

## PART 772

### DEFINITIONS OF TERMS

AES	Controlled country	FMU - see flexible manufacturing unit
APP	Controlled in fact	Fault tolerance
Accuracy	Cooperating country	Fibrous or filamentary materials
Active Flight control systems	Countries supporting international terrorism	Film type integrated circuit
Active pixel	Country Chart	Financial institution
Adaptive control	Country Groups	Firm
Adjusted Peak Performance	Critical temperature	Fixed
Advisory Committee on Export Policy (ACEP)	Cryptography	Flexible manufacturing unit
Agricultural commodities	Customs officer	Flight control optical sensor array
Aircraft	CW Laser	Flight path optimization
Airline	Data signaling rate	Focal plane array
All compensations available	Deformable mirrors	Food
Allocated by the ITU	Depleted uranium	Foreign government agency
Angle random walk	Designed or modified	Foreign policy control
Angular position deviation	Development	Foreign Terrorist Organization (FTO)
Applicant	Diffusion bonding	Forwarding agent
Asymmetric algorithm	Digital computer	Fractional bandwidth
Australia Group (AG)	Digital transfer rate	Frequency hopping
Automated Export Systems (AES)	Direct-acting hydraulic pressing	Frequency switching time
Automatic target tracking	Directorate of Defense Trade Controls (DDTC)	Frequency synthesizer
Average Output Power	Drift rate	Full Authority Digital Engine Control
Bank	Dual use	Gas Atomization
Basic gate propagation delay time	Dynamic adaptive routing	General prohibitions
Basic Scientific Research	Dynamic signal analyzers	Geographically dispersed
Bias	Effective control	Government end-user (as applied to encryption items)
Bill of Lading	Effective Gram	Hold Without Action (HWA)
Business Unit	Electric assembly	Hot isostatic densification
CCL - see Commerce Control List	Electronically steerable phased array antenna	Hybrid computer
CCL Group	Encryption component	Hybrid integrated circuit
CE - see Computing Element	Encryption items	Image enhancement
Camming	Encryption Licensing Arrangement	Information security
Canadian airline	Encryption object code	Instantaneous bandwidth
Capable of	Encryption software	Instrumented range
Carbon fiber preforms	Encryption source code	Intent to Deny (ITD) letter
Category	End-effectors	Interconnected radar sensors
Chemical laser	End-user	Intermediate consignee
Chemical Weapons Convention (CWC)	Equivalent Density	Intrinsic Magnetic Gradiometer
Circulation-controlled, anti-torque or circulation-controlled direction control systems	Expert systems	Isostatic presses
Civil aircraft	Export	Item
COCOM (Coordinating Committee on Multilateral Export Controls)	Export Administration Act (EAA)	Know - see knowledge
Commerce Control List (CCL)	Export Administration Review Board (EARB)	Knowledge
Commingled	Export Administration Regulations (EAR)	Laser
Comminution	Export Control Classification Number (ECCN)	Law or regulation relating to export control
Commodity	Export control document	Legible or legibility
Communications channel controller	Exporter	License
Compensation systems	Exporting carrier	License Application; application for license
Composite	FADEC see "full authority digital engine control"	License Exception
Compound rotary table		Licensee
Computing element		Linearity
Contouring control		Local area network

MBTR - see maximum bit transfer rate  
 MTCR - see Missile Technology Control Regime  
 MTEC - see Missile Technology Export Control Group  
 Magnetic Gradiometers  
 Magnetometers  
 Man storage  
 Matrix  
 Maximum bit transfer rate (MBTR)  
 Measurement uncertainty  
 Mechanical alloying  
 Media access unit  
 Medical devices  
 Medicines  
 Melt Extraction  
 Melt Spinning  
 Microcomputer microcircuit  
 Microorganisms  
 Microprocessor microcircuit  
 Microprogram  
 Missile Technology Control Regime (MTCR)  
 Missile Technology Export Control Group (MTEC)  
 Missiles  
 Monolithic integrated circuit  
 Monospectral imaging sensors  
 Motion control board  
 Multichip integrated circuit  
 Multi-data-stream processing  
 Multilevel security  
 Multispectral Imaging Sensors  
 N.E.S. or n.e.s.  
 NLR - No License Required  
 NSG - see Nuclear Suppliers Group  
 NATO (North Atlantic Treaty Organization)  
 Natural uranium  
 Net value  
 Neural computer  
 Noise level  
 Nuclear reactor  
 Nuclear Suppliers Group (NSG)  
 Numerical control  
 Object code  
 Office of Foreign Assets Control (FAC) or (OFAC)  
 Open cryptographic interface Operate autonomously  
 Operating Committee (OC)  
 Optical amplification  
 Optical computer  
 Optical integrated circuit  
 Optical switching  
 Order Party  
 Organization for the Prohibition of Chemical Weapons (OPCW)  
 Other party authorized to receive license  
 Overall current density  
 Part program  
 Payload (MTCR)  
 Peak power  
 person  
 Personalized smart card  
 Port of export  
 Positioning accuracy  
 Power management  
 Previously separated  
 Primary flight control  
 Principal element  
 Principal parties in interest  
 Production  
 Production equipment  
 Production facilities  
 Program  
 Proof test  
 Publicly available information  
 Publicly available technology and software  
 Pulse compression  
 Pulse duration  
 Pulsed Laser  
 Purchaser  
 Q-switched laser  
 RWA - see Return Without Action  
 radar frequency agility  
 Radar spread spectrum  
 Range  
 Range (MTCR)  
 Readable or readability  
 Real-time bandwidth  
 Real time Processing  
 Reasons for Control  
 Recoverable commodities and software  
 Reexport  
 Repeatability  
 Repeatability (MTCR)  
 Replacement license  
 Required  
 Resolution  
 Return Without Action (RWA)  
 Robot  
 Rotary Atomization  
 Routed export transaction  
 Run-out  
 SHPL - see "super high power laser"  
 SNEC - see Subgroup on Nuclear Export Coordination  
 Scale factor  
 Schedule B numbers  
 Settling time  
 Shield  
 Signal analyzers  
 Signal analyzers  
 Signal processing  
 Single shipment  
 Software  
 Source code  
 Spacecraft  
 Space qualified  
 Special fissile material  
 Specially Designated National (SDN)  
 Specially Designated Terrorist (STN)  
 Specially designed  
 Specific modulus  
 Specific tensile strength  
 Spectral efficiency  
 Splat quenching  
 Spread Spectrum  
 Spread spectrum radar  
 Stability  
 Stored program controlled  
 Strategic partner  
 Subgroup on Nuclear Export Coordination (SNEC)  
 Subject to the EAR  
 Substrate  
 Substrate blanks  
 Superalloys  
 Superconductive  
 Super High Power Laser (SHPL)  
 Superplastic forming  
 Symmetric algorithm  
 Systems tracks  
 Systolic array computer  
 Technology  
 Technical data  
 Terminal interface equipment  
 Three dimensional Vector Rate  
 Tilting spindle  
 Time constant  
 Total control of flight  
 Total digital transfer rate  
 Toxins  
 Transfer  
 Transfer laser  
 Tunable  
 UAVs - see Unmanned aerial vehicles  
 U.S. person  
 U.S. subsidiary  
 Ultimate consignee  
 United States  
 United States airline  
 Unmanned aerial vehicles (UAVs)  
 Usable in, usable for, usable as or Capable of  
 Use  
 User-accessible programmability  
 Utilization facility  
 Vacuum Atomization  
 Variable geometry airfoils  
 Vector Rate  
 You

## §772.1

### DEFINITIONS OF TERMS AS USED IN THE EXPORT ADMINISTRATION REGULATIONS (EAR)

The following are definitions of terms as used in the Export Administration Regulations (EAR). In this part, references to the EAR are references to 15 CFR chapter VII, subchapter C. Those terms in quotation marks refer to terms used on the Commerce Control List (CCL) (Supplement No. 1 to part 774 of the EAR). Parenthetical references following the terms in quotation marks (i.e., (Cat 5)) refer to the CCL category in which that term is found. If a term is used in only one Export Control Classification Number (ECCN) on the CCL, then that term will *not* appear in this part, but will be defined in the Related Definitions paragraph in the List of Items Controlled Section of that ECCN.

*AES*. See “Automated Export System.”

“APP” See “Adjusted Peak Performance.” This term may also appear without quotation marks.

“*Accuracy*”. (Cat 2 and 6)--“Accuracy” is usually measured in terms of inaccuracy. It is defined as the maximum deviation, positive or negative, of an indicated value from an accepted standard or true value.

“*Active flight control systems*”. (Cat 7)--Function to prevent undesirable “aircraft” and “missile” motions or structural loads by autonomously processing outputs from multiple sensors and then providing necessary preventive commands to effect automatic control.

“*Active pixel*”. (Cat 6 and 8)--A minimum (single) element of the solid state array that has a photoelectric transfer function when exposed to light (electromagnetic) radiation.

“*Adaptive control*”. (Cat 2)--A control system that adjusts the response from conditions detected during the operation (Ref. ISO 2806-1980).

“*Adjusted Peak Performance*” (*APP*). (Cat 4) An adjusted peak rate at which “digital computers” perform 64-bit or larger floating point additions and multiplications. The formula to calculate *APP* is contained in a technical note at the end of Category 4 of the Commerce Control List.

*Advisory Committee on Export Policy (ACEP)*. The *ACEP* voting members include the Assistant Secretary of Commerce for Export Administration, and Assistant Secretary-level representatives from the Departments of State, Defense, Justice (for encryption exports), Energy, and the Arms Control and Disarmament Agency. The appropriate representatives of the Joint Chiefs of Staff and the Director of the Nonproliferation Center of the Central Intelligence Agency are non-voting members. The Assistant Secretary of Commerce for Export Administration is the Chair. Appropriate acting Assistant Secretary, Deputy Assistant Secretary or equivalent strength of any agency or department may serve in lieu of the Assistant Secretary of the concerned agency or department. Such representatives, regardless of rank, will speak and vote on behalf of their agencies or departments. The *ACEP* may invite Assistant Secretary-level representatives of other Government agencies or departments (other than those identified above) to participate in the activities of the *ACEP* when matters of interest to such agencies or departments are under consideration. Decisions are made by majority vote.

“*Agricultural commodities*”. Agricultural commodities include food (including processed food); feed; fish; shellfish and fish products; beer, wine and spirits; livestock; fiber including cotton, wool and other fibers; tobacco and tobacco products; wood and wood products; seeds; fertilizer and organic fertilizer; reproductive materials such as fertilized eggs, embryos and semen. For the purposes of the EAR, agricultural commodities do *not* include furniture made from

wood; clothing manufactured from plant or animal materials; agricultural equipment (whether hand tools or motorized equipment); pesticides, insecticides, or herbicides; or cosmetics (unless derived entirely from plant materials).

**Note 1:** This definition of agricultural commodities includes fertilizer and organic fertilizer, as listed in section 775 of the 2001 Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act (Act) (Public Law 106-387) and commodities listed in section 102 of the Agricultural Trade Act of 1978 (7 U.S.C. 5602) as incorporated in section 902 of the Act, as well as commodities determined by the Department of Agriculture to fall within the scope of section 102 of the 1978 Agricultural Trade Act.

**Note 2:** For purposes of License Exception AGR (see §740.18 of the EAR), agricultural commodities also include vitamins, minerals, food additives and dietary supplements, and bottled water. These items do not fall within the scope of section 102 of the 1978 Agricultural Trade Act, but are treated as agricultural commodities for the purposes of License Exception AGR.

**Note 3:** For purposes of License Exception AGR and export license applications to Iran and Sudan under the licensing procedures set forth in the appropriate regulations promulgated and administered by Treasury's Office of Foreign Assets Control, agricultural commodities only include those that are classified as EAR99.

*"Aircraft"*. (Cat 1, 7, and 9)--A fixed wing, swivelwing, rotary wing (helicopter), tilt rotor or tilt-wing airborne vehicle. (see also "civil aircraft".)

*Airline*. Any person engaged primarily in the transport of persons or property by aircraft for compensation or hire, pursuant to authorization by the U.S. Government or a foreign government.

