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# Category 5—Telecommunications and “Information Security”

# Part 1—Telecommunications

Notes: 1.

The control status of “components”, test and “production” equipment, and “software” therefor which are “specially designed” for telecommunications equipment or systems is determined in Category 5, Part 1.

N.B.:

For “lasers” “specially designed” for telecommunications equipment or systems, see ECCN 6A005.

2.

“Digital computers”, related equipment or “software”, when essential for the operation and support of telecommunications equipment described in this Category, are regarded as “specially designed” “components”, provided they are the standard models customarily supplied by the manufacturer. This includes operation, administration, maintenance, engineering or billing computer systems.

3.

Commodities in ECCN 5A001.j, and related “software” specified in 5D001.c (for 5A001.j) that are also controlled in ECCNs 5A002.a, 5A004.a, 5A004.b, 5D002.c.1, or 5D002.c.3, remain controlled in Category 5—Part 2 by those entries. Category 5—Part 2 does not apply to elements of source code that implement functionality controlled by these Category 5 Part 1 ECCNs, or to any item subject to the EAR where Encryption Item (EI) functionality is absent, removed or otherwise non-existent.

4.

Items in ECCN 5A001.j, 5B001.a (for 5A001.j), related “software” specified in 5D001.a (for 5A001.j) and 5D001.c (for 5A001.j or 5B001.a (for 5A001.j)) and related “technology” specified in ECCN 5E001.a (for 5A001.j and 5D001.a (for 5A001.j)) that are also controlled for Surreptitious Listening (SL) reasons under another ECCN, will continue to be classified under the SL ECCN.

## A. “End Items”, “Equipment”, “Accessories”, “Attachments”, “Parts”, “Components” and “Systems”

### 5A001 Telecommunications systems, equipment, “components” and “accessories,” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, SL, AT**

| **Control(s)** | **Country chart  (See Supp. No. 1  to part 738)** |
| --- | --- |
| NS applies to 5A001.a, b.5, .e, .f.3, .h | NS Column 1. |
| NS applies to 5A001.b (except .b.5), .c, .d, .f (except f.3), .g, and .j | NS Column 2. |
| SL applies to 5A001.f.1 | A license is required for all destinations, as specified in § 742.13 of the EAR. Accordingly, a column specific to this control does not appear on the Commerce Country Chart (Supplement No. 1 to Part 738 of the EAR). |
|  | **Note to SL paragraph:** *This licensing requirement does not supersede, nor does it implement, construe or limit the scope of any criminal statute, including, but not limited to the Omnibus Safe Streets Act of 1968, as amended.* |
| AT applies to entire entry | AT Column 1. |

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A for 5A001.a, b.5, .e, f.3, .h and .j; $5000 for 5A001.b.1, .b.2, .b.3, .b.6, .d, f.2, f.4, and .g; $3000 for 5A001.c.**

***GBS:* Yes, except 5A001.a, .b.5, .e, .h and .j.**

***ACE:* Yes for 5A001.j, except to Country Group E:1 or E:2. See § 740.22 of the EAR for eligibility criteria**

**Special Conditions for STA**

***STA:* License Exception STA may not be used to ship any commodity in 5A001.j to any of the destinations listed in Country Group A:5 or A:6 (See Supplement No. 1 to part 740 of the EAR), or any commodity in 5A001.b.3, .b.5 or .h to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR).**

**List of Items Controlled**

***Related Controls:* (1) See USML Category XI for controls on direction-finding “equipment” including types of “equipment” in ECCN 5A001.e and any other military or intelligence electronic “equipment” that is “subject to the ITAR.” (2) See USML Category XI(a)(4)(iii) for controls on electronic attack and jamming “equipment” defined in 5A001.f and .h that are subject to the ITAR. (3) See also ECCNs 5A101, 5A980, and 5A991.**

***Related Definitions:* N/A**

***Items:***

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

a.1. “Specially designed” to withstand transitory electronic effects or electromagnetic pulse effects, both arising from a nuclear explosion;

a.2. Specially hardened to withstand gamma, neutron or ion radiation;

a.3. “Specially designed” to operate below 218 K (−55 °C); *or*

a.4. “Specially designed” to operate above 397 K (124 °C);

Note: 5A001.a.3 and 5A001.a.4 apply only to electronic equipment.

b. Telecommunication systems and equipment, and “specially designed” “components” and “accessories” therefor, having any of the following characteristics, functions or features:

b.1 Being underwater untethered communications systems having any of the following:

b.1.a. An acoustic carrier frequency outside the range from 20 kHz to 60 kHz;

b.1.b. Using an electromagnetic carrier frequency below 30 kHz; *or*

b.1.c. Using electronic beam steering techniques; *or*

b.1.d. Using “lasers” or light-emitting diodes (LEDs), with an output wavelength greater than 400 nm and less than 700 nm, in a “local area network”;

b.2. Being radio equipment operating in the 1.5 MHz to 87.5 MHz band and having all of the following:

b.2.a. Automatically predicting and selecting frequencies and “total digital transfer rates” per channel to optimize the transmission; *and*

b.2.b. Incorporating a linear power amplifier configuration having a capability to support multiple signals simultaneously at an output power of 1 kW or more in the frequency range of 1.5 MHz or more but less than 30 MHz, or 250 W or more in the frequency range of 30 MHz or more but not exceeding 87.5 MHz, over an “instantaneous bandwidth” of one octave or more and with an output harmonic and distortion content of better than −80 dB;

b.3. Being radio equipment employing “spread spectrum” techniques, including “frequency hopping” techniques, not controlled in 5A001.b.4 and having any of the following:

b.3.a. User programmable spreading codes; *or*

b.3.b. A total transmitted bandwidth which is 100 or more times the bandwidth of any one information channel and in excess of 50 kHz;

Note: 5A001.b.3.b does not control radio equipment “specially designed” for use with any of the following:

a. Civil cellular radio-communications systems; or

b. Fixed or mobile satellite Earth stations for commercial civil telecommunications.

Note: 5A001.b.3 does not control equipment operating at an output power of 1 W or less.

b.4. Being radio equipment employing ultra-wideband modulation techniques, having user programmable channelizing codes, scrambling codes, or network identification codes and having any of the following:

b.4.a. A bandwidth exceeding 500 MHz; *or*

b.4.b. A “fractional bandwidth” of 20% or more;

b.5. Being digitally controlled radio receivers having all of the following:

b.5.a. More than 1,000 channels;

b.5.b. A 'channel switching time' of less than 1 ms;

b.5.c. Automatic searching or scanning of a part of the electromagnetic spectrum; *and*

b.5.d. Identification of the received signals or the type of transmitter; *or*

Note: 5A001.b.5 does not control radio equipment “specially designed” for use with civil cellular radio-communications systems.

Technical Note: 'Channel switching time': the time (i.e., delay) to change from one receiving frequency to another, to arrive at or within ±0.05% of the final specified receiving frequency. Items having a specified frequency range of less than ±0.05% around their center frequency are defined to be incapable of channel frequency switching.

b.6. Employing functions of digital “signal processing” to provide 'voice coding' output at rates of less than 700 bit/s.

Technical Notes:

1. For variable rate 'voice coding', 5A001.b.6 applies to the 'voice coding' output of continuous speech.

2. For the purpose of 5A001.b.6, 'voice coding' is defined as the technique to take samples of human voice and then convert these samples of human voice into a digital signal taking into account specific characteristics of human speech.

c. Optical fibers of more than 500 m in length and specified by the manufacturer as being capable of withstanding a 'proof test' tensile stress of 2 × 109 N/m2 or more;

N.B.: For underwater umbilical cables, see 8A002.a.3.

Technical Note: 'Proof Test': on-line or off-line production screen testing that dynamically applies a prescribed tensile stress over a 0.5 to 3 m length of fiber at a running rate of 2 to 5 m/s while passing between capstans approximately 150 mm in diameter. The ambient temperature is a nominal 293 K (20 °C) and relative humidity 40%. Equivalent national standards may be used for executing the proof test.

d. “Electronically steerable phased array antennae” as follows:

d.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));

d.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);

d.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);

d.4. Rated for operation above 90 GHz;

Note 1: 5A001.d does not control 'electronically steerable phased array antennae' for landing systems with instruments meeting ICAO standards covering Microwave Landing Systems (MLS).

