five times their diameter;

c.2.b. Diameters less than 0.4 mm; and

c.2.c. Incidence angles of more than 25°

Technical Note: For the purposes of 9E003.c, incidence angle is measured from a plane tangential to the airfoil surface at the point where the hole axis enters the airfoil surface.

d. ''Technology'' ''required'' for the ''development'' or ''production'' of helicopter power transfer systems or tilt rotor or tilt wing ''aircraft'' power transfer systems:

d.1. Capable of loss-of-lubrication operation for 30 minutes or more; or

d.2. Having an input power-to-weight ratio equal to or more than 8.87 kW/kg;

e.1. ''Technology'' for the ''development'' or ''production'' of reciprocating diesel engine ground vehicle propulsion systems having all of the following:

e.1.a. A box volume of 1.2 m^3 or less;

e.1.b. An overall power output of more than 750 kW based on 80/1269/EEC, ISO 2534 or national equivalents; and

e.1.c. A power density of more than 700 kW/m^3 of box volume;

Technical Note: Box volume: the product of three perpendicular dimensions measured in the following way:

Length: The length of the crankshaft from front flange to flywheel face;

Width: The widest of the following:

a. The outside dimension from valve cover to valve cover;

b. The dimensions of the outside edges of the cylinder heads; or

c. The diameter of the flywheel housing;

Height: The largest of the following:

a. The dimension of the crankshaft center-line to the top plane of the valve cover (or cylinder head) plus twice the stroke; or

b. The diameter of the flywheel housing.

e.2. ''Technology'' ''required'' for the ''production'' of specially designed components, as follows, for high output diesel engines:

e.2.a. ''Technology'' ''required'' for the ''production'' of engine systems having all of the following components employing ceramics materials controlled by 1C007:

e.2.a.1. Cylinder liners;

e.2.a.2. Pistons;

e.2.a.3. Cylinder heads; and

e.2.a.4. One or more other components (including exhaust ports, turbochargers, valve guides, valve assemblies or insulated fuel injectors);

e.2.b. ''Technology'' ''required'' for the ''production'' of turbocharger systems, with single-stage compressors having all of the following:

e.2.b.1. Operating at pressure ratios of 4:1 or higher;

e.2.b.2. A mass flow in the range from 30 to 130 kg per minute; and

e.2.b.3. Variable flow area capability within the compressor or turbine sections;

e.2.c. ''Technology'' ''required'' for the ''production'' of fuel injection systems with a specially designed multifuel (e.g., diesel or jet fuel) capability covering a viscosity range from diesel fuel (2.5 cSt at 310.8 K (37.8°C)) down to gasoline fuel (0.5 cSt at 310.8 K (37.8°C)), having both of the following:

e.2.c.1. Injection amount in excess of 230 mm^3 per injection per cylinder; and

e.2.c.2. Specially designed electronic control features for switching governor characteristics automatically depending on fuel property to provide the same torque characteristics by using the appropriate sensors;

e.3. ''Technology'' ''required'' for the ''development'' or ''production'' of high output diesel engines for solid, gas phase or liquid film (or combinations thereof) cylinder wall lubrication, permitting operation to temperatures exceeding 723 K (450°C), measured on the cylinder wall at the top limit of travel of the top ring of the piston.

f. ''Technology'' not otherwise controlled in 9E003.a.1 through a.12 and currently used in the ''development'', ''production'', or overhaul of hot section parts and components of civil derivatives of military engines controlled on the U.S. Munitions List.

9E018 "Technology" for the "development", "production", or "use" of equipment controlled by 9A018.

License Requirements

Reason for Control: NS, RS, AT, UN

Control(s)	Country chart
NS applies to entire entry	NS Column 1
RS applies to 9A018.a and .b	RS Column 2
AT applies to entire entry	AT Column 1
UN applies to entire entry	Rwanda; Federal Republic of Yugoslavia (Serbia and Montenegro)

License Exceptions

CIV: N/A

TSR: Yes for Australia, Japan, New Zealand, and NATO only

List of Items Controlled

Unit: N/A

Related Controls: N/A

Related Definitions: N/A

Items: The list of items controlled is contained in the ECCN heading.

9E101 "Technology" according to the General Technology Note for the "development" or "production" of goods controlled by 9A101, 9A104 to 9A111 or 9A115 to 9A120.

License Requirements

Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions

CIV: N/A

TSR: N/A

List of Items Controlled

Unit: N/A

Related Controls: ''Technology'' controlled by 9E101 for items in 9A101.b, 9A104, 9A105, to 9A109, 9A110 that are specially designed for use in missile systems and subsystems, 9A111, 9A115, and 9A116 to 9A120 are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121)

Related Definitions: N/A

Items: The list of items controlled is contained in the ECCN heading.

9E102 "Technology" according to the General Technology Note for the "use" of goods controlled by 9A004 to 9A011, 9A101, 9A104 to 9A111, 9A115 to 9A120, 9B105, 9B106, 9B115, 9B116, 9B117, 9D101 or 9D103.