*"All compensations available."* (Cat 2) means after all feasible measures available to the manufacturer to minimize all systematic positioning errors for the particular machine-tool model are considered.

*"Allocated by the ITU"*. (Cat 3 and Cat 5 part 1) -- The allocation of frequency bands according to the current edition of the ITU Radio Regulations for primary, permitted and secondary services.

**N.B.** Additional and alternative allocations are not included.

*"Angle random walk"*. (Cat 7) The angular error buildup with time that is due to white noise in angular rate. (IEEE STD 528-2001)

*"Angular position deviation"*. (Cat 2)--The maximum difference between angular position and the actual, very accurately measured angular position after the workpiece mount of the table has been turned out of its initial position. (Reference: VDI/VDE 2617, Draft: 'Rotary tables on coordinate measuring machines').

*Applicant*. The person who applies for an export or reexport license, and who has the authority of a principal party in interest to determine and control the export or reexport of items. See §748.4 of the EAR and definition for "exporter" in this part of the EAR.

*"Asymmetric algorithm."* (Cat 5) means a cryptographic algorithm using different, mathematically-related keys for encryption and decryption.

**Technical Note:** A common use of "asymmetric algorithms" is key management.

*Australia Group*. The countries participating in the Australia Group have agreed to adopt harmonized controls on certain dual-use chemicals (i.e., precursor chemicals), biological agents, related manufacturing facilities and equipment, and related technology in order to ensure that

exports of these items do not contribute to the proliferation of chemical or biological weapons. Countries participating in the Australia Group as of July 1, 2007, include: Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea (South), Latvia, Lithuania, Luxembourg, Malta, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States. See also §742.2 of the EAR.

*Automated Export System (AES).* AES is a nationwide system operational at all ports and for all methods of transportation through which export shipment data required by multiple agencies is filed electronically to Customs, using the efficiencies of Electronic Data Interchange (EDI). AES provides an alternative to filing paper Shipper's Export Declarations (SEDs), so that export information is collected electronically and edited immediately. For more information about AES, visit the Bureau of Census website at: <http://www.customs.ustreas.gov/impoexpo/abae sint.htm>

*"Automatic target tracking".* (Cat 6)--A processing technique that automatically determines and provides as output an extrapolated value of the most probable position of the target in real time.

*"Average Output Power".* (Cat 6) The average output power is the total "laser" output energy in joules divided by the "laser duration" in seconds.

*Bank.* Means any of the following:

(a) bank, savings association, credit union, bank holding company, bank or savings association service corporation, Edge Act corporation, Agreement corporation, or any insured depository institution, which is organized under the laws of

the United States or any State and regulated or supervised by a Federal banking agency or a State bank supervisor; or

(b) a company organized under the laws of a foreign country and regulated or supervised by a foreign bank regulatory or supervisory authority which engages in the business of banking, including without limitation, foreign commercial banks, foreign merchant banks and other foreign institutions that engage in banking activities usual in connection with the business of banking in the countries where such foreign institutions are organized or operating; or

(c) an entity engaged in the business of providing clearing or settlement services, that is, or whose members are, regulated or supervised by a Federal banking agency, a State bank supervisor, or a foreign bank regulatory or supervisory authority; or

(d) a branch or affiliate of any of the entities listed in paragraphs (a), (b), or (c) of this paragraph, regulated or supervised by a Federal banking agency, a State bank supervisor or a foreign bank regulatory or supervisory authority; or

(e) an affiliate of any of the entities listed in paragraph (a), (b), (c), or (d) of this paragraph, engaged solely in the business of providing data processing services to a bank or financial institution, or a branch of such an affiliate.

*"Basic gate propagation delay time."* (Cat 3) The propagation delay time value corresponding to the basic gate used in a "monolithic integrated circuit." For a 'family' of "monolithic integrated circuits", this may be specified either as the propagation delay time per typical gate within the given 'family' or as the typical propagation delay time per gate within the given 'family'.

**Technical Notes:**

1. “Basic gate propagation delay time” is not to be confused with the input/output delay time of a complex “monolithic integrated circuit.”

2. ‘Family’ consists of all integrated circuits to which all of the following are applied as their manufacturing methodology and specifications except their respective functions:

- a. The common hardware and software architecture;
- b. The common design and process technology; *and*
- c. The common basic characteristics.

“*Basic Scientific Research*”. (GTN)--Experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena or observable facts, not primarily directed towards a specific practical aim or objective.

“*Bias*”. (accelerometer) (Cat 7)--An accelerometer output when no acceleration is applied.

*Bill of Lading*. The contract of carriage and receipt for items, issued by the carrier. It includes an air waybill, but does not include an inland bill of lading or a domestic air waybill covering movement to port only.

*Business Unit*. As applied to encryption items, means a unit of a business which, whether or not separately incorporated, has:

- (a) a distinct organizational structure which does not overlap with other business units of the same business;
- (b) a distinct set of accounts; and
- (c) separate facilities for purchase, sale, delivery, and production of goods and services.

*CCL*. See Commerce Control List.

*CCL Group*. The Commerce Control List (CCL) is divided into 10 categories. Each category is subdivided into five groups, designated by the letters A through E: (A) Equipment, assemblies and components; (B) Test, inspection and production equipment; (C) Materials; (D) Software; and (E) Technology. See §738.2(b) of the EAR.

“*CE*”.--See “Computing Element”.

“*Camming*”. (axial displacement) (Cat 2)--Axial displacement in one revolution of the main spindle measured in a plane perpendicular to the spindle faceplate, at a point next to the circumference of the spindle faceplate (Ref.: ISO 230 Part 1-1986, paragraph 5.63).

*Canadian airline*. Any citizen of Canada who is authorized by the Canadian Government to engage in business as an airline. For purposes of this definition, a Canadian citizen is:

- (a) A natural person who is a citizen of Canada; or
- (b) A partnership of which each member is such an individual; or
- (c) A Canadian firm incorporated or otherwise organized under the laws of Canada or any Canadian province, having a total foreign stock interest not greater than 40 percent and having the Chairman or Acting Chairman and at least two-thirds of the Directors thereof Canadian citizens.

“*Capable of*”. (MTCR context)--See “usable in”.

“*Carbon fiber preforms*.” (Cat 1) means an ordered arrangement of uncoated or coated fibers intended to constitute a framework of a part before the “matrix” is introduced to form a “composite.”

*Category.* The Commerce Control List (CCL) is divided into ten categories: (0) Nuclear Materials, Facilities and Equipment, and Miscellaneous; (1) Materials, Chemicals, “Microorganisms”, and Toxins; (2) Materials Processing; (3) Electronics Design, Development and Production; (4) Computers; (5) Telecommunications and Information Security; (6) Sensors; (7) Navigation and Avionics; (8) Marine; (9) Propulsion Systems, Space Vehicles, and Related Equipment. See §738.2(a) of the EAR.

“*Chemical laser*”. (Cat 6)--A “laser” in which the excited species is produced by the output energy from a chemical reaction.

*Chemical Weapons Convention (CWC).* Means “The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction”, opened for signature on January 13, 1993.

“*Circulation-controlled, anti-torque or circulation-controlled direction control systems*” (Cat 7)--Control systems using air blown over aerodynamic surfaces to increase or control the forces generated by the surfaces.

“*Civil aircraft*”. (Cat 1, 7 and 9)--Those “aircraft” listed by designation in published airworthiness certification lists by the civil aviation authorities to fly commercial civil internal and external routes or for legitimate civil, private or business use. (see also “aircraft”)

*COCOM (Coordinating Committee on Multilateral Export Controls).* A multilateral organization that cooperated in restricting strategic exports to controlled countries. COCOM was officially disbanded on March 31, 1994. COCOM members included: Australia, Belgium, Canada, Denmark, France, Germany, Greece, Italy, Japan, Luxembourg, Netherlands, Norway, Portugal, Spain, Turkey, United Kingdom, and United States.

*Commerce Control List (CCL).* A list of items under the export control jurisdiction of the Bureau of Industry and Security, U.S. Department of Commerce. Note that certain additional items described in part 732 of the EAR are also subject to the EAR. The CCL is found in Supplement No. 1 to part 774 of the EAR.

“*Commingled*”. (Cat 1)--Filament to filament blending of thermoplastic fibers and reinforcement fibers in order to produce a fiber reinforcement/matrix mix in total fiber form.

“*Comminution*”. (Cat 1)--A process to reduce a material to particles by crushing or grinding.

*Commodity.* Any article, material, or supply except technology and software. Note that the provisions of the EAR applicable to the control of software (e.g. publicly available provisions) are not applicable to encryption software. Encryption software is controlled because, like the items controlled under ECCN 5A002, it has a functional capacity to encrypt information on a computer system, and not because of any informational or theoretical value that such software may reflect, contain or represent, or that its export may convey to others abroad.

“*Common channel signaling*”. (Cat 5)--A signaling method in which a single channel between exchanges conveys, by means of labeled messages, signaling information relating to a multiplicity of circuits or calls and other information such as that used for network management.

“*Compensation systems*”. (Cat 6) Consist of the primary scalar sensor, one or more reference sensors (e.g., vector magnetometers) together with software that permit reduction of rigid body rotation noise of the platform.

“*Composite*”. (Cat 1, 2, 6, 8, and 9)--A “matrix” and an additional phase or additional phases consisting of particles, whiskers, fibers or any combination thereof, present for a specific purpose or purposes.

“*Compound rotary table*”. (Cat 2)--A table allowing the workpiece to rotate and tilt about two non-parallel axis that can be coordinated simultaneously for “contouring control”.

“*Computing element*”. (CE) (Cat 4)--The smallest computational unit that produces an arithmetic or logic result.

“*Contouring control*”. (Cat 2)--Two or more “numerically controlled” motions operating in accordance with instructions that specify the next required position and the required feed rates to that position. These feed rates are varied in relation to each other so that a desired contour is generated (Ref. ISO/DIS 2806--1980).

*Controlled country*. Countries designated controlled for national security purposes under authority delegated to the Secretary of Commerce by Executive Order 12214 of May 2, 1980 pursuant to section 5(b) of the EAA. The controlled countries are: Albania, Armenia, Azerbaijan, Belarus, Cambodia, Cuba, the People's Republic of China, Georgia, Iraq, Kazakstan, Kyrgyzstan, Laos, Macau, Moldova, Mongolia, North Korea, Russia, Tajikstan, Turkmenistan, Ukraine, Uzbekistan, and Vietnam. All of the controlled countries except Cuba are listed in Country Group D:1 of the EAR. Cuba is listed in Country Group E:2. This definition does not apply to part 768 of the EAR (Foreign Availability), which provides a dedicated definition.

*Controlled in fact*. For purposes of the Special Comprehensive License (part 752 of the EAR), controlled in fact is defined as it is under the Restrictive Trade Practices or Boycotts (§760.1(c) of the EAR).

*Cooperating country*. A country that cooperated with the former COCOM member countries in restricting strategic exports in accordance with COCOM standards. The “Cooperating Countries” are: Austria, Finland, Hong Kong, Ireland, Korea (Republic of), New Zealand, Sweden, and Switzerland.

*Countries supporting international terrorism*. In accordance with §6(j) of the Export Administration Act of 1979, as amended (EAA), the Secretary of State has determined that the following countries' governments have repeatedly provided support for acts of international terrorism: Cuba, Iran, North Korea, Sudan, and Syria.

*Country Chart*. A chart, found in Supplement No. 1 to part 738 of the EAR, that contains certain licensing requirements based on destination and reason for control. In combination with the CCL, the Country Chart indicates when a license is required for any item on the CCL to any country in the world under General Prohibition One (Exports and Reexports in the Form Received), General Prohibition Two (Parts and Components Reexports), and General Prohibition Three (Foreign Produced Direct Product Reexports). See part 736 of the EAR.

*Country Groups*. For export control purposes, foreign countries are separated into five country groups designated by the symbols A, B, C, D, and E. (see Supplement No. 1 to part 740 of the EAR for a list of countries in each Country Group.)

