Table of Contents

600 series 5

600 Series Major Defense Equipment 5

Access information. 5

Accessories..... 5

"Accuracy". 5

"Active flight control systems"... 5

"Active pixel". 5

"Adaptive control". 5

"Adjusted Peak Performance" (APP). 5

Advisory Committee on Export Policy (ACEP). 6

AES..... 6

"Agricultural commodities"..... 6

"Aircraft". 6

Airline. 6

"Airship" 6

"All compensations available" 7

"Allocated by the ITU"..... 7

"Angle random walk"..... 7

"Angular position deviation". 7

"APP"..... 7

Applicant..... 7

"Asymmetric algorithm".....7

Attachments.....7

Australia Group. The countries participating in.....7

"Authentication"..7

Automated Export System (AES). 7

"Average Output Power". 8

Bank.....8

"Basic gate propagation delay time".....8

"Basic Scientific Research".....9

"Bias". (accelerometer) 9

"Bias". (gyro) 9

Bill of Lading.....9

Build-to-Print technology. 9

Business Unit.....9

CCL Group.....9

"Camming".....9

Canadian airline. .9

"Capable of".....10

Category.....10

"Chemical laser". 10

Chemical Weapons Convention (CWC). 10

"Circular Error Probable" ("CEP"). 10

"Circulation-controlled, anti-torque or circulation-controlled direction control systems" 10