License Requirements

Reason for Control: MT, AT

Control(s)	Country Chart
MT applies to entire entry	MT Column 1
AT applies to entire entry	AT Column 1

License Exceptions

CIV: N/A

TSR: N/A

List of Items Controlled

Unit: N/A

Related Controls: (1) For the purpose of this entry, ''use'' ''technology'' is limited to items controlled for MT reasons. (2) ''Technology'' controlled by 9E102 for items subject to the export licensing jurisdiction of the Department of State in 9A004 to 9A011, 9A101.b, 9A104 to 9A109, 9A110 that are specially designed for use in missile systems and subsystems, 9A111, 9A115, 9A116 to 9A120, and 9D103 are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121)

Related Definitions: N/A

Items: The list of items controlled is contained in the ECCN heading.

9E990 "Technology", n.e.s., for the "development" or "production" or "use" of equipment controlled by 9A990 or 9B990.

License Requirements
Reason for Control: AT

Control(s)	Country Chart
AT applies to "technology" for equipment under 9A990 and 9B990 except 9A990.a	AT Column 1
AT applies to "technology" for equipment under 9A990.a only	AT Column 2

License Exceptions
CIV: N/A
TSR: N/A
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

9E991 "Technology", for the "development", "production" or "use" of equipment controlled by 9A991 or 9B991.

License Requirements
Reason for Control: AT

Control(s)	Country Chart
AT applies to entire entry	AT Column 1

License Exceptions
CIV: N/A
TSR: N/A
List of Items Controlled
Unit: $ value
Related Controls: N/A
Related Definitions: N/A
Items: The list of items controlled is contained in the ECCN heading.

EAR99 Items subject to the EAR that are not elsewhere specified in this CCL Category or in any other category in the CCL are designated by the number EAR99.

Supplement No. 2 to Part 774 — General Technology and Software Notes

I. *General Technology Note.* The export of "technology" that is "required" for the "development", "production", or "use" of items on the Commerce Control List is controlled according to the provisions in each Category.

"Technology" "required" for the "development", "production", or "use" of a controlled product remains controlled even when applicable to a product controlled at a lower level.

License Exception OTS is available for "technology" that is the minimum necessary for the installation, operation, maintenance (checking), and repair of those products that are eligible for License Exceptions or that are exported under a license.

N.B.: This does not allow release under a License Exception of the repair "technology" controlled by 1E002.e, 1E002.f, 7E003, or 8E002.a.

N.B.: The 'minimum necessary' excludes "development" or "production" technology and permits "use" technology only to the extent "required" to ensure safe and efficient use of the product. Individual ECCNs may further restrict export of "minimum necessary" information.

II. *General Software Note.* License Exception TSU ("mass market" software) is available to all destinations, except Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria, for release of software that is generally available to the public by being:

a. Sold from stock at retail selling points, without restriction, by means of:
1. Over the counter transactions;
2. Mail order transactions; or
3. Telephone call transactions; and

b. Designed for installation by the user without further substantial support by the supplier.

Note: License Exception TSU for mass market software does not apply to encryption software controlled for EI reasons under ECCN 5D002. Encryption software may become eligible after a one-time BXA review according to the provision of §742.15(b)(1) of the EAR.

Supplement No. 3 to Part 774 — Cross-Reference

Old ECCN	New ECCN
Sorted by "OLD" ECCN CAT 0	
0A18	0A018
0A80	0A980
0A82	0A982
0A82	0A983
0A84	0A984
0A84	0A985
0A86	0A986
0A88	0A988
0A95	Sec.746.4(b)(2)(i)
0A96	EAR99
0A98	Sec.734.3(b)(2)
0E18	0E018
0E84	0E984
0E96	EAR99
1B16	0B003
1C19.b	0C006
1D01	0D001
1E19	0E001
2A19.c	0B001
2A50.b	0B008
2D19	0D001
2D50	0D001
2E19	0E001
2E50	0E001
CAT 1	
***	1D103
***	1E202
***	1E203
1A01	1A001
1A02	1A002
1A03	1A003
1A22.b	1A102
1A27	1C116
1A45	1A226
1A46	1C202
1A47	1C216
1A48	1A290
1A50	1C226
1A84	1A984
1A88	1A988
1A96	EAR99
1B01	1B001
1B02	1B002
1B03	1B003
1B17	1B225
1B18	1B018
1B21	1B101
1B28	1B115
1B30.a	1B116
1B41	1B201
1B42	1B226
1B52	1B229
1B53	1B228
1B54	1B227
1B55	1B232
1B58	1B231
1B59	1B230
1B96	EAR99
1C01	1C001
1C02	1C002
1C03	1C003
1C05	1C005
1C06	1C006
1C07	1C007
1C08	1C008
1C09	1C009
1C10	1C010
1C18	1C018
1C19.a	1C234
1C19.c	1C233
1C19.d	1C230
1C19.e	1A225
1C19.f	1C231
1C21	1C101
1C22	1C117
1C27	1C107
1C31	1C115
1C49	1A225