“*Critical temperature*”. (Cat 1, 3, and 6)--The “critical temperature” (sometimes referred to as the transition temperature) of a specific “superconductive” material is the temperature at which the material loses all resistance to the flow of direct electrical current.

“*Cryptanalytic items*”. Systems, equipment, applications, specific electronic assemblies, modules and integrated circuits designed or modified to perform cryptanalytic functions,



software having the characteristics of cryptanalytic hardware or performing cryptanalytic functions, or technology for the development, production or use of cryptanalytic commodities or software.

**Notes:**

1. Cryptanalytic functions may include cryptanalysis, which is the analysis of a cryptographic system or its inputs and outputs to derive confidential variables or sensitive data including clear text. (ISO 7498-2-1988(E), paragraph 3.3.18).

2. Functions specially designed and limited to protect against malicious computer damage or unauthorized system intrusion (e.g., viruses, worms and trojan horses) are not construed to be cryptanalytic functions.

“*Cryptography*”. (Cat 5)--The discipline that embodies principles, means and methods for the transformation of data in order to hide its information content, prevent its undetected modification or prevent its unauthorized use. “*Cryptography*” is limited to the transformation of information using one or more “secret parameters” (e.g., crypto variables) and/or associated key management.

**Note:** “Secret parameter”: a constant or key kept from the knowledge of others or shared only within a group.

*Customs officer*. The Customs officers in the U.S. Customs Service and postmasters unless the context indicates otherwise.

“*CW Laser*”. (Cat 6) A CW (Continuous Wave) laser is defined as a laser that produces a nominally constant output energy for greater than 0.25 seconds.

“*Data signaling rate*.” (Cat 5) means the rate, as defined in ITU Recommendation 53-36, taking into account that, for non-binary modulation, baud and bit per second are not equal. Bits for coding,

checking and synchronization functions are to be included.

**Note:** When determining the “data signaling rate”, servicing and administrative channels shall be excluded.

**Technical Note:** It is the maximum one-way rate, i.e., the maximum rate in either transmission or reception.

“*Deformable mirrors*.” (Cat 6) (also known as adaptive optic mirrors) means mirrors having:

a. A single continuous optical reflecting surface which is dynamically deformed by the application of individual torques or forces to compensate for distortions in the optical waveform incident upon the mirror; *or*

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

“*Depleted uranium*.” (Cat 0) means uranium depleted in the isotope 235 below that occurring in nature.

“*Designed or modified*”. (MTCR context)--Equipment, parts, components, or “software” that, as a result of “development”, or modification, have specified properties that make them fit for a particular application. “Designed or modified” equipment, parts, components or “software” can be used for other applications. For example, a titanium coated pump designed for a “missile” may be used with corrosive fluids other than propellants.

“*Development*”. (General Technology Note)--“Development” is related to all stages prior to serial production, such as: design, design research, design analyses, design concepts, assembly and testing of prototypes, pilot

production schemes, design data, process of transforming design data into a product, configuration design, integration design, layouts.

“*Diffusion bonding*”. (Cat 1, 2, and 9)--A solid-state molecular joining of at least two separate metals into a single piece with a joint strength equivalent to that of the weakest material.

“*Digital computer*”. (Cat 4 and 5)--Equipment that can, in the form of one or more discrete variables, perform all of the following:

- (a) Accept data;
- (b) Store data or instructions in fixed or alterable (writable) storage devices;
- (c) Process data by means of a stored sequence of instructions that is modifiable; and
- (d) Provide output of data.

**Note:** Modifications of a stored sequence of instructions include replacement of fixed storage devices, but not a physical change in wiring or interconnections.

“*Digital transfer rate*”. (Cat 5)--The total bit rate of the information that is directly transferred on any type of medium. (see also “total digital transfer rate”)

“*Direct-acting hydraulic pressing*”. (Cat 2)--A deformation process that uses a fluid-filled flexible bladder in direct contact with the workpiece.

*Directorate of Defense Trade Controls (DDTC)*. The office at the Department of State, formerly known as the Office of Defense Trade Controls and before that as the Office of Munitions Control, responsible for reviewing applications to export and reexport items on the U.S. Munitions List. (see 22 CFR parts 120 through 130.)

“*Drift rate*”. (gyro) (Cat 7)--The component of gyro output that is functionally independent of input rotation. It is expressed as an angular rate. (IEEE STD 528-2001)

*Dual use*. Items that have both commercial and military or proliferation applications. While this term is used informally to describe items that are subject to the EAR, purely commercial items are also subject to the EAR (see §734.2(a) of the EAR).

“*Dynamic adaptive routing*”. (Cat 5)--Automatic rerouting of traffic based on sensing and analysis of current actual network conditions.

**Note:** This does not include cases of routing decisions taken on predefined information.

“*Dynamic signal analyzers*”. (Cat 3)--“Signal analyzers” that use digital sampling and transformation techniques to form a Fourier spectrum display of the given waveform including amplitude and phase information.

*Effective control*. You maintain effective control over an item when you either retain physical possession of the item, or secure the item in such an environment as a hotel safe, a bonded warehouse, or a locked or guarded exhibition facility. Retention of effective control over an item is a condition of certain temporary exports and reexports.

“*Effective Gram*.” (of “special fissile material”) (Cat 0 and 1) means:

- a. For plutonium isotopes and uranium-233, the isotope weight in grams;
- b. For uranium enriched 1 percent or greater in the isotope uranium-235, the element weight in grams multiplied by the square of its enrichment expressed as a decimal weight fraction;

c. For uranium enriched below 1 percent in the isotope uranium-235, the element weight in grams multiplied by 0.0001.

“*Electronic assembly.*” (Cat 2, 3, 4, and 5) means a number of electronic components (i.e., ‘circuit elements’, ‘discrete components’, integrated circuits, etc.) connected together to perform (a) specific function(s), replaceable as an entity and normally capable of being disassembled.

#### Technical Notes:

1. ‘Circuit element’: a single active or passive functional part of an electronic circuit, such as one diode, one transistor, one resistor, one capacitor, etc.

2. ‘Discrete component’: a separately packaged ‘circuit element’ with its own external connections.

“*Electronically steerable phased array antenna.*” (Cat 6)--An antenna that 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.

“*Encryption Component.*” Any encryption commodity or software (except source code), including encryption chips, integrated circuits, application specific encryption toolkits, or executable or linkable modules that alone are incapable of performing complete cryptographic functions, and is designed or intended for use in or the production of another encryption item.

*Encryption items.* The phrase encryption items includes all encryption commodities, software, and technology that contain encryption features and are subject to the EAR. This does not include encryption items specifically designed, developed, configured, adapted or modified for military

applications ( including command, control and intelligence applications) which are controlled by the Department of State on the U.S. Munitions List.

*Encryption licensing arrangement.* A license that allows the export of specified products to specified destinations in unlimited quantities. In certain cases, exports are limited to specified end-users for specified end-uses. Generally, reporting of all sales of the specified products is required at six month intervals. This includes sales made under distribution arrangements and distribution and warehousing agreements that were previously issued by the Department of State for encryption items.

*Encryption object code.* Computer programs containing an encryption source code that has been compiled into a form of code that can be directly executed by a computer to perform an encryption function.

*Encryption software.* Computer programs that provide capability of encryption functions or confidentiality of information or information systems. Such software includes source code, object code, applications software, or system software.

*Encryption source code.* A precise set of operating instructions to a computer that, when compiled, allows for the execution of an encryption function on a computer.

“*End-effectors.*” (Cat 2)--Grippers, “active tooling units” and any other tooling that is attached to the baseplate on the end of a “robot” manipulator arm.

**Note:** “Active tooling unit”: a device for applying motive power, process energy or sensing to the workpiece.

*End-user.* The person abroad that receives and ultimately uses the exported or reexported items. The end-user is not a forwarding agent or intermediary, but may be the purchaser or ultimate consignee.

*“Equivalent Density”.* (Cat 6)--The mass of an optic per unit optical area projected onto the optical surface.

*“Expert systems”.* (Cat 4 and 7)--Systems providing results by application of rules to data that are stored independently of the “program” and capable of any of the following:

(a) Modifying automatically the “source code” introduced by the user;

(b) Providing knowledge linked to a class of problems in quasi-natural language; or

(c) Acquiring the knowledge required for their development (symbolic training).

*Export.* Export means an actual shipment or transmission of items out of the United States. (see §734.2(b) of the EAR.)

*Export Administration Act (EAA).* Export Administration Act of 1979, as amended, effective October 1, 1979.

*Export Administration Review Board (EARB).* EARB voting members are the Secretary of Commerce, the Secretary of State, the Secretary of Defense, the Secretary of Energy, the Attorney General (for encryption exports), and the Director of the Arms Control and Disarmament Agency. The Chairman of the Joint Chiefs of Staff and the Director of Central Intelligence are non-voting members. The Secretary of Commerce is the Chair of the EARB. No alternate EARB members may be designated, but the acting head or deputy head of any agency or department may serve in lieu of the head of the concerned agency or department. The EARB may invite the heads of

other Government agencies or departments (other than those identified in this definition) to participate in the activities of the EARB when matters of interest to such agencies or departments are under consideration. Decisions are made by majority vote.

*Export Administration Regulations (EAR).* Regulations set forth in parts 730-774, inclusive, of Title 15 of the Code of Federal Regulations.

*Export Control Classification Number (ECCN).* The numbers used in Supplement No. 1 to part 774 of the EAR and throughout the EAR. The Export Control Classification Number consists of a set of digits and a letter. Reference §738.2(c) of the EAR for a complete description of each ECCN’s composition.

*Export control document.* A license; application for license; any and all documents submitted in accordance with the requirements of the EAR in support of, or in relation to, a license application; application for International Import Certificate; Delivery Verification Certificate or similar evidence of delivery; Shipper’s Export Declaration (SED) or Automated Export System (AES) record presented in connection with shipments to any country; a Dock Receipt or bill of lading issued by any carrier in connection with any export subject to the EAR and any and all documents prepared and submitted by exporters and agents pursuant to the export clearance requirements of part 758 of the EAR; a U.S. exporter’s report of request received for information, certification, or other action indicating a restrictive trade practice or boycott imposed by a foreign country against a country friendly to the United States, submitted to the U.S. Department of Commerce in accordance with the provisions of part 760 of the EAR; Customs Form 7512, Transportation Entry and Manifest of Goods, Subject to Customs Inspection and Permit, when used for Transportation and Exportation (T.& E.) or Immediate Exportation (I.E.); and any other document issued by a U.S. Government agency as evidence of the existence

of a license for the purpose of loading onto an exporting carrier or otherwise facilitating or effecting an export from the United States or any reexport of any item requiring a license.

*Exporter.* The person in the United States who has the authority of a principal party in interest to determine and control the sending of items out of the United States. Note that the Foreign Trade Statistics Regulations have a different definition for the term “exporter”. Under the FTSR, the “exporter” is the U.S. principal party in interest (see Foreign Trade Statistics Regulations 15 CFR part 30).

*Exporting carrier.* Any instrumentality of water, land, or air transportation by which an export is effected, including any domestic air carrier on which any cargo for export is laden or carried.

“*FADEC.*” See “full authority digital engine control.”

“*FMU.*”--See “flexible manufacturing unit”

“*Fault tolerance.*” (Cat 4)--The capability of a computer system, after any malfunction of any of its hardware or “software” components, to continue to operate without human intervention, at a given level of service that provides: continuity of operation, data integrity, and recovery of service within a given time.

“*Fibrous or filamentary materials.*” (Cat 1 and 8)--The term “fibrous and filamentary materials” includes:

- (a) Continuous monofilaments;
- (b) Continuous yarns and rovings;
- (c) Tapes, fabrics, random mats and braids;
- (d) Chopped fibers, staple fibers and coherent fiber blankets;

(e) Whiskers, either monocrystalline or polycrystalline, of any length;

(f) Aromatic polyimide pulp.

“*Film type integrated circuit.*” (Cat 3)--An array of “circuit elements” and metallic interconnections formed by deposition of a thick or thin film on an insulating “substrate”.