Note 2: 5A001.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 5A001.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.

e. Radio direction finding equipment operating at frequencies above 30 MHz and having all of the following, and “specially designed” “components” therefor:

e.1. “Instantaneous bandwidth” of 10 MHz or more; and

e.2. Capable of finding a Line Of Bearing (LOB) to non-cooperating radio transmitters with a signal duration of less than 1 ms;

f. Mobile telecommunications interception or jamming equipment, and monitoring equipment therefor, as follows, and “specially designed” “components” therefor:

f.1. Interception equipment designed for the extraction of voice or data, transmitted over the air interface;

f.2. Interception equipment not specified in 5A001.f.1, designed for the extraction of client device or subscriber identifiers (*e.g.,* IMSI, TIMSI or IMEI), signaling, or other metadata transmitted over the air interface;

f.3. Jamming equipment “specially designed” or modified to intentionally and selectively interfere with, deny, inhibit, degrade or seduce mobile telecommunication services and performing any of the following:

f.3.a. Simulate the functions of Radio Access Network (RAN) equipment;

f.3.b. Detect and exploit specific characteristics of the mobile telecommunications protocol employed (*e.g.,* GSM); *or*

f.3.c. Exploit specific characteristics of the mobile telecommunications protocol employed (*e.g.,* GSM);

f.4. Radio Frequency (RF) monitoring equipment designed or modified to identify the operation of items specified in 5A001.f.1, 5A001.f.2 or 5A001.f.3.

Note: 5A001.f.1 and 5A001.f.2 do not apply to any of the following:

a. Equipment “specially designed” for the interception of analog Private Mobile Radio (PMR), IEEE 802.11 WLAN;

b. Equipment designed for mobile telecommunications network operators; or

c. Equipment designed for the “development” or “production” of mobile telecommunications equipment or systems.

N.B. 1: See also the International Traffic in Arms Regulations (ITAR) ([22 CFR parts 120–130](https://www.ecfr.gov/current/title-22/part-120)). For items specified by 5A001.f.1 (including as previously specified by 5A001.i), see also5A980 and the U.S. Munitions List ([22 CFR part 121](https://www.ecfr.gov/current/title-22/part-121)).

N.B. 2: For radio receivers see 5A001.b.5.

g. Passive Coherent Location (PCL) systems or equipment, “specially designed” for detecting and tracking moving objects by measuring reflections of ambient radio frequency emissions, supplied by non-radar transmitters.

Technical Note: Non-radar transmitters may include commercial radio, television or cellular telecommunications base stations.

Note: 5A001.g. does not control:

a. Radio-astronomical equipment; or

b. Systems or equipment, that require any radio transmission from the target.

h. Counter Improvised Explosive Device (IED) equipment and related equipment, as follows:

h.1. Radio Frequency (RF) transmitting equipment, not specified by 5A001.f, designed or modified for prematurely activating or preventing the initiation of Improvised Explosive Devices (IEDs);

h.2. Equipment using techniques designed to enable radio communications in the same frequency channels on which co-located equipment specified by 5A001.h.1 is transmitting.

N.B.: See also Category XI of the International Traffic in Arms Regulations (ITAR) ([22 CFR parts 120–130](https://www.ecfr.gov/current/title-22/part-120)).

i. [Reserved]

N.B.: See 5A001.f.1 for items previously specified by 5A001.i.

j. IP network communications surveillance systems or equipment, and “specially designed” components therefor, having all of the following:

j.1. Performing all of the following on a carrier class IP network (*e.g.,* national grade IP backbone):

j.1.a. Analysis at the application layer (*e.g.,* Layer 7 of Open Systems Interconnection (OSI) model (ISO/IEC 7498–1));

j.1.b. Extraction of selected metadata and application content (*e.g.,* voice, video, messages, attachments); *and*

j.1.c. Indexing of extracted data; *and*

j.2. Being “specially designed” to carry out all of the following:

j.2.a. Execution of searches on the basis of “hard selectors”; *and*

j.2.b. Mapping of the relational network of an individual or of a group of people.

Note: 5A001.j does not apply to “systems” or “equipment”, “specially designed” for any of the following:

a. Marketing purpose;

b. Network Quality of Service (QoS); or

c. Quality of Experience (QoE).

N.B.: See also the International Traffic in Arms Regulations (ITAR) ([22 CFR parts 120–130](https://www.ecfr.gov/current/title-22/part-120)). Defense articles described in USML Category XI(b) are “subject to the ITAR.”

### 5A101 Telemetering and telecontrol equipment, including ground equipment, designed or modified for unmanned aerial vehicle (including cruise missiles, target drones, and reconnaissance drones) or rocket systems (including ballistic missiles, space launch vehicles, and sounding rockets) capable of a maximum “range” equal to or greater than 300 km.

**License Requirements**

***Reason for Control:* MT, AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| MT applies to entire entry | MT Column 1 |
| AT applies to entire entry | AT Column 1 |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A**

***GBS:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

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

Note:

5A101 does not control:

1. Telecontrol equipment “specially designed” to be used for remote control of recreational model planes, boats or vehicles and having an electric field strength of not more than 200 microvolts per meter at a distance of 500 meters;

2. Equipment designed or modified for manned aircraft or satellites;

3. Ground based equipment designed or modified for terrestrial or marine applications;

4. Equipment designed for commercial, civil, or safety of life (e.g., data integrity or flight safety) Global Navigation Satellite System services.

Note:

ECCN 5A101 does not include items not designed or modified for unmanned aerial vehicles (including cruise missiles, target drones, and reconnaissance drones) or rocket systems (including ballistic missiles, space launch vehicles and sounding rockets) capable of a maximum “range” equal to or greater than 300km (e.g., telemetry circuit cards limited by design to reception only and designed for use in personal computers).

### 5A611 Telecommunications equipment, and “parts,” “components,” “accessories,” and “attachments” “specially designed” therefor, “specially designed” for a military application that are not enumerated in any USML category are controlled by ECCN 3A611.

### 5A980 Devices primarily useful for the surreptitious interception of wire, oral, or electronic communications, other than those controlled under 5A001.f.1; and “parts,” “components” and “accessories” therefor.

**License Requirements**

***Reason for Control:* SL, AT**

***Control(s):* SL and AT apply to entire entry. A license is required for all destinations, as specified in § 742.13 of the EAR. Accordingly, a column specific to this control does not appear on the Commerce Country Chart (Supplement No. 1 to Part 738 of the EAR).**

Note:

This licensing requirement does not supersede, nor does it implement, construe or limit the scope of any criminal statute, including, but not limited to the Omnibus Safe Streets Act of 1968, as amended.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A**

***GBS:* N/A**

**List of Items Controlled**

**Unit: $ value.**

***Related Controls:* (1) See ECCN 5A001.f.1 for systems or equipment, “specially designed” or modified to intercept and process the air interface of 'mobile telecommunications', and “specially designed” components therefor. (2) See ECCN 5D980 for “software” for the “development”, “production” or “use” of equipment controlled by 5A980. (3) See ECCN 5E980 for the “technology” for the “development”, “production”, and “use” of equipment controlled by 5A980.**

***Related Definitions:* N/A**

***Items:***

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

### 5A991 Telecommunication equipment, not controlled by 5A001 (see List of Items Controlled).

**License Requirements**

***Reason for Control:* AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| AT applies to entire entry | AT Column 1. |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A**

***GBS:* N/A**

**List of Items Controlled**

***Related Controls:* See also 5E101 and 5E991.**

***Related Definitions:* (1) “Asynchronous transfer mode” (“ATM”) is a transfer mode in which the information is organized into cells; it is asynchronous in the sense that the recurrence of cells depends on the required or instantaneous bit rate. (2) “Bandwidth of one voice channel” is data communication equipment designed to operate in one voice channel of 3,100 Hz, as defined in CCITT Recommendation G.151. (3) “Communications channel controller” is the physical interface that controls the flow of synchronous or asynchronous digital information. It is an assembly that can be integrated into computer or telecommunications equipment to provide communications access. (4) “Datagram” is a self-contained, independent entity of data carrying sufficient information to be routed from the source to the destination data terminal equipment without reliance on earlier exchanges between this source and destination data terminal equipment and the transporting network. (5) “Fast select” is a facility applicable to virtual calls that allows data terminal equipment to expand the possibility to transmit data in call set-up and clearing “packets” beyond the basic capabilities of a virtual call. (6) “Gateway” is the function, realized by any combination of equipment and “software”, to carry out the conversion of conventions for representing, processing or communicating information used on one system into the corresponding, but different conventions used in another system. (7) “Integrated Services Digital Network” (ISDN) is a unified end-to-end digital network, in which data originating from all types of communication (*e.g.*, voice, text, data, still and moving pictures) are transmitted from one port (terminal) in the exchange (switch) over one access line to and from the subscriber. (8) “Packet” is a group of binary digits including data and call control signals that is switched as a composite whole. The data, call control signals, and possible error control information are arranged in a specified format.**