"Civil aircraft".. 10

COCOM (Coordinating Committee on Multilateral Export Controls)..... 10

Commerce Control List (CCL)..... 10

"Communications Channel Controller"..... 10

Commodity..... 10

"Compensation systems"..... 10

Complete breech mechanisms..... 10

Component..... 11

"Composite"..... 11

"III/V compounds". 11

"Contouring control". 11

Controlled country. 11

Countries supporting international terrorism. 11

Country Chart.... 11

Country Groups. 11

"Critical temperature". 11

"Crude oil."..... 12

"Cryptanalytic items"..... 12

"Cryptographic activation"..... 12

"Cryptography". 12

Customs officer. . 13

"CW Laser"..... 13

"Data-Based Referenced Navigation" ("DBRN") Systems 13

"Data signaling rate"..... 13

"Depleted uranium"..... 13

"Designed or modified". 13

"Development".. 13

Diffusion bonding. 13

Digital computer.13

"Digital transfer rate"..... 13

Directorate of Defense Trade Controls (DDTC). 13

Dual use. 14

"Dynamic adaptive routing"..... 14

Effective control. 14

"Electronic assembly"..... 14

"Encryption Component"..... 14

Encryption items.14

Encryption licensing arrangement..... 14

Encryption object

code. 14

Encryption software. 14

Encryption source code. 15

"End-effectors".. 15

End item 15

End-user. 15

Energetic materials. 15

Equipment 15

"Equivalent Density". 15

"Explosives". 15

Export. 15

Export Administration Act (EAA). 15

Export Administration Regulations (EAR). 15

Export Administration Review Board (EARB). 15

Export Control Classification Number (ECCN). 15

Export control document. 15

Exporter. 16

Exporting carrier. 16

Facilities. 16

"FADEC systems". 16

"FMU". 16

"Fibrous or filamentary materials". 16

"Film type integrated circuit". 16

Financial Institution. 16

Firm. 17

"Flexible manufacturing unit". 17

"Fly-by-light system". 17

"Fly-by-wire system". 17

"Focal plane array". 17

Food. 18

Foreign government agency. 18

Foreign person ... 18

Foreign policy control. 18

Foreign Terrorist Organizations (FTO). 18

Forwarding agent. 18

"Fractional bandwidth". 18

"Frequency hopping". 18

"Frequency switching time." . 18

Fuel cell. 19

"Full Authority Digital Engine Control Systems" ("FADEC Systems") 19

Fundamental research. 19

"Fusible". 19

General prohibitions. 19

"Government end-user" (as applied to encryption items). 19

Hard selectors.... 19

Hold Without Action (HWA). ... 19

"Hybrid computer". 19

"Hybrid integrated circuit". 19

"Image enhancement". ... 20

"Information security". 20

"Instantaneous bandwidth". 20

"Instrumented range. 20

Intent to Deny (ITD) letter. 20

"Interleaved Analog-to-Digital Converter (ADC)" 20

Intermediate consignee 20

"Intrinsic Magnetic Gradiometer". ... 20

Intrusion software 20

"Isostatic presses". 21

Item. 21

Know. 21

Knowledge. 21

"Laser." 21

Law or regulation relating to export control. 21

Legible or legibility. 21

Less sensitive government end users (as applied to encryption items). 21

"Library". 23

License. 23

License application; application for license. 23

License Exception. 23

Licensee. 23

"Lighter-than-air vehicles". 23

"Local area network" 23

"MBTR". 23

"MMIC". 23

MTCR. 23

MTEC. 23

"Magnetic Gradiometers".. 23

"Magnetometers". 23

Material. 24

"Matrix". 24

"Maximum bit transfer rate". 24

"Measurement uncertainty"..... 24
"Media access unit"..... 24
Medical devices.. 24
Medicines..... 24
Metal embrittlement agents..... 24
"Microcomputer microcircuit"..... 24
"Microorganisms" 25
"Microprocessor microcircuit"..... 25
"Microprogram". 25
Military commodity 25
Missile Technology Control Regime (MTCR). 25
Missile Technology Export Control Group (MTEC)... 25
"Missiles"..... 25
"Monolithic integrated circuit". 26
"Monolithic Microwave Integrated Circuit" 26
*"Monospectral imaging sensors"*26
More sensitive government end users (as applied to encryption items). 26
"Motion control board".....27
"Multichip integrated circuit". 27
"Multi-data-stream processing". 27
"Multiple channel Analog-to-Digital Converter (ADC)" 27
"Multispectral Imaging Sensors". 27
"N.E.S". 27
NATO (North Atlantic Treaty Organization). 27
NLR. 27
NSG. 27
"Natural uranium" 27
Net value.....27
"Network Access Controller".....27
Non-standard cryptography. 28
"Nuclear reactor" 28
Nuclear Suppliers Group (NSG). 28
"Numerical control".....28
"OAM".....28
"Object code". ...28
Office of Foreign Assets Control (FAC) or (OFAC). 28
"Open cryptographic interface"..... 28
"Operate autonomously"... 28
Operating Committee (OC). 29
"Operations, Administration or Maintenance" ("OAM") 29
"Optical integrated circuit"..... 29
"Optical switching"..... 29
Order Party..... 29
Organization for the Prohibition of Chemical Weapons (OPCW). 29
Other party authorized to receive license.... 29
"Overall current density"..... 29
Part..... 30
"Part program". 30
"Payload". 30
"Peak power".... 31
Person..... 31
"Personal area network"..... 31
Port of export..... 32
"Principal element"..... 32
Principal parties in interest. 32
"Production"..... 32
"Production equipment". 32
"Production Facilities". 32
"Program"..... 32
"Proof test". 32
Proscribed person 32
Publicly available encryption software 32
Published..... 32
"Pulse compression". 32
"Pulse duration". 32
"Pulsed Laser". . 33
Purchaser..... 33
"Pyrotechnic(s)" 33
"Quantum cryptography".... 33
RWA. 33
"Radar frequency agility". 33
"Radar spread spectrum"..... 33
''Radiant sensitivity''..... 33
"Range"..... 33
"Range"..... 33
Readable or readability..... 33
"Real-time Processing"..... 33
Reasons for Control. 34
Recoverable commodities and software..... 34
Reexport. 34
Release..... 34

"Repeatability".. 34

"Repeatability".. 34

Replacement license. 34

Required..... 34

Return Without Action (RWA). 35

"Robot". 35

Routed export transaction 36

"Run-out". 36

"SHPL" 36

SNEC..... 36

"Sample rate".... 36

"Satellite navigation system" 36

"Scale factor".... 36

Schedule B numbers..... 37

Shield. 37

"Signal analyzers". 37

"Signal processing"..... 37

Single shipment. . 37

"Software"..... 37

"Source code". .. 37

"Spacecraft"..... 37

"Spacecraft bus" 37

"Spacecraft payload" 37

"Space-qualified". 37

"Special fissile material"..... 37

Specially Designated National (SDN)...38

Specially Designated Terrorist (SDT)...38

Specially designed. 38

"Specific modulus". 40

"Specific tensile strength".....40

"Spectral efficiency". 41

"Spinning mass gyros".....41

"Spread spectrum". 41

"Spread spectrum radar". 41

"Stability".....41

Standard. 41

Standards organization 41

"Steady State Mode" 41

"Stored program controlled". 41

"Sub-orbital craft" 41

Subgroup on Nuclear Export Coordination (SNEC). 41

Subject to the EAR. 42

Subject to the ITAR 42

"Substrate". 42

"Substrate blanks". 42

"Superalloy". 42

"Superconductive". 42

"Super High Power Laser" (SHPL)... 42

"Superplastic forming". 42

"Symmetric algorithm". 42

System. 42

"Technology"... 43

"Terminal interface equipment". 43

"Three dimensional integrated circuit". 43

"Tilting spindle".43

"Time constant". 43

''Tip shroud'' 43

"Total control of flight" 43

"Total digital transfer rate"..... 43

"Toxins"..... 43

Transfer. 43

"Tunable"..... 44

U.S. person. 44

U.S. subsidiary... 44

Ultimate consignee. 44

"Unidirectional positioning repeatability"..... 44

United States..... 44

United States airline..... 45

"Unmanned aerial vehicle" ("UAV"). 45

"Usable in", "usable for", "usable as" or "capable of". 45

"Use"..... 45

"User-accessible programmability". 45

Utilization facility. 45

"Vacuum electronic devices"..... 45

"Vector Rate"... 46

You. 46

§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.