**Note:** “Circuit element”: a single active or passive functional part of an electronic circuit, such as one diode, one transistor, one resistor, one capacitor, etc.

*Financial Institution.* As applied to encryption items, means any of the following:

(a) A broker, dealer, government securities broker or dealer, self-regulatory organization, investment company or investment adviser, which is regulated or supervised by the Securities and Exchange Commission or a self-regulatory organization that is registered with the Securities and Exchange Commission; or

(b) A broker, dealer, government securities broker or dealer, investment company, investment adviser, or entity that engages in securities activities that, if conducted in the United States, would be described by the definition of the term “self-regulatory organization” in the Securities Exchange Act of 1934, which is organized under the laws of a foreign country and regulated or supervised by a foreign securities authority; or

(c) A U.S. board of trade that is designated as a contract market by the Commodity Futures Trading Commission or a futures commission merchant that is regulated or supervised by the Commodity Futures Trading Commission; or

(d) A U.S. entity engaged primarily in the business of issuing a general purpose charge,

debit, or stored value card, or a branch of, or affiliate controlled by, such an entity; or

(e) A branch or affiliate of any of the entities listed in paragraphs (a), (b), or (c) of this definition regulated or supervised by the Securities and Exchange Commission, the Commodity Futures Trading Commission, or a foreign securities authority; or

(f) An affiliate of any of the entities listed in paragraph (a), (b), (c), or (e), of this definition engaged solely in the business of providing data processing services to one or more bank or financial institutions, or a branch of such an affiliate; or

(g) A company organized and regulated under the laws of any of the United States and its branches and affiliates whose primary and predominant business activity is the writing of insurance or the reinsuring of risks; or a company organized and regulated under the laws of a foreign country and its branches and affiliates whose primary and predominant business activity is the writing of insurance or the reinsuring of risks.

*Firm.* A corporation, partnership, limited partnership, association, company, trust, or any other kind of organization or body corporate, situated, residing, or doing business in the United States or any foreign country, including any government or agency thereof.

*“Fixed”.* (Cat 5)--The coding or compression algorithm cannot accept externally supplied parameters (e.g., cryptographic or key variables) and cannot be modified by the user.

*“Flexible manufacturing unit”.* (FMU), (sometimes also referred to as ‘flexible manufacturing system’ (FMS) or ‘flexible manufacturing cell’ (FMC)) (Cat 2)--An entity that includes a combination of at least:

(a) A “digital computer” including its own “main storage” and its own “related equipment”; and

(b) Two or more of the following:

(1) A machine tool described in 2B001.c;

(2) A dimensional inspection machine described in Category 2, or another digitally controlled measuring machine controlled by an entry in Category 2;

(3) A “robot” controlled by an entry in Category 2 or 8;

(4) Digitally controlled equipment controlled by 1B003, 2B003, or 9B001;

(5) “Stored program controlled” equipment controlled by 3B001;

(6) Digitally controlled equipment controlled by 1B001;

(7) Digitally controlled electronic equipment controlled by 3A002.

*“Flight control optical sensor array.”* (Cat 7) is a network of distributed optical sensors, using “laser” beams, to provide real-time flight control data for on-board processing.

*“Flight path optimization.”* (Cat 7) is a procedure that minimizes deviations from a four-dimensional (space and time) desired trajectory based on maximizing performance or effectiveness for mission tasks.

*“Focal plane array”.* (Cat 6)--A linear or two-dimensional planar layer, or combination of planar layers, of individual detector elements, with or without readout electronics, that work in the focal plane.

**N.B.** This definition does not include a stack of single detector elements or any two, three, or four element detectors provided time delay and integration is not performed within the element.

*Food.* Specific to exports and reexports to North Korea and Syria, food means items that are consumed by and provide nutrition to humans and animals, and seeds, with the exception of castor bean seeds, that germinate into items that will be consumed by and provide nutrition to humans and animals. (Food does not include alcoholic beverages.)

*Foreign government agency.* For the purposes of exemption from support documentation (see §748.9 of the EAR), a foreign government agency is defined as follows:

(a) National governmental departments operated by government-paid personnel performing governmental administrative functions; e.g. Finance Ministry, Ministry of Defense, Ministry of Health, etc. (municipal or other local government entities must submit required support documentation); or

(b) National government-owned public service entities; e.g., nationally owned railway, postal, telephone, telegraph, broadcasting, and power systems, etc. The term “foreign government agency” does not include government corporations, quasi-government agencies, and state enterprises engaged in commercial, industrial, and manufacturing activities, such as petroleum refineries, mines, steel mills, retail stores, automobile manufacturing plants, airlines, or steamship lines that operate between two or more countries, etc.

*Foreign policy control.* A control imposed under the EAR for any and all of the following reasons: chemical and biological weapons, nuclear nonproliferation, missile technology, regional stability, crime control, anti-terrorism, United Nations sanctions, and any other reason for

control implemented under section 6 of the EAA or other similar authority.

*Foreign Terrorist Organizations (FTO).* Any organization that is determined by the Secretary of the Treasury to be a foreign terrorist organization under notices or regulations issued by the Office of Foreign Assets Control (see 31 CFR chapter V).

*Forwarding agent.* The person in the United States who is authorized by a principal party in interest to perform the services required to facilitate the export of the items from the United States. This may include air couriers or carriers. In routed export transactions, the forwarding agent and the exporter may be the same for compliance purposes under the EAR.

*“Fractional bandwidth”.* (Cat 3) -- The “instantaneous bandwidth” divided by the center frequency, expressed as a percentage.

*“Frequency hopping”.* (Cat 5 part 1 and 5 part 2) -- A form of “spread spectrum” in which the transmission frequency of a single communication channel is made to change by a random or pseudo-random sequence of discrete steps.

*“Frequency switching time”.* (Cat 3 and 5)--The maximum time (i.e., delay), taken by a signal, when switched from one selected output frequency to another selected output frequency, to reach:

(a) A frequency within 100 Hz of the final frequency; or

(b) An output level within 1 dB of the final output level.

*“Frequency synthesizer”.* (Cat 3)-- Any kind of frequency source or signal generator, regardless of the actual technique used, providing a multiplicity of simultaneous or alternative output frequencies, from one or more outputs, controlled by, derived

from or disciplined by a lesser number of standard (or master) frequencies.

“*Full Authority Digital Engine Control*.” (“FADEC”) (Cat 7 and 9) means an electronic control system for gas turbine or combined cycle engines utilizing a digital computer to control the variables required to regulate engine thrust or shaft power output throughout the engine operating range from the beginning of fuel metering to fuel shutoff.

“*Gas Atomization*”. (Cat 1)--A process to reduce a molten stream of metal alloy to droplets of 500-micrometer diameter or less by a high-pressure gas stream.

*General prohibitions*. The 10 prohibitions found in part 736 of the EAR that prohibit certain exports, reexports, and other conduct, subject to the EAR, absent a license, License Exception, or determination that no license is required (“NLR”).

“*Geographically dispersed*”. (Cat 6)--Sensors are considered geographically dispersed when each location is distant from any other more than 1,500 m in any direction. Mobile sensors are always considered geographically dispersed.

“*Government end-user*” (as applied to encryption items). A government end-user is any foreign central, regional or local government department, agency, or other entity performing governmental functions; including governmental research institutions, governmental corporations or their separate business units (as defined in part 772 of the EAR) which are engaged in the manufacture or distribution of items or services controlled on the Wassenaar Munitions List, and international governmental organizations. This term does not include: utilities (including telecommunications companies and Internet service providers); banks and financial institutions; transportation; broadcast or entertainment; educational organizations; civil health and medical organizations; retail or wholesale firms; and

manufacturing or industrial entities not engaged in the manufacture or distribution of items or services controlled on the Wassenaar Munitions List.

*Hold Without Action (HWA)*. License applications may be held without action only in the limited circumstances described in §750.4(b) of the EAR. Encryption review requests may be placed on hold without action status as provided in §740.17(d)(2) and §742.15(b)(2) of the EAR.

“*Hot isostatic densification*”. (Cat 2)--A process of pressurizing a casting at temperatures exceeding 375 K (102° C) in a closed cavity through various media (gas, liquid, solid particles, etc.) to create equal force in all directions to reduce or eliminate internal voids in the casting.

“*Hybrid computer*”. (Cat 4)--Equipment that can:

- (a) Accept data;
- (b) Process data, in both analog and digital representation; and
- (c) Provide output of data.

“*Hybrid integrated circuit*”. (Cat 3)--Any combination of integrated circuit(s), or integrated circuit with “circuit elements” or “discrete components” connected together to perform (a) specific function(s), and having all of the following criteria:

- (a) Containing at least one unencapsulated device;
- (b) Connected together using typical IC-production methods;
- (c) Replaceable as an entity; and
- (d) Not normally capable of being disassembled.



**Notes:**

1. “Circuit element”: a single active or passive functional part of an electronic circuit, such as one diode, one transistor, one resistor, one capacitor, etc.

2. “Discrete component”: a separately packaged “circuit element” with its own external connections.

“*Image enhancement*”. (Cat 4)--The processing of externally derived information-bearing images by algorithms such as time compression, filtering, extraction, selection, correlation, convolution or transformations between domains (e.g., fast Fourier transform or Walsh transform). This does not include algorithms using only linear or rotational transformation of a single image, such as translation, feature extraction, registration or false coloration.

“*Information security*”. (Cat 5)--All the means and functions ensuring the accessibility, confidentiality or integrity of information or communications, excluding the means and functions intended to safeguard against malfunctions. This includes “cryptography”, “cryptanalysis”, protection against compromising emanations and computer security.

**N.B.** “Cryptanalysis”: the analysis of a cryptographic system or its inputs and outputs to derive confidential variables or sensitive data, including clear text. (ISO 7498-2-1988 (E), paragraph 3.3.18)

“*Instantaneous bandwidth*”. (Cat 3 and 5)--The bandwidth over which output power remains constant within 3 dB without adjustment of other operating parameters.

“*Instrumented range*”. (Cat 6)--The specified unambiguous display range of a radar.

*Intent to Deny (ITD) letter*. A letter informing the applicant:

(a) Of the reason for BIS's decision to deny a license application; and

(b) That the application will be denied 45 days from the date of the ITD letter, unless the applicant provides, and BIS accepts, a reason why the application should not be denied for the stated reason. See §750.6 of the EAR.

“*Interconnected radar sensors*”. (Cat 6)--Two or more radar sensors are interconnected when they mutually exchange data in real time.

*Intermediate consignee*. The person that acts as an agent for a principal party in interest for the purpose of effecting delivery of items to the ultimate consignee. The intermediate consignee may be a bank, forwarding agent, or other person who acts as an agent for a principal party in interest.

“*Intrinsic Magnetic Gradiometer*”. (Cat 6)--A single magnetic field gradient sensing element and associated electronics the output of which is a measure of magnetic field gradient. (See also “Magnetic Gradiometer”)

“*Isostatic presses*”. (Cat 2)--Equipment capable of pressurizing a closed cavity through various media (gas, liquid, solid particles, etc.) to create equal pressure in all directions within the cavity upon a workpiece or material.

*Item*. “Item” means “commodities, software, and technology.” When the EAR intend to refer specifically to commodities, software, or technology, the text will use the specific reference.

*Know*. See “knowledge.”

*Knowledge*. Knowledge of a circumstance (the term may be a variant, such as “know,” “reason to know,” or “reason to believe”) includes not only positive knowledge that the circumstance exists or is substantially certain to occur, but also an

awareness of a high probability of its existence or future occurrence. Such awareness is inferred from evidence of the conscious disregard of facts known to a person and is also inferred from a person's willful avoidance of facts. This definition does not apply to part 760 of the EAR (Restrictive Trade Practices or Boycotts).

*“Laser”*. (Cat 2, 3, 5, 6, and 9)--An assembly of components that produce both spatially and temporally coherent light that is amplified by stimulated emission of radiation. See also: “Chemical laser”; “Q-switched laser”; “Super High Power Laser”; and “Transfer laser”.