***Items:***

a. Any type of telecommunications equipment, not controlled by 5A001.a, “specially designed” to operate outside the temperature range from 219 K (−54 °C) to 397 K (124 °C).

b. Telecommunication transmission equipment and systems, and “specially designed” “parts,” “components” and “accessories” therefor, having any of the following characteristics, functions or features:

Note:

Telecommunication transmission equipment:

a. Categorized as follows, or combinations thereof:

1. Radio equipment (e.g., transmitters, receivers and transceivers);

2. Line terminating equipment;

3. Intermediate amplifier equipment;

4. Repeater equipment;

5. Regenerator equipment;

6. Translation encoders (transcoders);

7. Multiplex equipment (statistical mutiplex included);

8. Modulators/demodulators (modems);

9. Transmultiplex equipment (see CCITT Rec. G701);

10. “Stored program controlled” digital crossconnection equipment;

11. “Gateways” and bridges;

12. “Media access units”; and

b. Designed for use in single or multi-channel communication via any of the following:

1. Wire (line);

2. Coaxial cable;

3. Optical fiber cable;

4. Electromagnetic radiation; or

5. Underwater acoustic wave propagation.

b.1. Employing digital techniques, including digital processing of analog signals, and designed to operate at a “digital transfer rate” at the highest multiplex level exceeding 45 Mbit/s or a “total digital transfer rate” exceeding 90 Mbit/s;

Note:

5A991.b.1 does not control equipment “specially designed” to be integrated and operated in any satellite system for civil use.

b.2. Modems using the “bandwidth of one voice channel” with a “data signaling rate” exceeding 9,600 bits per second;

b.3. Being “stored program controlled” digital cross connect equipment with “digital transfer rate” exceeding 8.5 Mbit/s per port.

b.4. Being equipment containing any of the following:

b.4.a. “Network access controllers” and their related common medium having a “digital transfer rate” exceeding 33 Mbit/s; *or*

b.4.b. “Communication channel controllers” with a digital output having a “data signaling rate” exceeding 64,000 bit/s per channel;

Note:

If any uncontrolled equipment contains a “network access controller”, it cannot have any type of telecommunications interface, except those described in, but not controlled by 5A991.b.4.

b.5. Employing a “laser” and having any of the following characteristics:

b.5.a. A transmission wavelength exceeding 1,000 nm; *or*

b.5.b. Employing analog techniques and having a bandwidth exceeding 45 MHz;

Note:

5A991.b.5.b does not control commercial TV systems.

b.5.c. Employing coherent optical transmission or coherent optical detection techniques (also called optical heterodyne or homodyne techniques);

b.5.d. Employing wavelength division multiplexing techniques; *or*

b.5.e. Performing “optical amplification”;

b.6. Radio equipment operating at input or output frequencies exceeding:

b.6.a. 31 GHz for satellite-earth station applications; *or*

b.6.b. 26.5 GHz for other applications;

Note:

5A991.b.6. does not control equipment for civil use when conforming with an International Telecommunications Union (ITU) allocated band between 26.5 GHz and 31 GHz.

b.7. Being radio equipment employing any of the following:

b.7.a. Quadrature-amplitude-modulation (QAM) techniques above level 4 if the “total digital transfer rate” exceeds 8.5 Mbit/s;

b.7.b. QAM techniques above level 16 if the “total digital transfer rate” is equal to or less than 8.5 Mbit/s;

b.7.c. Other digital modulation techniques and having a “spectral efficiency” exceeding 3 bit/s/Hz; or

b.7.d. Operating in the 1.5 MHz to 87.5 MHz band and incorporating adaptive techniques providing more than 15 dB suppression of an interfering signal.

Notes:

1. 5A991.b.7 does not control equipment “specially designed” to be integrated and operated in any satellite system for civil use.

2. 5A991.b.7 does not control radio relay equipment for operation in an ITU allocated band:

a. Having any of the following:

a.1. Not exceeding 960 MHz; or

a.2. With a “total digital transfer rate” not exceeding 8.5 Mbit/s; and

b. Having a “spectral efficiency” not exceeding 4 bit/s/Hz.

c. “Stored program controlled” switching equipment and related signaling systems, having any of the following characteristics, functions or features, and “specially designed” “parts,” “components” and “accessories” therefor:

Note:

Statistical multiplexers with digital input and digital output which provide switching are treated as “stored program controlled” switches.

c.1. “Data (message) switching” equipment or systems designed for “packet-mode operation” and “parts,” electronic assemblies and “components” therefor, n.e.s.

c.2. [Reserved]

c.3. Routing or switching of “datagram” packets;

c.4. [Reserved]

Note:

The restrictions in 5A991.c.3 do not apply to networks restricted to using only “network access controllers” or to “network access controllers” themselves.

c.5. Multi-level priority and pre-emption for circuit switching;

Note:

5A991.c.5 does not control single-level call preemption.

c.6. Designed for automatic hand-off of cellular radio calls to other cellular switches or automatic connection to a centralized subscriber data base common to more than one switch;

c.7. Containing “stored program controlled” digital cross connect equipment with “digital transfer rate” exceeding 8.5 Mbit/s per port.

c.8. “Common channel signaling” operating in either non-associated or quasi-associated mode of operation;

c.9. “Dynamic adaptive routing”;

c.10. Being packet switches, circuit switches and routers with ports or lines exceeding any of the following:

c.10.a. A “data signaling rate” of 64,000 bit/s per channel for a “communications channel controller”; *or*

Note:

5A991.c.10.a does not control multiplex composite links composed only of communication channels not individually controlled by 5A991.b.1.

c.10.b. A “digital transfer rate” of 33 Mbit/s for a “network access controller” and related common media;

Note:

5A991.c.10 does not control packet switches or routers with ports or lines not exceeding the limits in 5A991.c.10.

c.11. “Optical switching”;

c.12. Employing “Asynchronous Transfer Mode” (“ATM”) techniques.

d. Optical fibers and optical fiber cables of more than 50 m in length designed for single mode operation;

e. Centralized network control having all of the following characteristics:

e.1. Receives data from the nodes; *and*

e.2. Process these data in order to provide control of traffic not requiring operator decisions, and thereby performing “dynamic adaptive routing”;

Note:

5A991.e does not preclude control of traffic as a function of predictable statistical traffic conditions.

f. Phased array antennas, operating above 10.5 GHz, containing active elements and distributed “parts” or “components,” and designed to permit electronic control of beam shaping and pointing, except for landing systems with instruments meeting International Civil Aviation Organization (ICAO) standards (microwave landing systems (MLS)).

g. Mobile communications equipment, n.e.s., and “parts,” electronic assemblies and “components” therefor; *or*

h. Radio relay communications equipment designed for use at frequencies equal to or exceeding 19.7 GHz and “parts” and “components” therefor, n.e.s.

## B. “Test”, “Inspection” and “Production Equipment”

### 5B001 Telecommunication test, inspection and production equipment, “components” and “accessories,” as follows (See List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, AT**

| **Control(s)** | **Country chart  (See Supp. No. 1  to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 2. |
| AT applies to entire entry | AT Column 1. |

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* $5000, except N/A for 5B001.a (for 5A001.j)**

***GBS:* Yes, except N/A for 5B001.a (for 5A001.j)**

***ACE:* Yes for 5B001.a (for equipment and “specially designed” “components” or “accessories” therefor, “specially designed” for the “development” or “production” of equipment, functions or features, controlled by 5A001.j), except to Country Group E:1 or E:2. See § 740.22 of the EAR for eligibility criteria.**

**Special Conditions for STA**

***STA:* License Exception STA may not be used to ship 5B001.a equipment and “specially designed” components or “accessories” therefor, “specially designed” for the “development” or “production” of equipment, functions or features specified by in ECCN 5A001.b.3, .b.5 or .h to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR) and 5A001.j to any of the destinations listed in Country Group A:5 or A:6.**

**List of Items Controlled**

***Related Controls:* See also 5B991.**

***Related Definition:* N/A**

***Items:***

a. Equipment and “specially designed” “components” or “accessories” therefor, “specially designed” for the “development” or “production” of equipment, functions or features, controlled by 5A001;

Note: 5B001.a does not apply to optical fiber characterization equipment.

b. Equipment and “specially designed” “components” or “accessories” therefor, “specially designed” for the “development” of any of the following telecommunication transmission or switching equipment:

b.1. [Reserved]

b.2. Equipment employing a “laser” and having any of the following:

b.2.a. A transmission wavelength exceeding 1750 nm; or

b.2.b. [Reserved]

b.2.c. [Reserved]

b.2.d. Employing analog techniques and having a bandwidth exceeding 2.5 GHz; or

Note: 5B001.b.2.d. does not include equipment “specially designed” for the “development” of commercial TV systems.

b.3. [Reserved]

b.4. Radio equipment employing Quadrature-Amplitude-Modulation (QAM) techniques above level 1,024.