*Law or regulation relating to export control*. Any statute, proclamation, executive order, regulation, rule, license, or order applicable to any conduct involving an export transaction shall be deemed to be a “law or regulation relating to export control.”

*Legible or legibility*. Legible and legibility mean the quality of a letter or numeral that enables the observer to identify it positively and quickly to the exclusion of all other letters or numerals.

*License*. Authority issued by the Bureau of Industry and Security authorizing an export, reexport, or other regulated activity. The term “license” does not include authority represented by a “License Exception.”

*License application; application for license*. License application and similar wording mean an application to BIS requesting the issuance of a license to the applicant.

*License Exception*. An authorization described in part 740 of the EAR that allows you to export or reexport, under stated conditions, items subject to the EAR that otherwise would require a license. Unless otherwise indicated, these License Exceptions are not applicable to exports under the licensing jurisdiction of agencies other than the Department of Commerce.

*Licensee*. The person to whom a license has been issued by BIS. See §750.7(c) of the EAR for a complete definition and identification of a licensee's responsibilities.

*“Linearity”*. (Cat 2)--“Linearity” (usually measured in terms of non-linearity) is the maximum deviation of the actual characteristic (average of upscale and downscale readings), positive or negative, from a straight line so positioned as to equalize and minimize the maximum deviations.

*“Local area network”*. (Cat 4)--A data communication system that:

(a) Allows an arbitrary number of independent “data devices” to communicate directly with each other; and

(b) Is confined to a geographical area of moderate size (e.g., office building, plant, campus, warehouse).

**Note:** “Data device”: equipment capable of transmitting or receiving sequences of digital information.

*“MBTR”*.--See “maximum bit transfer rate”.

*MTCR*. See Missile Technology Control Regime.

*MTEC*. See Missile Technology Export Control Group.

*“Magnetic Gradiometers”*. (Cat 6)--Are designed to detect the spatial variation of magnetic fields from sources external to the instrument. They consist of multiple “magnetometers” and associated electronics the output of which is a measure of magnetic field gradient. (See also “Intrinsic Magnetic Gradiometer”.)

*“Magnetometers”*. (Cat 6)--Are designed to detect magnetic fields from sources external to the instrument. They consist of a single magnetic field

sensing element and associated electronics the output of which is a measure of the magnetic field.

“*Main storage*”. (Cat 4)--The primary storage for data or instructions for rapid access by a central processing unit. It consists of the internal storage of a “digital computer” and any hierarchical extension thereto, such as cache storage or non-sequentially accessed extended storage.

“*Matrix*”. (Cat 1, 2, 8, and 9)--A substantially continuous phase that fills the space between particles, whiskers or fibers.

“*Maximum bit transfer rate*”. (MBTR) (Cat 4)--Of solid state storage equipment: the number of data bits per second transferred between the equipment and its controller. Of a disk drive: the internal data transfer rate calculated as follows:

“MBTR” (bits per second) = B x R x T, where:

B = Maximum number of data bits per track available to read or write in a single revolution;

R = Revolutions per second;

T = Number of tracks that can be used or written simultaneously.

“*Measurement uncertainty*”. (Cat 2)--The characteristic parameter that specifies in what range around the output value the correct value of the measurable variable lies with a confidence level of 95%. It includes the uncorrected systematic deviations, the uncorrected backlash, and the random deviations (Ref.: ISO 10360-2 or VDI/VDE 2617).

“*Mechanical alloying*”. (Cat 1)--An alloying process resulting from the bonding, fracturing and rebonding of elemental and master alloy powders by mechanical impact. Non-metallic particles may be incorporated in the alloy by addition of the appropriate powders.

“*Media access unit*”. (Cat 5)--Equipment that contains one or more communication interfaces (“network access controller”, “communications channel controller”, modem or computer bus) to connect terminal equipment to a network.

*Medical devices.* For purposes of the EAR, medical devices are “devices” as defined in section 201 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321) including medical supplies, instruments, equipment, equipped ambulances, institutional washing machines for sterilization, and vehicles with medical testing equipment. Note that certain component parts and spares to be exported for incorporation into medical devices are on the Commerce Control List. Only items meeting the definition of “medical device” and that are classified as EAR99 are eligible for export to Iran and Sudan under the licensing procedures set forth in the appropriate regulations promulgated and administered by Treasury’s Office of Foreign Assets Control.

*Medicines.* Medicines means “drug” as defined in section 201 of the Federal Food, Drug and Cosmetic Act (21 U.S.C. 321). For purposes of the EAR, medicines includes prescription and over the counter medicines for humans and animals. Note that certain medicines, such as vaccines and immunotoxins, are on the Commerce Control List. Only items meeting the definition of “medicine” and that are classified as EAR99 are eligible for export to Iran and Sudan under the licensing procedures set forth in the appropriate regulations promulgated and administered by Treasury’s Office of Foreign Assets Control.

“*Melt Extraction*”. (Cat 1)--A process to “solidify rapidly” and extract a ribbon-like alloy product by the insertion of a short segment of a rotating chilled block into a bath of a molten metal alloy.

**Note:** “Solidify rapidly”: solidification of molten material at cooling rates exceeding 1,000 K/sec.

*“Melt Spinning”*. (Cat 1)--A process to “solidify rapidly” a molten metal stream impinging upon a rotating chilled block, forming a flake, ribbon or rod-like product.

**Note:** “Solidify rapidly”: solidification of molten material at cooling rates exceeding 1,000 K/sec.

*“Microcomputer microcircuit.”* (Cat 3) means a “monolithic integrated circuit” or “multichip integrated circuit” containing an arithmetic logic unit (ALU) capable of executing a series of general purpose instructions from an internal storage, on data contained in the internal storage.

**Technical Note 1:** The “microprocessor microcircuit” normally does not contain integral user-accessible storage, although storage present on-the-chip may be used in performing its logic function.

**Technical Note 2:** The internal storage may be augmented by an external storage.

**Note:** This definition includes chip sets which are designed to operate together to provide the function of a “microprocessor microcircuit.”

*“Microorganisms.”* (Cat 1 and 2) means bacteria, viruses, mycoplasmas, rickettsiae, chlamydiae or fungi, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures.

*“Microprocessor microcircuit”*. (Cat 3)--A “monolithic integrated circuit” or “multichip integrated circuit” containing an arithmetic logic unit (ALU) capable of executing a series of general purpose instructions from an external storage.

**N.B. 1:** The “microprocessor microcircuit” normally does not contain integral user-accessible

storage, although storage present on-the-chip may be used in performing its logic function.

**N.B. 2:** This definition includes chip sets that are designed to operate together to provide the function of a “microprocessor microcircuit”.

*“Microprogram”*. (Cat 4 and 5)--A sequence of elementary instructions, maintained in a special storage, the execution of which is initiated by the introduction of its reference instruction into an instruction register.

*Missile Technology Control Regime (MTCR)*. The United States and other nations in this multilateral control regime have agreed to guidelines for restricting the export and reexport of dual-use items that may contribute to the development of missiles. The MTCR Annex lists missile-related equipment and technology controlled either by the Department of Commerce or by the Department of State's Directorate of Defense Trade Controls (22 CFR parts 120 through 130).

*Missile Technology Export Control Group (MTEC)*. Chaired by the Department of State, the MTEC primarily reviews applications involving items controlled for Missile Technology (MT) reasons. The MTEC also reviews applications involving items not controlled for MT reasons, but destined for a country and/or end-use/end-user of concern.

*“Missiles”*. (All)--Rocket systems (including ballistic missile systems, space launch vehicles, and sounding rockets) and unmanned air vehicle systems (including cruise missile systems, target drones, and reconnaissance drones) “capable of” delivering at least 500 kilograms payload to a range of at least 300 kilometers. See §746.3 for definition of a “ballistic missile” to be exported or reexported to Iraq or transferred within Iraq.

“*Monolithic integrated circuit*”. (Cat 3)--A combination of passive or active “circuit elements” or both that:

(a) Are formed by means of diffusion processes, implantation processes or deposition processes in or on a single semiconducting piece of material, a so-called ‘chip’;

(b) Can be considered as indivisibly associated; and

(c) Perform the function(s) of a circuit.

**Note:** “Circuit element”: a single active or passive functional part of an electronic circuit, such as one diode, one transistor, one resistor, one capacitor, etc.

“*Monospectral imaging sensors*.” (Cat 6) are capable of acquisition of imaging data from one discrete spectral band.

“*Motion control board*”. (Cat 2)--An electronic “assembly” specially designed to provide a computer system with the capability to coordinate simultaneously the motion of axes of machine tools for “contouring control”.

“*Multichip integrated circuit*”. (Cat 3)--Two or more “monolithic integrated circuits” bonded to a common “substrate”.

“*Multi-data-stream processing*”. (Cat 4)--The “microprogram” or equipment architecture technique that permits simultaneous processing of two or more data sequences under the control of one or more instruction sequences by means such as:

(a) Single Instruction Multiple Data (SIMD) architectures such as vector or array processors;

(b) Multiple Single Instruction Multiple Data (MSIMD) architectures;

(c) Multiple Instruction Multiple Data (MIMD) architectures, including those that are tightly coupled, closely coupled or loosely coupled; or

(d) Structured arrays of processing elements, including systolic arrays.

“*Multilevel security*”. (Cat 5)--A class of system containing information with different sensitivities that simultaneously permits access by users with different security clearances and need-to-know, but prevents users from obtaining access to information for which they lack authorization.

**Note:** “Multilevel security” is computer security and not computer reliability that deals with equipment fault prevention or human error prevention in general.

“*Multispectral Imaging Sensors*”. (Cat 6)--Are capable of simultaneous or serial acquisition of imaging data from two or more discrete spectral bands. Sensors having more than twenty discrete spectral bands are sometimes referred to as hyperspectral imaging sensors.

“*N.E.S.*”. N.E.S or n.e.s. is an abbreviation meaning “not elsewhere specified”.

*NLR*. NLR (“no license required”) is a symbol entered on the Shipper's Export Declaration, or an Automated Export System record certifying that no license is required.

*MSG*. See Nuclear Suppliers Group.

*NATO (North Atlantic Treaty Organization)*. A strategic defensive organization that consists of the following member nations: Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, the United Kingdom, and the United States.

“*Natural uranium.*” (Cat 0) means uranium containing the mixtures of isotopes occurring in nature.

*Net value.* The actual selling price, less shipping charges or current market price, whichever is the larger, to the same type of purchaser in the United States.

“*Neural computer.*” (Cat 4)--A computational device designed or modified to mimic the behavior of a neuron or a collection of neurons (i.e., a computational device that is distinguished by its hardware capability to modulate the weights and numbers of the interconnections of a multiplicity of computational components based on previous data).

“*Noise level.*” (Cat 6)--An electrical signal given in terms of power spectral density. The relation between “noise level” expressed in peak-to-peak is given by  $S_{pp}^2 = 8N_o(f_2 - f_1)$ , where  $S_{pp}$  is the peak-to-peak value of the signal (e.g., nanoteslas),  $N_o$  is the power spectral density (e.g., (nanotesla)<sup>2</sup>/Hz) and  $(f_2 - f_1)$  defines the bandwidth of interest.

“*Nuclear reactor.*” (Cat 0 and 2) includes the items within or attached directly to the reactor vessel, the equipment which controls the level of power in the core, and the components which normally contain, come into direct contact with or control the primary coolant of the reactor core.

*Nuclear Suppliers Group (NSG).* The United States and other nations in this multilateral control regime have agreed to guidelines for restricting the export or reexport of items with nuclear applications. Members include: Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Kazakhstan, Latvia, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Romania, Russia, Slovak Republic,

Slovenia, Spain, South Africa, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States. See also §742.3 of the EAR.

“*Numerical control.*” (Cat 2)--The automatic control of a process performed by a device that makes use of numeric data usually introduced as the operation is in progress (Ref. ISO 2382).

“*Object code.*” (or object language) (Cat 9)--An equipment executable form of a convenient expression of one or more processes (“source code” (or source language)) that has been converted by a programming system. (See also “source code”)

*Office of Foreign Assets Control (FAC) or (OFAC).* The office at the Department of the Treasury responsible for blocking assets of foreign countries subject to economic sanctions, controlling participation by U.S. persons, including foreign subsidiaries, in transactions with specific countries or nationals of such countries, and administering embargoes on certain countries or areas of countries. (see 31 CFR parts 500 through 590.)

“*Open cryptographic interface.*” A mechanism which is designed to allow a customer or other party to insert cryptographic functionality without the intervention, help or assistance of the manufacturer or its agents, e.g., manufacturer’s signing of cryptographic code or proprietary interfaces. If the cryptographic interface implements a fixed set of cryptographic algorithms, key lengths or key exchange management systems, that cannot be changed, it will not be considered an “open” cryptographic interface. All general application programming interfaces (e.g., those that accept either a cryptographic or non-cryptographic interface but do not themselves maintain any cryptographic functionality) will not be considered “open” cryptographic interfaces.

“*Operate autonomously*”. (Cat 8)--Fully submerged, without snorkel, all systems working and cruising at minimum speed at which the submersible can safely control its depth dynamically by using its depth planes only, with no need for a support vessel or support base on the surface, sea-bed or shore, and containing a propulsion system for submerged or surface use.

*Operating Committee (OC)*. The OC voting members include representatives of appropriate agencies in the Departments of Commerce, State, Defense, Justice (for encryption exports), and Energy and the Arms Control and Disarmament Agency. The appropriate representatives of the Joint Chiefs of Staff and the Director of the Nonproliferation Center of the Central Intelligence Agency are non-voting members. The Department of Commerce representative, appointed by the Secretary, is the Chair of the OC and serves as the Executive Secretary of the Advisory Committee on Export Policy. The OC may invite representatives of other Government agencies or departments (other than those identified in this definition) to participate in the activities of the OC when matters of interest to such agencies or departments are under consideration.

“*Optical amplification*”. (Cat 5)--In optical communications, an amplification technique that introduces a gain of optical signals that have been generated by a separate optical source, without conversion to electrical signals, i.e., using semiconductor optical amplifiers, optical fiber luminescent amplifiers.

“*Optical computer*”. (Cat 4)--A computer designed or modified to use light to represent data and whose computational logic elements are based on directly coupled optical devices.

“*Optical integrated circuit*”. (Cat 3)--A “monolithic integrated circuit” or a “hybrid integrated circuit”, containing one or more parts designed to function as photosensor or

photoemitter or to perform (an) optical or (an) electro-optical function(s).

“*Optical switching*”. (Cat 5)--The routing of or switching of signals in optical form without conversion to electrical signals.

*Order Party*. The person in the United States who conducted the direct negotiations or correspondence with the foreign purchaser or ultimate consignee and who, as a result of these negotiations, received the order from the foreign purchaser or ultimate consignee.

*Organization for the Prohibition of Chemical Weapons (OPCW)*. Means the international organization, located in The Hague, Netherlands, that administers the Chemical Weapons Convention.

● *Other party authorized to receive license*. The person authorized by the applicant to receive the license. If a person and address is listed in Block 15 of the application, the Bureau of Industry and Security will send the license to that person instead of the applicant. Designation of another party to receive the license does not alter the responsibilities of the applicant, licensee or exporter.

“*Overall current density*”. (Cat 3)--The total number of ampere-turns in the coil (i.e., the sum of the number of turns multiplied by the maximum current carried by each turn) divided by the total cross-section of the coil (comprising the superconducting filaments, the metallic matrix in which the superconducting filaments are embedded, the encapsulating material, any cooling channels, etc.).

“*Part program*”. (Cat. 2)--An ordered set of instructions that is in a language and in a format required to cause operations to be effected under automatic control and that is either written in the form of a machine program on an input medium or prepared as input data for processing in a

computer to obtain a machine program (Ref. ISO 2806-1980).

“Payload”. (*MTCR context*) – The total mass that can be carried or delivered by the specified rocket system or unmanned aerial vehicle (UAV) system that is not used to maintain flight.

**Note:** The particular equipment, subsystems, or components to be included in the “payload” depends on the type and configuration of the vehicle under construction.

#### Technical Notes:

##### a. Ballistic Missiles

1. “Payload” for systems with separating re-entry vehicles (RVs) includes:
  - i. The RVs, including:
    - A. Dedicated guidance, navigation, and control equipment;
    - B. Dedicated countermeasures equipment;
  - ii. Munitions of any type (e.g., explosive or non-explosive);
  - iii. Supporting structures and deployment mechanisms for the munitions (e.g. hardware used to attach to, or separate the RV from, the bus/post-boost vehicle) that can be removed without violating the structural integrity of the vehicle;
  - iv. Mechanisms and devices for safing, arming, fuzing, or firing;
  - v. Any other countermeasures equipment (e.g., decoys, jammers, or chaff dispensers) that separate from the RV bus/post-boost vehicle;
  - vi. The bus/post-boost vehicle or attitude control/velocity trim module not including

systems/subsystems essential to the operation of other stages.

2. “Payload” for systems with non-separating re-entry vehicles includes:
  - i. Munitions of any type (e.g., explosive or non-explosive);
  - ii. Supporting structures and deployment mechanisms for the munitions that can be removed without violating the structural integrity of the vehicle;
  - iii. Mechanisms and devices for safing, arming, fuzing or firing;
  - iv. Any countermeasures equipment (e.g., decoys, jammers, or chaff dispensers) that can be removed without violating the structural integrity of the vehicle.

##### b. Space Launch Vehicles - “Payload” includes:

1. Satellites (single or multiple);
2. Satellite-to-launch vehicle adapters including, if applicable, apogee/perigee kick motors or similar maneuvering systems;

##### c. Sounding Rockets - “Payload” includes:

1. Equipment required for a mission, such as data gathering, recording or transmitting devices for mission-specific data;
2. Recovery equipment (e.g., parachutes) that can be removed without violating the structural integrity of the vehicle.

##### d. Cruise Missiles - “Payload” includes:

1. Munitions of any type (e.g., explosive or non-explosive);



2. Supporting structures and mechanisms for the munitions that can be removed without violating the structural integrity of the vehicle;
  3. Mechanisms and devices for safing, arming, fuzing or firing;
  4. Countermeasures equipment (e.g., decoys, jammers or chaff dispensers) that can be removed without violating the structural integrity of the vehicle;
  5. Signature alteration equipment that can be removed without violating the structural integrity of the vehicle;
- e. Other UAVs - "Payload" includes:
1. Munitions of any type (e.g., explosive or non-explosive);
  2. Mechanisms and devices for safing, arming, fuzing or firing;
  3. Countermeasures equipment (e.g., decoys, jammers or chaff dispensers) that can be removed without violating the structural integrity of the vehicle;
  4. Signature alteration equipment that can be removed without violating the structural integrity of the vehicle;
  - 5. Equipment required for a mission such as data gathering, recording or transmitting devices for mission-specific data and supporting structures that can be removed without violating the structural integrity of the vehicle;
  6. Recovery equipment (e.g., parachutes) that can be removed without violating the structural integrity of the vehicle;

- 7. Munitions supporting structures and deployment mechanisms that can be removed without violating the structural integrity of the vehicle.

"*Peak power*". (Cat 6)--The highest level of power attained in the "laser duration".

**Note:** "*Laser Duration*" is the time over which a "laser" emits "laser" radiation, which for "pulsed lasers" corresponds to the time over which a single pulse or series of consecutive pulses is emitted.

*Person.* A natural person, including a citizen or national of the United States or of any foreign country; any firm; any government, government agency, government department, or government commission; any labor union; any fraternal or social organization; and any other association or organization whether or not organized for profit. This definition does not apply to part 760 of the EAR (Restrictive Trade Practices or Boycotts).

"*Personalized smart card.*" (Cat 5) A smart card containing a microcircuit which has been programmed for a specific application and cannot be reprogrammed for any other application by the user.

*Port of export.* The port where the cargo to be shipped abroad is laden aboard the exporting carrier. It includes, in the case of an export by mail, the place of mailing.

"*Positioning accuracy*". (Cat. 2)--The positioning accuracy of "numerically controlled" machine tools is to be determined and presented in accordance with ISO/DIS 230/2 (1988), paragraph 2.13, in conjunction with the following requirements:

(a) Test conditions:

(1) For 12 hours before and during measurements, the machine tool and accuracy

measuring equipment will be kept at the same ambient temperature. During the pre-measurement time the slides of the machine will be continuously cycled in the same manner that the accuracy measurements will be taken;

(2) The machine shall be equipped with any mechanical, electronic, or software compensation to be exported with the machine;

(3) Accuracy of measuring equipment for the measurements shall be at least four times more accurate than the expected machine tool accuracy;

(4) Power supply for slide drives shall be as follows:

(i) Line voltage variation shall exceed  $\pm 10\%$  of nominal rated voltage;

(ii) Frequency variation shall not exceed  $\pm 2$  Hz of normal frequency;

(iii) Lineouts or interrupted service are not permitted.

(b) Test programs:

(1) Feed rate (velocity of slides) during measurement shall be the rapid traverse rate;

**Note:** In case of machine tools that generate optical quality surfaces, the feedrate shall be equal to or less than 50 mm per minute.

(2) Measurements shall be made in an incremental manner from one limit of the axis travel to the other without returning to the starting position for each move to the target position;

(3) Axes not being measured shall be retained at mid travel during the test of an axis.

(c) Presentation of test results: The results of the measurement must include:

(1) Position accuracy (A); and

(2) The mean reversal error (B).

*“Power management”.* (Cat 7)--Changing the transmitted power of the altimeter signal so that received power at the “aircraft” altitude is always at the minimum necessary to determine the altitude.

*“Previously separated.”* (Cat 1) The application of any process intended to increase the concentration of the controlled isotope.

*“Primary flight control.”* (Cat 7) “Aircraft” stability or maneuvering control using force/moment generators, *i.e.*, aerodynamic control surfaces or propulsive thrust vectoring.

*“Principal element”.* (Cat 4)--An element is a “principal element” when its replacement value is more than 35% of the total value of the system of which it is an element. Element value is the price paid for the element by the manufacturer of the system, or by the system integrator. Total value is the normal international selling price to unrelated parties at the point of manufacture or consolidation of shipment.

*Principal parties in interest.* Those persons in a transaction that receive the primary benefit, monetary or otherwise, of the transaction. Generally, the principals in a transaction are the seller and the buyer. In most cases, the forwarding or other agent is not a principal party in interest.

*“Production”.* (General Technology Note) (All Categories)-- Means all production stages, such as: product engineering, manufacture, integration, assembly (mounting), inspection, testing, quality assurance.

*“Production equipment”.* (MTCR context) -- Tooling, templates, jigs, mandrels, moulds, dies, fixtures, alignment mechanisms, test equipment,

other machinery and components therefor, limited to those specially designed or modified for “development” or for one or more phases of “production”.

“*Production Facilities*”. (MTCR Context only) (Cat 7 and 9) – Means equipment and specially designed software therefor integrated into installations for development or for one or more phases of production.

“*Program*”. (Cat 2, 4, 5, and 6)--A sequence of instructions to carry out a process in, or convertible into, a form executable by an electronic computer.

“*Proof test*”. (Cat 5)--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%.

**Note:** Equivalent national standards for executing the “proof test” may be used.

*Publicly available information.* Information that is generally accessible to the interested public in any form and, therefore, not subject to the EAR (see part 732 of the EAR).

*Publicly available technology and software.* Technology and software that are already published or will be published; arise during, or result from fundamental research; are educational; or are included in certain patent applications (see §734.3(b)(3) of the EAR).

“*Pulse compression*”. (Cat 6)--The coding and processing of a radar signal pulse of long time duration to one of short time duration, while maintaining the benefits of high pulse energy.

“*Pulse duration*”. (Cat 6)--Duration of a “laser” pulse measured at Full Width Half Intensity (FWHI) levels.

“*Pulsed Laser*”. (Cat 6) A pulsed “laser” is defined as having a “pulse duration” that is less than or equal to 0.25 seconds.