### 5B991 Telecommunications test equipment, n.e.s.

**License Requirements**

***Reason for Control:* AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| AT applies to entire entry | AT Column 1. |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A**

***GBS:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

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

## C. “Materials”

### 5C991 Preforms of glass or of any other material optimized for the manufacture of optical fibers controlled by 5A991.

**License Requirements**

***Reason for Control:* AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| AT applies to entire entry | AT Column 1 |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A**

***GBS:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

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

## D. “Software”

### 5D001 “Software” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, SL, AT**

| **Control(s)** | **Country chart  (see Supp. No. 1 to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 1 |
| SL applies to the entire entry as applicable for equipment, functions, features, or characteristics controlled by 5A001.f.1 | A license is required for all destinations, as specified in § 742.13 of the EAR. Accordingly, a column specific to this control does not appear on the Commerce Country Chart (Supplement No. 1 to Part 738 of the EAR). |
|  | *Note to SL paragraph: This licensing requirement does not supersede, nor does it implement, construe or limit the scope of any criminal statute, including, but not limited to the Omnibus Safe Streets Act of 1968, as amended.* |
| AT applies to entire entry | AT Column 1 |

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

**List Based License Exceptions**

**(See Part 740 for a description of all license exceptions).**

***TSR:* Yes, except for exports and reexports to destinations outside of those countries listed in Country Group A:5 (See Supplement No. 1 to part 740 of the EAR) of “software” controlled by 5D001.a and “specially designed” for items controlled by 5A001.b.5 and 5A001.h, and N/A for “software” classified under ECCN 5D001.a (for 5A001.j) or 5D001.c (for 5A001.j or 5B001.a (for 5A001.j)).**

***ACE:* Yes for 5D001.a (for 5A001.j) and 5D001.c (for 5A001.j or 5B001.a (for 5A001.j)), except to Country Group E:1 or E:2. See § 740.22 of the EAR for eligibility criteria.**

**Special Conditions for STA**

***STA:* License Exception STA may not be used to ship or transmit 5D001.a “software” “specially designed” for the “development” or “production” of equipment, functions or features, specified by ECCN 5D001.a (for 5A001.j) and 5D001.c (for 5A001.j or 5B001.a (for 5A001.j)) to any of the destinations listed in Country Group A:5 or A:6 (See Supplement No.1 to part 740 of the EAR); 5A001.b.3, .b.5 or .h; and for 5D001.b. for “software” “specially designed” or modified to support “technology” specified by the STA paragraph in the License Exception section of ECCN 5E001 to any of the destinations listed in Country Group A:6.**

**List of Items Controlled**

***Related Controls:* See also 5D980 and 5D991.**

***Related Definitions:* N/A**

***Items:***

a. “Software” “specially designed” or modified for the “development”, “production” or “use” of equipment, functions or features controlled by 5A001;

b. [Reserved]

c. Specific “software” “specially designed” or modified to provide characteristics, functions or features of equipment, controlled by 5A001 or 5B001;

d. “Software” “specially designed” or modified for the “development” of any of the following telecommunication transmission or switching equipment:

d.1. [Reserved]

d.2. Equipment employing a “laser” and having any of the following:

d.2.a. A transmission wavelength exceeding 1,750 nm; *or*

d.2.b. Employing analog techniques and having a bandwidth exceeding 2.5 GHz; *or*

Note: 5D001.d.2.b does not control “software” “specially designed” or modified for the “development” of commercial TV systems*.*

d.3. [Reserved]

d.4. Radio equipment employing Quadrature-Amplitude-Modulation (QAM) techniques above level 1,024.

e. “Software”, other than that specified by 5D001.a or 5D001.c, “specially designed” or modified for monitoring or analysis by law enforcement, providing all of the following:

e.1. Execution of searches on the basis of “hard selectors” of either the content of communication or metadata acquired from a communications service provider using a 'handover interface'; *and*

Technical Notes:

1. For the purposes of 5D001.e, a 'handover interface' is a physical and logical interface, designed for use by an authorised law enforcement authority, across which targeted interception measures are requested from a communications service provider and the results of interception are delivered from a communications service provider to the requesting authority. The 'handover interface' is implemented within systems or equipment (e.g., mediation devices) that receive and validate the interception request, and deliver to the requesting authority only the results of interception that fulfil the validated request.

2. 'Handover interfaces' may be specified by international standards (including but not limited to ETSI TS 101 331, ETSI TS 101 671, 3GPP TS 33.108) or national equivalents.

e.2. Mapping of the relational network or tracking the movement of targeted individuals based on the results of searches on content of communication or metadata or searches as described in 5D001.e.1.

Note: 5D001.e does not apply to “software” “specially designed” or modified for any of the following:

a. Billing purposes;

b. Network Quality of Service (QoS);

c. Quality of Experience (QoE);

d. Mediation devices; or

e. Mobile payment or banking use.

### 5D101 “Software” “specially designed” or modified for the “use” of equipment controlled by 5A101.

**License Requirements**

***Reason for Control:* MT, AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| MT applies to entire entry | MT Column 1 |
| AT applies to entire entry | AT Column 1 |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

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

### 5D980 Other “software”, other than that controlled by 5D001 (for the equipment, functions, features, or characteristics controlled by 5A001. f.1, or to support certain “technology” controlled by 5E001.a), as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* SL, AT**

***Controls:* SL and AT apply to entire entry. A license is required for all destinations, as specified in § 742.13 of the EAR. Accordingly, a column specific to this control does not appear on the Commerce Country Chart (Supplement No. 1 to Part 738 of the EAR).**

Note:

This licensing requirement does not supersede, nor does it implement, construe or limit the scope of any criminal statute, including, but not limited to the Omnibus Safe Streets Act of 1968, as amended.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* See also 5D001.a and .c for software controls for equipment, functions, features or characteristics controlled by 5A001.f.1 and also 5D001.b for controls on “software” “specially designed” or modified to support “technology” controlled by 5E001.a (for 5A001.f.1 equipment, functions or features, and for 5D001.a “software” for 5A001.f.1 equipment). See 5E980 for “technology” for the “development”, “production”, and “use” of equipment controlled by 5A980 or “software” controlled by 5D980.**

***Related Definitions:* N/A**

***Items:***

a. “Software” primarily useful for the surreptitious interception of wire, oral, and electronic communications.

b. “Software” primarily useful for the “development”, “production”, or “use” of equipment controlled by 5A980.

### 5D991 “Software” “specially designed” or modified for the “development,” “production” or “use” of equipment controlled by 5A991 and 5B991, and dynamic adaptive routing software as described as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| AT applies to entire entry | AT Column 1 |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

a. “Software”, other than in machine-executable form, “specially designed” for “dynamic adaptive routing”.

b. [Reserved]

## E. “Technology”

### 5E001 “Technology” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, SL, AT**

| **Control(s)** | **Country chart  (See Supp. No. 1  to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 1. |
| SL applies to “technology” for the “development” or “production” of equipment, functions or features controlled by 5A001.f.1, or for the “development” or “production” of “software” controlled by ECCN 5D001.a (for 5A001.f.1) | A license is required for all destinations, as specified in § 742.13 of the EAR. Accordingly, a column specific to this control does not appear on the Commerce Country Chart (Supplement No. 1 to Part 738 of the EAR). |
|  | **Note to SL paragraph:** *This licensing requirement does not supersede, nor does it implement, construe or limit the scope of any criminal statute, including, but not limited to the Omnibus Safe Streets Act of 1968, as amended.* |
| AT applies to entire entry | AT Column 1. |

Reporting Requirements

See § 743.1 of the EAR for reporting requirements for exports under License Exceptions, and Validated End-User authorizations.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

TSR: Yes, except for exports or reexports to destinations outside of those countries listed in Country Group A:5 (See Supplement No. 1 to part 740 of the EAR) of “technology” controlled by 5E001.a for the “development” or “production” of the following:

(1) Items controlled by 5A001.b.5, .h or .j;

(2) “Software” controlled by 5D001.a that is “specially designed” for the “development” or “production” of equipment, functions or features controlled by 5A001.b.5, 5A001.h, 5A001.j, or 5B001.a (for 5A001.j); or

(3) “Software” controlled by 5D001.c (for 5A001.j or 5B001.a (for 5A001.j)).

ACE: Yes for 5E001.a (for 5A001.j, 5B001.a (for 5A001.j), 5D001.a (for 5A001.j), or 5D001.c (for 5A001.j or 5B001.a (for 5A001.j))) except to Country Group E:1 or E:2. See § 740.22 of the EAR for eligibility criteria.

Special Conditions for STA

STA: License Exception STA may not be used to ship or transmit “technology” according to the General Technology Note for the “development” or “production” of equipment, functions or features specified by 5A001.b.3, .b.5 or .h; or for “software” in 5D001.a or .c, that is specified in the STA paragraph in the License Exception section of ECCN 5D001 to any of the destinations listed in Country Group A:6 (See Supplement No.1 to part 740 of the EAR); or “technology” specified in 5E001.a according to the General Technology Note for the “development” or “production” of equipment, functions or features specified by 5A001.j, 5B001.a (for 5A001.j), 5D001.a (for 5A001.j), 5D001.c (for 5A001.j or 5B001.a) to any destinations listed in Country Group A:5 or A:6.

**List of Items Controlled**

***Related Controls:* (1) See also 5E101, 5E980 and 5E991. (2) “Technology” for “development” or “production” of “Monolithic Microwave Integrated Circuit” (“MMIC”) amplifiers that meet the control criteria given at 3A001.b.2 is controlled in 3E001; 5E001.d refers only to that additional “technology” “required” for telecommunications.**

***Related Definitions:* N/A**

***Items:***

a. “Technology” according to the General Technology Note for the “development”, “production” or “use” (excluding operation) of equipment, functions or features, controlled by 5A001 or “software” controlled by 5D001.a.

b. Specific “technology”, as follows:

b.1. “Technology” “required” for the “development” or “production” of telecommunications equipment “specially designed” to be used on board satellites;

b.2. “Technology” for the “development” or “use” of “laser” communication techniques with the capability of automatically acquiring and tracking signals and maintaining communications through exoatmosphere or sub-surface (water) media;

b.3. “Technology” for the “development” of digital cellular radio base station receiving equipment whose reception capabilities that allow multi-band, multi-channel, multi-mode, multi-coding algorithm or multi-protocol operation can be modified by changes in “software”;

b.4. “Technology” for the “development” of “spread spectrum” techniques, including “frequency hopping” techniques.

Note: 5E001.b.4 does not apply to “technology” for the “development” of any of the following:

*a. Civil cellular radio-communications systems; or*

*b. Fixed or mobile satellite Earth stations for commercial civil telecommunications.*

c. “Technology” according the General Technology Note for the “development” or “production” of any of the following:

c.1. [Reserved]

c.2. Equipment employing a “laser” and having any of the following:

c.2.a. A transmission wavelength exceeding 1,750 nm;

c.2.b. [Reserved]

c.2.c. [Reserved]

c.2.d. Employing wavelength division multiplexing techniques of optical carriers at less than 100 GHz spacing; *or*

c.2.e. Employing analog techniques and having a bandwidth exceeding 2.5 GHz;

Note: 5E001.c.2.e does not control “technology” for commercial TV systems.

N.B.: For “technology” for the “development” or “production” of non-telecommunications equipment employing a “laser”, see Product Group E of Category 6, e.g., 6E00x

c.3. Equipment employing “optical switching” and having a switching time less than 1 ms; *or*

c.4. Radio equipment having any of the following:

c.4.a. Quadrature-Amplitude-Modulation (QAM) techniques above level 1,024; *or*

c.4.b. Operating at input or output frequencies exceeding 31.8 GHz; *or*

Note: 5E001.c.4.b does not control “technology” for equipment designed or modified for operation in any frequency band which is “allocated by the ITU” for radio-communications services, but not for radio-determination.

c.4.c. Operating in the 1.5 MHz to 87.5 MHz band and incorporating adaptive techniques providing more than 15 dB suppression of an interfering signal; *or*

c.5. [Reserved]

c.6. Mobile equipment having all of the following:

c.6.a. Operating at an optical wavelength greater than or equal to 200nm and less than or equal to 400nm; *and*

c.6.b. Operating as a “local area network”;

d. “Technology” according to the General Technology Note for the “development” or “production” of “Monolithic Microwave Integrated Circuit” (“MMIC”) amplifiers “specially designed” for telecommunications and that are any of the following:

Technical Note: For purposes of 5E001.d, the parameter peak saturated power output may also be referred to on product data sheets as output power, saturated power output, maximum power output, peak power output, or peak envelope power output.

d.1. Rated for operation at frequencies exceeding 2.7 GHz up to and including 6.8 GHz with a “fractional bandwidth” greater than 15%, and having any of the following:

d.1.a. A peak saturated power output greater than 75 W (48.75 dBm) at any frequency exceeding 2.7 GHz up to and including 2.9 GHz;

d.1.b. A peak saturated power output greater than 55 W (47.4 dBm) at any frequency exceeding 2.9 GHz up to and including 3.2 GHz;

d.1.c. A peak saturated power output greater than 40 W (46 dBm) at any frequency exceeding 3.2 GHz up to and including 3.7 GHz; *or*

d.1.d. A peak saturated power output greater than 20 W (43 dBm) at any frequency exceeding 3.7 GHz up to and including 6.8 GHz;

d.2. Rated for operation at frequencies exceeding 6.8 GHz up to and including 16 GHz with a “fractional bandwidth” greater than 10%, and having any of the following:

d.2.a. A peak saturated power output greater than 10W (40 dBm) at any frequency exceeding 6.8 GHz up to and including 8.5 GHz; or

d.2.b. A peak saturated power output greater than 5W (37 dBm) at any frequency exceeding 8.5 GHz up to and including 16 GHz;

d.3. Rated for operation with a peak saturated power output greater than 3 W (34.77 dBm) at any frequency exceeding 16 GHz up to and including 31.8 GHz, and with a “fractional bandwidth” of greater than 10%;

d.4. Rated for operation with a peak saturated power output greater than 0.1n W (-70 dBm) at any frequency exceeding 31.8 GHz up to and including 37 GHz;

d.5. Rated for operation with a peak saturated power output greater than 1 W (30 dBm) at any frequency exceeding 37 GHz up to and including 43.5 GHz, and with a “fractional bandwidth” of greater than 10%;

d.6. Rated for operation with a peak saturated power output greater than 31.62 mW (15 dBm) at any frequency exceeding 43.5 GHz up to and including 75 GHz, and with a “fractional bandwidth” of greater than 10%;

d.7. Rated for operation with a peak saturated power output greater than 10 mW (10 dBm) at any frequency exceeding 75 GHz up to and including 90 GHz, and with a “fractional bandwidth” of greater than 5%; or

d.8. Rated for operation with a peak saturated power output greater than 0.1 nW (−70 dBm) at any frequency exceeding 90 GHz;

e. “Technology” according to the General Technology Note for the “development” or “production” of electronic devices and circuits, “specially designed” for telecommunications and containing “components” manufactured from “superconductive” materials, “specially designed” for operation at temperatures below the “critical temperature” of at least one of the “superconductive” constituents and having any of the following:

e.1. Current switching for digital circuits using “superconductive” gates with a product of delay time per gate (in seconds) and power dissipation per gate (in watts) of less than 10−14 J; *or*

e.2. Frequency selection at all frequencies using resonant circuits with Q-values exceeding 10,000.

### 5E101 “Technology” according to the General Technology Note for the “development,” “production” or “use” of equipment or software controlled by 5A101 or 5D101.

**License Requirements**

***Reason for Control:* MT, AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| MT applies to entire entry | MT Column 1 |
| AT applies to entire entry | AT Column 1 |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

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

### 5E980 “Technology”, other than that controlled by 5E001.a (for 5A001.f.1, and for 5D001.a (for 5A001.f.1)), primarily useful for the “development”, “production”, or “use” of equipment, functions or features, of equipment controlled by 5A980 or “software” controlled by 5D980.