*Purchaser.* The person abroad who has entered into a transaction to purchase an item for delivery to the ultimate consignee. In most cases, the purchaser is not a bank, forwarding agent, or intermediary. The purchaser and ultimate consignee may be the same entity.

“*Q-switched laser*”. (Cat 6)--A “laser” in which the energy is stored in the population inversion or in the optical resonator and subsequently emitted in a pulse.

*RWA.* See Return Without Action.

“*Radar frequency agility*”. (Cat 6)--Any technique that changes, in a pseudo-random sequence, the carrier frequency of a pulsed radar transmitter between pulses or between groups of pulses by an amount equal to or larger than the pulse bandwidth.

“*Radar spread spectrum*”. (Cat 6)--Any modulation technique for spreading energy originating from a signal with a relatively narrow frequency band, over a much a wider band of frequencies, by using random or pseudo-random coding.

“*Range*”. (Cat 8)--Half the maximum distance a submersible vehicle can cover.

“*Range*”. (MTCR context) – The maximum distance that the specified rocket system or unmanned aerial vehicle (UAV) system is capable of traveling in the mode of stable flight as measured by the projection of its trajectory over the surface of the Earth.

**Technical Notes:**

a. The maximum capability based on the design characteristics of the system, when fully loaded with fuel or propellant, will be taken into consideration in determining “range”.

b. The “range” for both rocket systems and UAV systems will be determined independently of any external factors such as operational restrictions, limitations imposed by telemetry, data links or other external constraints.

c. For rocket systems, the “range” will be determined using the trajectory that maximizes “range”, assuming ICAO standard atmosphere with zero wind.

d. For UAV systems, the “range” will be determined for a one-way distance using the most fuel-efficient flight profile (e.g. cruise speed and altitude), assuming ICAO standard atmosphere with zero wind.

*Readable or readability.* Readable and readability mean the quality of a group of letters or numerals being recognized as complete words or numbers.

*“Real-time bandwidth”.* (Cat 3)--For “dynamic signal analyzers”, the widest frequency range that the analyzer can output to display or mass storage without causing any discontinuity in the analysis of the input data. For analyzers with more than one channel, the channel configuration yielding the widest “real-time bandwidth” shall be used to make the calculation.

*“Real time Processing”.* (Cat 2, 4, 6, and 7)--The processing of data by a computer system providing a required level of service, as a function of available resources, within a guaranteed response time, regardless of the load of the system, when stimulated by an external event.

*Reasons for Control.* Reasons for Control are: Anti-Terrorism (AT), Chemical & Biological

Weapons (CB), Crime Control (CC), High Performance Computer (XP), Missile Technology (MT), National Security (NS), Nuclear Nonproliferation (NP), Regional Stability (RS), Short Supply (SS), and United Nations sanctions (UN). Items controlled within a particular ECCN may be controlled for more than one reason.

*Recoverable commodities and software.* As applied to encryption items, means any of the following:

(a) A stored data product containing a recovery feature that, when activated, allows recovery of the plaintext of encrypted data without the assistance of the end-user; or

(b) A product or system designed such that a network administrator or other authorized persons who are removed from the end-user can provide law enforcement access to plaintext without the knowledge or assistance of the end-user. This includes, for example, products or systems where plaintext exists and is accessible at intermediate points in a network or infrastructure system, enterprise-controlled recovery systems, and products which permit recovery of plaintext at the server where a system administrator controls or can provide recovery of plaintext across an enterprise.

**Note:** “Plaintext” indicates that data that is initially received by or presented to the recoverable product before encryption takes place.

*Reexport.* “Reexport” means an actual shipment or transmission of items subject to the EAR from one foreign country to another foreign country. For purposes of the EAR, the export or reexport of items subject to the EAR that will transit through a country or countries, or be transshipped in a country or countries to a new country, or are intended for reexport to the new country, are deemed to be exports to the new country. (see §734.2(b) of the EAR.) In addition, for purposes of satellites controlled by the Department of Com-

merce, the term “reexport” also includes the transfer of registration of a satellite or operational control over a satellite from a party resident in one country to a party resident in another country.

“*Repeatability*”. (Cat 7) The closeness of agreement among repeated measurements of the same variable under the same operating conditions when changes in conditions or non-operating periods occur between measurements. (Reference: IEEE STD 528-2001 (one sigma standard deviation))

“*Repeatability*”. (MTCR Context only) (Cat 7) – According to IEEE Standard 528-2001 as follows: “The closeness of agreement among repeated measurements of the same variable under the same operating conditions when changes in conditions or non-operating periods occur between measurements”.

*Replacement license*. An authorization by the Bureau of Industry and Security revising the information, conditions, or riders stated on a license issued by BIS. See §750.7 of the EAR.

“*Required*”. (General Technology Note) (Cat 4, 5, 6, and 9)--As applied to “technology” or “software”, refers to only that portion of “technology” or “software” which is peculiarly responsible for achieving or exceeding the controlled performance levels, characteristics or functions. Such “required” “technology” or “software” may be shared by different products. For example, assume product “X” is controlled if it operates at or above 400 MHz and is not controlled if it operates below 400 MHz. If production technologies “A”, “B”, and “C” allow production at no more than 399 MHz, then technologies “A”, “B”, and “C” are not “required” to produce the controlled product “X”. If technologies “A”, “B”, “C”, “D”, and “E” are used together, a manufacturer can produce product “X” that operates at or above 400 MHz. In this example, technologies “D” and “E” are “required” to make the controlled product and are

themselves controlled under the General Technology Note. (see the General Technology Note.)

“*Resolution*”. (Cat 2)--The least increment of a measuring device; on digital instruments, the least significant bit (Ref.: ANSI B-89.1.12).

*Return Without Action (RWA)*. An application may be RWA'd for one of the following reasons:

- (a) The applicant has requested the application be returned;
- (b) A License Exception applies;
- (c) The items are not under Department of Commerce jurisdiction;
- (d) Required documentation has not been submitted with the application; or
- (e) The applicant cannot be reached after several attempts to request additional information necessary for processing of the application.

“*Robot*”. (Cat 2 and 8)--A manipulation mechanism, which may be of the continuous path or of the point-to-point variety, may use “sensors”, and has all the following characteristics:

- (a) Is multifunctional;
- (b) Is capable of positioning or orienting material, parts, tools or special devices through variable movements in a three dimensional space;
- (c) Incorporates three or more closed or open loop servo-devices that may include stepping motors; and
- (d) Has “user-accessible programmability” by means of teach/playback method or by means of an electronic computer that may be a

programmable logic controller, i.e., without mechanical intervention.

**Note:** This definition does not include the following devices:

(a) Manipulation mechanisms that are only manually/teleoperator controllable;

(b) Fixed sequence manipulation mechanisms that are automated moving devices, operating according to mechanically fixed programmed motions. The program is mechanically limited by fixed stops, such as pins or cams. The sequence of motions and the selection of paths or angles are not variable or changeable by mechanical, electronic or electrical means;

(c) Mechanically controlled variable sequence manipulation mechanisms that are automated moving devices, operating according to mechanically fixed programmed motions. The program is mechanically limited by fixed, but adjustable stops, such as pins or cams. The sequence of motions and the selection of paths or angles are variable within the fixed program pattern. Variations or modifications of the program pattern (e.g., changes of pins or exchanges of cams) in one or more motion axes are accomplished only through mechanical operations;

(d) Non-servo-controlled variable sequence manipulation mechanisms that are automated moving devices, operating according to mechanically fixed programmed motions. The program is variable, but the sequence proceeds only by the binary signal from mechanically fixed electrical binary devices or adjustable stops;

(e) Stacker cranes defined as Cartesian coordinate manipulator systems manufactured as an integral part of a vertical array of storage bins and designed to access the contents of those bins for storage or retrieval.

*“Rotary Atomization”*. (Cat 1)--A process to reduce a stream or pool of molten metal to droplets to a diameter of 500 micrometer or less by centrifugal force.

*Routed export transaction*. A transaction where the foreign principal party in interest authorizes a U.S. forwarding or other agent to facilitate export of items from the United States.

*“Run-out”*. (out-of-true running) (Cat 2)--Radial displacement in one revolution of the main spindle measured in a plane perpendicular to the spindle axis at a point on the external or internal revolving surface to be tested (Ref.: ISO 230 Part 1-1986, paragraph 5.61).

*“SHPL”* (Cat 6) is equivalent to “Super High Power Laser”, see definition for “super high power laser.”

*SNEC*. See Subgroup on Nuclear Export Coordination.

*“Scale factor”*. (gyro or accelerometer) (Cat 7)--The ratio of change in output to a change in the input intended to be measured. Scale factor is generally evaluated as the slope of the straight line that can be fitted by the method of least squares to input-output data obtained by varying the input cyclically over the input range.

*Schedule B numbers*. The commodity numbers appearing in the current edition of the Bureau of the Census publication, Schedule B Statistical Classification of Domestic and Foreign Commodities Exported from the United States. (see part 758 of the EAR for information on use of Schedule B numbers.)

*“Settling time”*. (Cat 3)--The time required for the output to come within one-half bit of the final value when switching between any two levels of the converter.

*Shield*. Chaired by the Department of State, the Shield primarily reviews applications involving items controlled for Chemical and Biological Weapons (CBW) reasons. The Shield also reviews applications involving items not controlled for CBW reasons, but destined for a country and/or end-use/end-user of concern. See §750.4 of the EAR.

*“Signal analyzers”*. (Cat 3)--Apparatus capable of measuring and displaying basic properties of the single-frequency components of multi-frequency signals.

*“Signal analyzers”*. (dynamic) (Cat 3)--(see “Dynamic signal analyzers”.)

*“Signal processing”*. (Cat 3, 4, 5, and 6)--The processing of externally derived information-bearing signals by algorithms such as time compression, filtering, extraction, selection, correlation, convolution or transformations between domains (e.g., fast Fourier transform or Walsh transform).

*Single shipment*. All items moving at the same time from one exporter to one consignee or intermediate consignee on the same exporting carrier, even if these items will be forwarded to one or more ultimate consignees. Items being transported in this manner shall be treated as a single shipment even if the items represent more than one order or are in separate containers.

*“Software”*. (Cat: all)--A collection of one or more “programs” or “microprograms” fixed in any tangible medium of expression.

*“Source code”*. (or source language) (Cat 4, 5, 6, 7, and 9)--A convenient expression of one or more processes that may be turned by a programming system into equipment executable form (“object code” (or object language)).

*“Spacecraft”*. (Cat 7 and 9)--Active and passive satellites and space probes.

*“Space qualified”*. (Cat 3 and 6)--Products designed, manufactured and tested to meet the special electrical, mechanical or environmental requirements for use in the launch and deployment of satellites or high-altitude flight systems operating at altitudes of 100 km or higher.

*“Special fissile material.”* (Cat 0) means plutonium-239, uranium-233, “uranium enriched in the isotopes 235 or 233”, and any material containing the foregoing.

**Note:** As defined by 10 CFR 110.2 of the Nuclear Regulatory Commission Regulations, “Special fissile material” means: plutonium, uranium-233 or uranium enriched above 0.711 percent by weight in the isotope uranium-235.

*Specially Designated National (SDN)*. Any person who is determined by the Secretary of the Treasury to be a specially designated national for any reason under regulations issued by the Office of Foreign Assets Control (see 31 CFR parts 500 through 590).

*Specially Designated Terrorist (SDT)*. Any person who is determined by the Secretary of the Treasury to be a specially designated terrorist under notices or regulations issued by the Office of Foreign Assets Control (see 31 CFR chapter V).

*“Specially designed”*. (MTCR context)--Equipment, parts, components or “software” that, as a result of “development”, have unique properties that distinguish them for certain predetermined purposes. For example, a piece of equipment that is “specially designed” for use in a “missile” will only be considered so if it has no other function or use. Similarly, a piece of manufacturing equipment that is “specially designed” to produce a certain type of component

will only be considered such if it is not capable of producing other types of components.