**License Requirements**

***Reason for Control:* SL, AT**

***Controls:* SL and AT apply to entire entry. A license is required for all destinations, as specified in § 742.13 of the EAR. Accordingly, a column specific to this control does not appear on the Commerce Country Chart (Supplement No. 1 to Part 738 of the EAR).**

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* See also 5D001.a and .c (for 5A001.f.1 equipment), 5D001.b (supporting 5E001.a “technology” for 5A001.f.1 equipment, or for 5D001.a “software” (for 5A001.f.1equipment)), and 5E001.a (for 5A001.f.1 equipment, or for 5D001.a “software” for 5A001.f.1 equipment).**

***Related Definitions:* N/A**

***Items:***

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

### 5E991 “Technology” for the “Development”, “Production” or “Use” of Equipment Controlled by 5A991 or 5B991, or “Software” Controlled by 5D991, and Other “Technologies” as Follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| AT applies to entire entry | AT Column 1 |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* (1) “Synchronous digital hierarchy” (SDH) is a digital hierarchy providing a means to manage, multiplex, and access various forms of digital traffic using a synchronous transmission format on different types of media. The format is based on the Synchronous Transport Module (STM) that is defined by CCITT Recommendation G.703, G.707, G.708, G.709 and others yet to be published. The first level rate of ‘SDH’ is 155.52 Mbits/s. (2) ‘Synchronous optical network’ (SONET) is a network providing a means to manage, multiplex and access various forms of digital traffic using a synchronous transmission format on fiber optics. The format is the North America version of ‘SDH’ and also uses the Synchronous Transport Module (STM). However, it uses the Synchronous Transport Signal (STS) as the basic transport module with a first level rate of 51.81 Mbits/s. The SONET standards are being integrated into those of ‘SDH’.**

***Items:***

a. Specific “technologies” as follows:

a.1. “Technology” for the processing and application of coatings to optical fiber “specially designed” to make it suitable for underwater use;

a.2. “Technology” for the “development” of equipment employing ‘Synchronous Digital Hierarchy’ (‘SDH’) or ‘Synchronous Optical Network’ (‘SONET’) techniques.

# Part 2—“Information Security”

Note 1:

[Reserved]

Note 2:

Category 5—Part 2, “information security” products, when accompanying their user for the user's personal use or as tools of trade, are eligible for License Exceptions TMP or BAG, subject to the terms and conditions of these license exceptions.

Note 3:

Cryptography Note: ECCNs 5A002, 5D002.a.1, .b, and .c.1, do not control items as follows:

a. Items meeting all of the following:

1. Generally available to the public by being sold, without restriction, from stock at retail selling points by means of any of the following:

a. Over-the-counter transactions;

b. Mail order transactions;

c. Electronic transactions; or

d. Telephone call transactions;

2. The cryptographic functionality cannot be easily changed by the user;

3. Designed for installation by the user without further substantial support by the supplier; and

4. When necessary, details of the items are accessible and will be provided, upon request, to the appropriate authority in the exporter's country in order to ascertain compliance with conditions described in paragraphs a.1 through a.3 of this Note;

b. Hardware components or 'executable software', of existing items described in paragraph a. of this Note, that have been designed for these existing items, and meeting all of the following:

1. “Information security” is not the primary function or set of functions of the component or 'executable software';

2. The component or 'executable software' does not change any cryptographic functionality of the existing items, or add new cryptographic functionality to the existing items;

3. The feature set of the component or 'executable software' is fixed and is not designed or modified to customer specification; and

4. When necessary, as determined by the appropriate authority in the exporter's country, details of the component or 'executable software', and details of relevant end-items are accessible and will be provided to the authority upon request, in order to ascertain compliance with conditions described above.

Technical Note:

For the purpose of the Cryptography Note, 'executable software' means “software” in executable form, from an existing hardware component excluded from 5A002, by the Cryptography Note.

Note:

'Executable software' does not include complete binary images of the “software” running on an end-item.

Note to the Cryptography Note:

1. To meet paragraph a. of Note 3, all of the following must apply:

a. The item is of potential interest to a wide range of individuals and businesses; and

b. The price and information about the main functionality of the item are available before purchase without the need to consult the vendor or supplier. A simple price inquiry is not considered to be a consultation.

2. In determining eligibility of paragraph a. of Note 3, BIS may take into account relevant factors such as quantity, price, required technical skill, existing sales channels, typical customers, typical use or any exclusionary practices of the supplier.

N.B. to Note 3 (Cryptography Note):

You must submit a classification request or self-classification report to BIS for certain mass market encryption commodities and software eligible for the Cryptography Note employing a key length greater than 64 bits for the symmetric algorithm (or, for commodities and software not implementing any symmetric algorithms, employing a key length greater than 768 bits for asymmetric algorithms described by Technical note 2.b to 5A002.a or greater than 128 bits for elliptic curve algorithms, or any asymmetric algorithm described by Technical Note 2.c to 5A002.a) in accordance with the requirements of § 740.17(b) of the EAR in order to be released from the “EI” and “NS” controls of ECCN 5A002 or 5D002. For mass market commodities and software that do not require a self-classification report pursuant to § 740.17(b) and (e)(3) of the EAR, such items are also released from “EI” and “NS” controls and controlled under ECCN 5A992.c or 5D992.c.

## A. “End Items,” “Equipment,” “Accessories,” “Attachments,” “Parts,” “Components,” and “Systems”

### I. Cryptographic “Information Security”

### 5A002 “Information security” systems, equipment and “components,” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, AT, EI**

| **Control(s)** | **Country Chart  (See Supp. No. 1 to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 1 |
| AT applies to entire entry | AT Column 1 |
| EI applies to entire entry | Refer to § 742.15 of the EAR |

License Requirements Note:

See § 744.17 of the EAR for additional license requirements for microprocessors having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more, including those incorporating “information security” functionality, and associated “software” and “technology” for the “production” or “development” of such microprocessors.

**List Based License Exceptions (See Part 740 for a Description of All License Exceptions)**

***LVS:* Yes: $500 for “components”. N/A for systems and equipment.**

***GBS:* N/A**

***ENC:* Yes for certain EI controlled commodities, see § 740.17 of the EAR for eligibility.**

**List of Items Controlled**

***Related Controls:* (1) ECCN 5A002.a controls “components” providing the means or functions necessary for “information security.” All such “components” are presumptively “specially designed” and controlled by 5A002.a. (2) See USML Categories XI (including XI(b)) and XIII(b) (including XIII(b)(2)) for controls on systems, equipment, and components described in 5A002.d or .e that are subject to the ITAR. (3) For “satellite navigation system” receiving equipment containing or employing decryption see 7A005, and for related decryption “software” and “technology” see 7D005 and 7E001. (4) Noting that items may be controlled elsewhere on the CCL, examples of items not controlled by ECCN 5A002.a.4 include the following: (a) An automobile where the only 'cryptography for data confidentiality' having a 'described security algorithm' is performed by a Category 5—Part 2 Note 3 eligible mobile telephone that is built into the car. In this case, secure phone communications support a non-primary function of the automobile but the mobile telephone (equipment), as a standalone item, is not controlled by ECCN 5A002 because it is excluded by the Cryptography Note (Note 3) (See ECCN 5A992.c). (b) An exercise bike with an embedded Category 5—Part 2 Note 3 eligible web browser, where the only controlled cryptography is performed by the web browser. In this case, secure web browsing supports a non-primary function of the exercise bike but the web browser (“software”), as a standalone item, is not controlled by ECCN 5D002 because it is excluded by the Cryptography Note (Note 3) (See ECCN 5D992.c). (5) After classification or self-classification in accordance with § 740.17(b) of the EAR, mass market encryption commodities that meet eligibility requirements are released from “EI” and “NS” controls. These commodities are designated 5A992.c.**

***Related Definitions:* N/A**

***Items:***

a. Designed or modified to use 'cryptography for data confidentiality' having a 'described security algorithm', where that cryptographic capability is usable, has been activated, or can be activated by any means other than secure “cryptographic activation”, as follows:

a.1. Items having “information security” as a primary function;

a.2. Digital communication or networking systems, equipment or components, not specified in paragraph 5A002.a.1;

a.3. Computers, other items having information storage or processing as a primary function, and components therefor, not specified in paragraphs 5A002.a.1 or .a.2;

N.B.:

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

a.4. Items, not specified in paragraphs 5A002.a.1 to a.3, where the 'cryptography for data confidentiality' having a 'described security algorithm' meets all of the following:

a.4.a. It supports a non-primary function of the item; *and*

a.4.b. It is performed by incorporated equipment or “software” that would, as a standalone item, be specified by ECCNs 5A002, 5A003, 5A004, 5B002 or 5D002.

N.B. to paragraph a.4:

See Related Control Paragraph (4) of this ECCN 5A002 for examples of items not controlled by 5A002.a.4.

Technical Notes:

1. For the purposes of 5A002.a, 'cryptography for data confidentiality' means “cryptography” that employs digital techniques and performs any cryptographic function other than any of the following:

1.a. “Authentication;”

1.b. Digital signature;

1.c. Data integrity;

1.d. Non-repudiation;

1.e. Digital rights management, including the execution of copy-protected “software;”

1.f. Encryption or decryption in support of entertainment, mass commercial broadcasts or medical records management; or

1.g. Key management in support of any function described in paragraphs 1.a to 1.f of this Technical Note paragraph 1.

2. For the purposes of 5A002.a, 'described security algorithm' means any of the following:

2.a. A “symmetric algorithm” employing a key length in excess of 56 bits, not including parity bits;

2.b. An “asymmetric algorithm” where the security of the algorithm is based on any of the following:

2.b.1. Factorization of integers in excess of 512 bits (e.g., RSA);

2.b.2. Computation of discrete logarithms in a multiplicative group of a finite field of size greater than 512 bits (e.g., Diffie-Hellman over Z/pZ); or

2.b.3. Discrete logarithms in a group other than mentioned in paragraph 2.b.2 of this Technical Note in excess of 112 bits (e.g., Diffie-Hellman over an elliptic curve); or

2.c. An “asymmetric algorithm” where the security of the algorithm is based on any of the following:

2.c.1. Shortest vector or closest vector problems associated with lattices (e.g., NewHope, Frodo, NTRUEncrypt, Kyber, Titanium);

2.c.2. Finding isogenies between Supersingular elliptic curves (e.g., Supersingular Isogeny Key Encapsulation); or

2.c.3. Decoding random codes (e.g., McEliece, Niederreiter).

Technical Note:

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

Note 1:

Details of items must be accessible and provided upon request, in order to establish any of the following:

a. Whether the item meets the criteria of 5A002.a.1 to a.4; or

b. Whether the cryptographic capability for data confidentiality specified by 5A002.a is usable without “cryptographic activation.”

Note 2:

5A002.a does not control any of the following items, or specially designed “information security” components therefor:

a. Smart cards and smart card 'readers/writers' as follows:

a.1. A smart card or an electronically readable personal document (e.g., token coin, e-passport) that meets any of the following:

a.1.a. The cryptographic capability meets all of the following:

a.1.a.1. It is restricted for use in any of the following:

a.1.a.1.a. Equipment or systems, not described by 5A002.a.1 to a.4;

a.1.a.1.b. Equipment or systems, not using 'cryptography for data confidentiality' having a 'described security algorithm'; or

a.1.a.1.c. Equipment or systems, excluded from 5A002.a by entries b. to f. of this Note; and

a.1.a.2. It cannot be reprogrammed for any other use; or

a.1.b. Having all of the following:

a.1.b.1. It is specially designed and limited to allow protection of 'personal data' stored within;

a.1.b.2. Has been, or can only be, personalized for public or commercial transactions or individual identification; and

a.1.b.3. Where the cryptographic capability is not user-accessible;

Technical Note to paragraph a.1.b of Note 2:

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

a.2. 'Readers/writers' specially designed or modified, and limited, for items specified by paragraph a.1 of this Note;

Technical Note to paragraph a.2 of Note 2:

'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 to paragraph b. of Note 2:

'Money transactions' in 5A002 Note 2 paragraph 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 meters 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 customized for a specific civil industry application with features that do not affect the cryptographic functionality of these original non-customized devices;

f. Items, where the “information security” functionality is limited to wireless “personal area network” functionality implementing only published or commercial cryptographic standards;

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

i. General purpose computing equipment or servers, where the “information security” functionality meets all of the following:

i.1. Uses only published or commercial cryptographic standards; and

i.2. Is any of the following:

i.2.a. Integral to a CPU that meets the provisions of Note 3 in Category 5—Part 2;

i.2.b. Integral to an operating system that is not specified by 5D002; or

i.2.c. Limited to “OAM” of the equipment; or

j. Items specially designed for a 'connected civil industry application', meeting all of the following:

j.1. Being any of the following:

j.1.a. A network-capable endpoint device meeting any of the following:

j.1.a.1. The “information security” functionality is limited to securing 'non-arbitrary data' or the tasks of “Operations, Administration or Maintenance” (“OAM”); or

j.1.a.2. The device is limited to a specific 'connected civil industry application'; or

j.1.b. Networking equipment meeting all of the following:

j.1.b.1. Being specially designed to communicate with the devices specified by paragraph j.1.a. above; and

j.1.b.2. The “information security” functionality is limited to supporting the 'connected civil industry application' of devices specified by paragraph j.1.a. above, or the tasks of “OAM” of this networking equipment or of other items specified by paragraph j. of this Note; and

j.2. Where the “information security” functionality implements only published or commercial cryptographic standards, and the cryptographic functionality cannot easily be changed by the user.

Technical Notes:

1. 'Connected civil industry application' means a network-connected consumer or civil industry application other than “information security”, digital communication, general purpose networking or computing.

2. 'Non-arbitrary data' means sensor or metering data directly related to the stability, performance or physical measurement of a system (e.g., temperature, pressure, flow rate, mass, volume, voltage, physical location, etc.), that cannot be changed by the user of the device.

b. Being a 'cryptographic activation token';

Technical Note:

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

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

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

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

Technical Note:

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

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

d.1. A bandwidth exceeding 500 MHz; *or*

d.2. A “fractional bandwidth” of 20% or more;

e. Designed or modified to use cryptographic techniques to generate the spreading code for “spread spectrum” systems, not specified by 5A002.d, including the hopping code for “frequency hopping” systems.

### 5A992 Equipment not controlled by 5A002 (see List of Items Controlled)

**License Requirements**

***Reason for Control:* RS, AT**

| **Control(s)** | **Country chart  (See Supp. No. 1 to part 738)** |
| --- | --- |
| RS applies to items controlled by 5A992.c that meet or exceed the performance parameters of ECCN 3A090 or 4A090 | RS (see § 742.6(a)(6)) |
| AT applies to entire entry | AT Column 1 |

License Requirements Note:

See § 744.17 of the EAR for additional license requirements for microprocessors having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more, including those incorporating “information security” functionality, and associated “software” and “technology” for the “production” or “development” of such microprocessors.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A**

***GBS:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

a. [Reserved]

b. [Reserved]

c. Commodities classified as mass market encryption commodities in accordance with § 740.17(b) of the EAR.

### II. NON-CRYPTOGRAPHIC “INFORMATION SECURITY”

### 5A003 “Systems,” “equipment” and “components,” for non-cryptographic “information security,” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, AT**

| **Control(s)** | **Country chart  (see Supp. No. 1 to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 2. |
| AT applies to entire entry | AT Column 1. |

**List Based License Exceptions (See Part 740 for a Description of All License Exceptions)**

***LVS:* Yes: $500 for “components.”**

**N/A for systems and equipment.**

***GBS:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

a. Communications cable systems designed or modified to use mechanical, electrical or electronic means to detect surreptitious intrusion;

Note:

5A003.a applies only to physical layer security. For the purpose of 5A003.a, the physical layer includes Layer 1 of the Reference Model of Open Systems Interconnection (OSI) (ISO/IEC 7498–1).

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

### III. DEFEATING, WEAKENING, OR BYPASSING “INFORMATION SECURITY”

### 5A004 “Systems,” “equipment” and “components” for defeating, weakening or bypassing “information security,” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, AT, EI**

| **Control(s)** | **Country chart  (See Supp. No. 1  to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 1. |
| AT applies to entire entry | AT Column 1. |
| EI applies to entire entry | Refer to § 742.15 of the EAR. |

License Requirements Note: See § 744.17 of the EAR for additional license requirements for microprocessors having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more, including those incorporating “information security” functionality, and associated “software” and “technology” for the “production” or “development” of such microprocessors.

**List Based License Exceptions (See Part 740 for a Description of All License Exceptions)**

***LVS:* Yes: $500 for “components.”**

**N/A for systems and equipment.**

***GBS:* N/A**

***ENC:* Yes for certain EI controlled commodities. See § 740.17 of the EAR for eligibility.**

**List of Items Controlled**

***Related Controls:* ECCN 5A004.a controls “components” providing the means or functions necessary for “information security.” All such “components” are presumptively “specially designed” and controlled by 5A004.a. Defense articles described in USML Category XI(b), and software directly related to a defense article, are “subject to the ITAR”; see** [**§ 120.10(a)(4)**](https://www.ecfr.gov/current/title-15/section-120.10#p-120.10(a)(4))**.**

***Related Definitions:* N/A**

***Items:***

a. Designed or modified to perform 'cryptanalytic functions.'