“*Specific modulus*”. (Cat 1)--Young's modulus in pascals, equivalent to N/m<sup>2</sup> divided by specific weight in N/m<sup>3</sup>, measured at a temperature of (296 ± 2) K ((23 ± 2)° C) and a relative humidity of (50 ± 5)%.

“*Specific tensile strength*”. (Cat 1)--Ultimate tensile strength in pascals, equivalent to N/m<sup>2</sup> divided by specific weight in N/m<sup>3</sup>, measured at a temperature of (296 ± 2) K ((23 ± 2)° C) and relative humidity of (50 ± 5)%.

“*Spectral efficiency*”. (Cat 5)--A figure of merit parametrized to characterize the efficiency of transmission system that uses complex modulation schemes such as QAM (quadrature amplitude modulation), Trellis coding, QSPK (Q-phased shift key), etc. It is defined as follows:

$$\text{“Spectral efficiency”} = \frac{\text{Digital transfer rate “ (bits/second)”}}{\text{6 dB spectrum bandwidth (Hz)}}$$

“*Splat Quenching*”. (Cat 1)--A process to “solidify rapidly” a molten metal stream impinging upon a chilled block, forming a flake-like product.

**Note:** “Solidify rapidly”: solidification of molten material at cooling rates exceeding 1,000 K/sec.

“*Spread spectrum*”. (Cat 5)--The technique whereby energy in a relatively narrow-band communication channel is spread over a much wider energy spectrum.

“*Spread spectrum radar*”. (Cat 6)--(see “Radar spread spectrum”)

“*Stability*”. (Cat 7)--Standard deviation (1 sigma) of the variation of a particular parameter from its

calibrated value measured under stable temperature conditions. This can be expressed as a function of time.

“*Stored program controlled*”. (Cat 2, 3, and 5)--A control using instructions stored in an electronic storage that a processor can execute in order to direct the performance of predetermined functions.

**Note:** Equipment may be “stored program controlled” whether the electronic storage is internal or external to the equipment.

*Strategic partner (of a U.S. company)*. As applied to encryption items, means a foreign-based entity that:

(a) Has a business need to share the proprietary information with one or more U.S. companies; *and*

(b) Is contractually bound to the U.S. company (e.g., has an established pattern of continuing or recurring contractual relations).

*Subgroup on Nuclear Export Coordination (SNEC)*. Chaired by the Department of State, the SNEC primarily reviews applications involving items controlled for nuclear nonproliferation (NP) reasons. The SNEC also reviews applications involving items not controlled for NP reasons, but destined for a country and/or end-use/end-user of NP concern.

*Subject to the EAR*. A term used in the EAR to describe those commodities, software, technology, and activities over which the Bureau of Industry and Security (BIS) exercises regulatory jurisdiction under the EAR (see §734.2(a) of the EAR).

“*Substrate*”. (Cat 3)--A sheet of base material with or without an interconnection pattern and on which or within which “discrete components” or integrated circuits or both can be located.



**Note:** “Discrete component”: a separately packaged “circuit element” with its own external connections.

“*Substrate blanks*”. (Cat 6)--Monolithic compounds with dimensions suitable for the production of optical elements such as mirrors or optical windows.

“*Superalloy*”. (Cat 2 and 9)--Nickel-, cobalt-, or iron-base alloys having strengths superior to any alloys in the AISI 300 series at temperatures over 922 K (694 degrees C) under severe environmental and operating conditions.

“*Superconductive*”. (Cat 1, 3, 6, and 8)--Materials, i.e., metals, alloys, or compounds that can lose all electrical resistance, i.e., that can attain infinite electrical conductivity and carry very large electrical currents without Joule heating.

**Note:** The “superconductive” state of a material is individually characterized by a “critical temperature”, a critical magnetic field that is a function of temperature, and a critical current density that is a function of both magnetic field and temperature.

“*Super High Power Laser*”. (SHPL) (Cat 6)--A “laser” capable of delivering (the total or any portion of) the output energy exceeding 1 kJ within 50 ms or having an average or CW power exceeding 20 kW.

“*Superplastic forming*”. (Cat 1 and 2)--A deformation process using heat for metals that are normally characterized by low elongation (less than 20%) at the breaking point as determined at room temperature by conventional tensile strength testing, in order to achieve elongations during processing that are at least 2 times those values.

“*Symmetric algorithm*”. (Cat 5, part II) A cryptographic algorithm using an identical key for both encryption and decryption. A common use

of “symmetric algorithms” is confidentiality of data.

“*System tracks*”. (Cat 6)--Processed, correlated (fusion of radar target data to flight plan position) and updated aircraft flight position report available to the Air Traffic Control center controllers.

“*Systolic array computer*”. (Cat 4)--A computer where the flow and modification of the data is dynamically controllable at the logic gate level by the user.

“*Technology*”. (General Technology Note)--Specific information necessary for the “development”, “production”, or “use” of a product. The information takes the form of “technical data” or “technical assistance”. Controlled “technology” is defined in the General Technology Note and in the Commerce Control List (Supplement No. 1 to part 774 of the EAR).

**N.B.:** Technical assistance--May take forms such as instruction, skills training, working knowledge, consulting services.

**Note:** “Technical assistance” may involve transfer of “technical data”.

“*Technical data*”.--May take forms such as blueprints, plans, diagrams, models, formulae, tables, engineering designs and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape, read-only memories.

“*Terminal interface equipment*”. (Cat 4)--Equipment at which information enters or leaves the telecommunication systems, e.g., telephone, data device, computer, facsimile device.

“*Three dimensional Vector Rate*”. (Cat 4)--The number of vectors generated per second that have 10 pixel poly line vectors, clip tested, randomly oriented, with either integer or floating point

X-Y-Z coordinate values (whichever produces the maximum rate).

“*Tilting spindle*”. (Cat 2)--A tool-handling spindle that alters, during the machining process, the angular position of its center line with respect to any other axis.

“*Time constant*”. (Cat 6)--The time taken from the application of a light stimulus for the current increment to reach a value of 1-1/e times the final value (i.e., 63% of the final value).

“*Total control of flight*.” (Cat 7) means an automated control of “aircraft” state variables and flight path to meet mission objectives responding to real time changes in data regarding objectives, hazards or other “aircraft.”

“*Total digital transfer rate*”. (Cat 5)--The number of bits, including line coding, overhead and so forth per unit time passing between corresponding equipment in a digital transmission system. (see also “digital transfer rate”.)

“*Toxins*.” (Cat 1 and 2) means toxins in the form of deliberately isolated preparations or mixtures, no matter how produced, other than toxins present as contaminants of other materials such as pathological specimens, crops, foodstuffs or seed stocks of “microorganisms.”

*Transfer*. A transfer to any person of items subject to the EAR either within the United States or outside of the United States with the knowledge or intent that the items will be shipped, transferred, or transmitted to an unauthorized recipient.

“*Transfer laser*”. (Cat 6)--A “laser” in which the lasting species is excited through the transfer of energy by collision of a non-lasing atom or molecule with a lasing atom or molecule species.

“*Tunable*”. (Cat 6)--The ability of a “laser” to produce a continuous output at all wavelengths

over a range of several “laser” transitions. A line selectable “laser” produces discrete wavelengths within one “laser” transition and is not considered “tunable”.

*U.S. person*.

(a) For purposes of §§744.6, 744.10, 744.11, 744.12, 744.13 and 744.14 of the EAR, the term U.S. person includes:

(1) Any individual who is a citizen of the United States, a permanent resident alien of the United States, or a protected individual as defined by 8 U.S.C. 1324b(a)(3);

(2) Any juridical person organized under the laws of the United States or any jurisdiction within the United States, including foreign branches; and

(3) Any person in the United States.

(b) See also §§ 740.9, 740.14 and parts 746 and 760 of the EAR for definitions of “U.S. person” that are specific to those parts.

*U.S. subsidiary*. As applied to encryption items, means:

(a) A foreign branch of a U.S. company; or

(b) A foreign subsidiary or entity of a U.S. entity in which:

(1) The U.S. entity beneficially owns or controls (whether directly or indirectly) 25 percent or more of the voting securities of the foreign subsidiary or entity, if no other persons owns or controls (whether directly or indirectly) an equal or larger percentage; or

(2) The foreign entity is operated by the U.S. entity pursuant to the provisions of an exclusive management contract; or

(3) A majority of the members of the board of directors of the foreign subsidiary or entity also are members of the comparable governing body of the U.S. entity; or

(4) The U.S. entity has the authority to appoint the majority of the members of the board of directors of the foreign subsidiary or entity; or

(5) The U.S. entity has the authority to appoint the chief operating officer of the foreign subsidiary or entity.

*Ultimate consignee.* The principal party in interest located abroad who receives the exported or reexported items. The ultimate consignee is not a forwarding agent or other intermediary, but may be the end-user.

*United States.* Unless otherwise stated, the 50 States, including offshore areas within their jurisdiction pursuant to section 3 of the Submerged Lands Act (43 U.S.C. 1311), the District of Columbia, Puerto Rico, and all territories, dependencies, and possessions of the United States, including foreign trade zones established pursuant to 19 U.S.C. 81A-81U, and also including the outer continental shelf, as defined in section 2(a) of the Outer Continental Shelf Lands Act (43 U.S.C. 1331(a)).

*United States airline.* Any citizen of the United States who is authorized by the U.S. Government to engage in business as an airline. For purposes of this definition, a U.S. citizen is:

(a) An individual who is a citizen of the United States or one of its possessions; or

(b) A partnership of which each member is such an individual; or

(c) A corporation or association created or organized under the laws of the United States, or of any State, Territory, or possession of the United States, of which the president and

two-thirds of the board of directors and other managing officers thereof are such individuals and in which at least 75 percent of the voting interest is owned or controlled by persons who are citizens of the United States or of one of its possessions.

*“Unmanned aerial vehicle” (“UAV”).* (Cat 9) Any “aircraft” capable of initiating flight and sustaining controlled flight and navigation without any human presence on board. In addition, according to section 744.3 of the EAR, unmanned air vehicles, which are the same as “unmanned aerial vehicles,” include, but are not limited to, cruise missile systems, target drones and reconnaissance drones.

*“Usable in”, “usable for”, “usable as” or “Capable of”.* (MTCR context)--Equipment, parts, components, materials or “software” which are suitable for a particular purpose. There is no need for the equipment, parts, components, materials or “software” to have been configured, modified or specified for the particular purpose. For example, any military specification memory circuit would be “capable of” operation in a guidance system.

*“Use”.* (All categories and General Technology Note)--Operation, installation (including on-site installation), maintenance (checking), repair, overhaul and refurbishing.

*“User-accessible programmability”.* (Cat 4, 5, and 6)--The facility allowing a user to insert, modify, or replace “programs” by means other than:

(a) A physical change in wiring or interconnections; or

(b) The setting of function controls including entry of parameters.

*Utilization facility.* (a) As defined by 10 CFR 110.2 of the Nuclear Regulatory Commission Regulations, utilization facility means a nuclear reactor, other than one that is a production

facility, any of the following major components of a nuclear reactor: Pressure vessels designed to contain the core of a nuclear reactor, other than one that is a production facility, and the following major components of a nuclear reactor:

(1) Primary coolant pumps;

(2) Fuel charging or discharging machines;  
and

(3) Control rods. Utilization facility does not include the steam turbine generator portion of a nuclear power plant.

*“Vacuum Atomization”*. (Cat 1)--A process to reduce a molten stream of metal to droplets of a diameter of 500 micrometer or less by the rapid evolution of a dissolved gas upon exposure to a vacuum.

*“Variable geometry airfoils”*. (Cat 7)--Use trailing edge flaps or tabs, or leading edge slats or pivoted nose droop, the position of which can be controlled in flight.

*“Vector Rate”*. (Cat 4)--See: “Two dimensional Vector Rate”; “Three dimensional Vector Rate”.

*You*. Any person, including a natural person, including a citizen of the United States or any foreign country; any firm; any government, government agency, government department, or government commission; any labor union; any fraternal or social organization; and any other association or organization whether or not organized for profit.