Note: 5A004.a includes systems or equipment, designed or modified to perform 'cryptanalytic functions' by means of reverse engineering.

Technical Note: 'Cryptanalytic functions' are functions designed to defeat cryptographic mechanisms in order to derive confidential variables or sensitive data, including clear text, passwords or cryptographic keys.

b. Items, not specified by ECCNs 4A005 or 5A004.a, designed to perform all of the following:

b.1. 'Extract raw data' from a computing or communications device; *and*

b.2. Circumvent “authentication” or authorisation controls of the device, in order to perform the function described in 5A004.b.1.

Technical Note: 'Extract raw data' from a computing or communications device means to retrieve binary data from a storage medium, e.g., RAM, flash or hard disk, of the device without interpretation by the device's operating system or filesystem.

Note 1: 5A004.b does not apply to systems or equipment specially designed for the “development” or “production” of a computing or communications device.

Note 2: 5A004.b does not include:

a. Debuggers, hypervisors;

b. Items limited to logical data extraction;

c. Data extraction items using chip-off or JTAG; or

d. Items specially designed and limited to jail-breaking or rooting.

## B. Test, Inspection and “Production Equipment”

### 5B002 “Information Security” test, inspection and “production” equipment, as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, AT**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 1 |
| AT applies to entire entry | AT Column 1 |

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***LVS:* N/A**

***GBS:* N/A**

***ENC:* Yes for certain EI controlled equipment, see § 740.17 of the EAR for eligibility.**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

a. Equipment “specially designed” for the “development” or “production” of equipment controlled by 5A002, 5A003, 5A004 or 5B002.b;

b. Measuring equipment “specially designed” to evaluate and validate the “information security” functions of equipment controlled by 5A002, 5A003 or 5A004, or of “software” controlled by 5D002.a or 5D002.c.

## C. “Materials” [Reserved]

## D. “Software”

### 5D002 “Software” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, AT, EI**

| **Control(s)** | **Country chart  (See Supp. No. 1 to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 1. |
| AT applies to entire entry | AT Column 1. |
| EI applies to “software” in 5D002.a.1, a.3, .b, c.1 and c.3, for commodities or “software” controlled for EI reasons in ECCN 5A002, 5A004 or 5D002 | Refer to § 742.15 of the EAR.  *Note: Encryption software is controlled because of its functional capacity, and not because of any informational value of such software; such software is not accorded the same treatment under the EAR as other 'software'; and for export licensing purposes, encryption software is treated under the EAR in the same manner as a commodity included in ECCN 5A002.* |

License Requirements Note:

See § 744.17 of the EAR for additional license requirements for microprocessors having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more, including those incorporating “information security” functionality, and associated “software” and “technology” for the “production” or “development” of such microprocessors.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

***ENC:* Yes for certain EI controlled software. See § 740.17 of the EAR for eligibility.**

**List of Items Controlled**

***Related Controls:* After classification or self-classification in accordance with § 740.17(b) of the EAR, mass market encryption software that meets eligibility requirements is released from “EI” and “NS” controls. This software is designated as 5D992.c.**

***Related Definitions:* 5D002.a controls “software” designed or modified to use “cryptography” employing digital or analog techniques to ensure “information security.”**

***Items:***

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

a.1. Equipment specified by 5A002 or “software” specified by 5D002.c.1;

a.2. Equipment specified by 5A003 or “software” specified by 5D002.c.2; *or*

a.3. Equipment or “software”, as follows:

a.3.a. Equipment specified by 5A004.a or “software” specified by 5D002.c.3.a;

a.3.b. Equipment specified by 5A004.b or “software” specified by 5D002.c.3.b;

b. “Software” having the characteristics of a 'cryptographic activation token' specified by 5A002.b;

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

c.1. Equipment specified by 5A002.a, .c, .d or .e;

Note:

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

c.2. Equipment specified by 5A003; *or*

c.3. Equipment, as follows:

c.3.a. Equipment specified by 5A004.a;

c.3.b. Equipment specified by 5A004.b.

Note:

5D002.c.3.b does not apply to “intrusion software”.

d. [Reserved]

N.B.:

See 5D002.b for items formerly specified in 5D002.d.

### 5D992 “Information Security” “software,” not controlled by 5D002, as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* RS, AT**

| **Control(s)** | **Country chart  (See Supp. No. 1 to part 738)** |
| --- | --- |
| RS applies to items controlled by 5D992.c that meet or exceed the performance parameters of ECCN 3A090 or 4A090 | RS (see § 742.6(a)(6)). |
| AT applies to entire entry | AT Column 1. |

License Requirements Note:

See § 744.17 of the EAR for additional license requirements for microprocessors having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more, including those incorporating “information security” functionality, and associated “software” and “technology” for the “production” or “development” of such microprocessors.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* This entry does not control “software” designed or modified to protect against malicious computer damage, *e.g.,* viruses, where the use of “cryptography” is limited to authentication, digital signature and/or the decryption of data or files.**

***Related Definitions:* N/A**

***Items:***

a. [Reserved]

b. [Reserved]

c. “Software” classified as mass market encryption software in accordance with § 740.17(b) of the EAR.

## E. “Technology”

### 5E002 “Technology” as follows (see List of Items Controlled).

**License Requirements**

***Reason for Control:* NS, AT, EI**

| **Control(s)** | **Country chart  (See Supp. No. 1 to part 738)** |
| --- | --- |
| NS applies to entire entry | NS Column 1. |
| AT applies to entire entry | AT Column 1. |
| EI applies to “technology” in 5E002.a for commodities or “software” controlled for EI reasons in ECCNs 5A002, 5A004 or 5D002, and to “technology” in 5E002.b | Refer to § 742.15 of the EAR. |

License Requirements Notes:

(1) See § 744.17 of the EAR for additional license requirements for microprocessors having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more, including those incorporating “information security” functionality, and associated “software” and “technology” for the “production” or “development” of such microprocessors.

(2) When a person performs or provides technical assistance that incorporates, or otherwise draws upon, “technology” that was either obtained in the United States or is of U.S.-origin, then a release of the “technology” takes place. Such technical assistance, when rendered with the intent to aid in the “development” or “production” of encryption commodities or software that would be controlled for “EI” reasons under ECCN 5A002, 5A004 or 5D002, may require authorization under the EAR even if the underlying encryption algorithm to be implemented is from the public domain or is not of U.S.-origin.

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

***ENC:* Yes for certain EI controlled technology. See § 740.17 of the EAR for eligibility.**

**List of Items Controlled**

***Related Controls:* See also 5E992. This entry does not control “technology” “required” for the “use” of equipment excluded from control under the Related Controls paragraph or the Technical Notes in ECCN 5A002 or “technology” related to equipment excluded from control under ECCN 5A002.**

***Related Definitions:* N/A**

***Items:***

a. “Technology” according to the General Technology Note for the “development,” “production” or “use” of equipment controlled by 5A002, 5A003, 5A004 or 5B002, or of “software” controlled by 5D002.a or 5D002.c.

Note:

5E002.a does not apply to “technology” for items specified by 5A004.b, 5D002.a.3.b or 5D002.c.3.b.

b. “Technology” having the characteristics of a 'cryptographic activation token' specified by 5A002.b.

Note:

5E002 includes “information security” technical data resulting from procedures carried out to evaluate or determine the implementation of functions, features or techniques specified in Category 5-Part 2.

### 5E992 “Information Security” “technology” according to the General Technology Note, not controlled by 5E002, as follows (see List of Items Controlled).

**License Requirements**

| **Control(s)** | **Country Chart (See Supp. No. 1 to part 738)** |
| --- | --- |
| AT applies to entire entry | AT Column 1. |

License Requirements Note:

**See § 744.17 of the EAR for additional license requirements for microprocessors having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more, including those incorporating “information security” functionality, and associated “software” and “technology” for the “production” or “development” of such microprocessors.**

**List Based License Exceptions (See Part 740 for a description of all license exceptions)**

***TSR:* N/A**

**List of Items Controlled**

***Related Controls:* N/A**

***Related Definitions:* N/A**

***Items:***

a. [Reserved]

b. “Technology”, n.e.s., for the “use” of mass market commodities controlled by 5A992.c or mass market “software” controlled by 5D992.c.

## 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.