600 series. ECCNs in the "xY6zz" format on the Commerce Control List (CCL) that control items on the CCL that were previously controlled on the U.S. Munitions List or that are covered by the Wassenaar Arrangement Munitions List (WAML). The "6" indicates the entry is a munitions entry on the CCL. The "x" represents the CCL category and "Y" the CCL product group. The "600 series" constitutes the munitions ECCNs within the larger CCL.

600 Series Major Defense Equipment or *MDE*. Any item listed in ECCN 9A610.a, 9A619.a, 9A619.b or 9A619.c, having a nonrecurring research and development cost of more than $50,000,000 or a total production cost of more than $200,000,000.

NOTE TO "600 SERIES MAJOR DEFENSE EQUIPMENT:" *For the most current list of MDE, see Appendix 1, (Nonrecurring Cost Recoupment Charges for Major Defense Equipment) to DoD 5105.38-M, "Security Assistance Management Manual (SAMM)," dated 04/30/2012, available online at http://www.dsca.osd.mil/samm/ESAMM/Appendix01.htm* .

Access information. Information that allows access to encrypted technology or encrypted software in an unencrypted form. Examples include decryption keys, network access codes, and passwords.

Accessories. These are associated items for any "component," "end item," or "system," and which are not necessary for their operation, but which enhance their usefulness or effectiveness. For example, for a riding lawnmower, "accessories" and "attachments" will include the bag to capture the cut grass, and a canopy to protect the operator from the sun and rain. For purposes of this definition, "accessories" and "attachments" are the same.

"Accuracy". (Cat 2, 3, 6, 7 and 8) "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)--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.

AES. See "Automated Export System."

"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, 6, 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.

"Airship". (Cat 2 and 9) A power-driven airborne vehicle that is kept buoyant by a body

of gas (usually helium, formerly hydrogen) which is lighter than air.

"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 or measuring errors for the particular coordinate measuring machine 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').

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

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.*

Attachments. These are associated items for any "component," "end item," or "system," and which are not necessary for their operation, but which enhance their usefulness or effectiveness. For example, for a riding lawnmower, "accessories" and "attachments" will include the bag to capture the cut grass, and a canopy to protect the operator from the sun and rain. For purposes of this definition, "attachments" and "accessories" are the same.

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 November 1, 2013, include: Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, India, Iceland, Ireland, Italy, Japan, Korea (South), Latvia, Lithuania, Luxembourg, Malta, Mexico, 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.

"Authentication". (Cat 5P2) Verifying the identity of a user, process or device, often as a prerequisite to allowing access to resources in an information system. This includes verifying the origin or content of a message or other information, and all aspects of access control where there is no encryption of files or text except as directly related to the protection of passwords, Personal Identification Numbers (PINs) or similar data to prevent unauthorized access.

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 U.S. Customs and Border Protection, using the efficiencies of Electronic Data Interchange (EDI). AES allows the export information to be collected electronically and edited immediately. For more information about AES, visit the Bureau of Census Web site at: http://www.census.gov/foreign-trade/aes/index.html or see 15 CFR Part 30 the Foreign Trade Regulations.

"Average Output Power". (Cat 6) The average output power is the total "laser" output energy, in joules, divided by the period over which a series of consecutive pulses is emitted, in seconds. For a series of uniformly spaced pulses it is equal to the total "laser" output energy in a single pulse, in joules, multiplied by the pulse frequency of the "laser", in Hertz.

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 definition, 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 definition, 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)--The average over a specified time of accelerometer output measured at specified operating conditions, that has no correlation with input acceleration or rotation. "Bias" is expressed in g or in meters per second^2 (g or m/s^2) (IEEE Std 528-2001) (Micro g equals 1x10^{-6} g).

"Bias". (gyro) (Cat 7) The average over a specified time of gyro output measured at specified operating conditions that has no correlation with input rotation or acceleration. "Bias" is typically expressed in degrees per hour (deg/hr). (IEEE Std 528 2001).

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.

Build-to-Print technology.

(1) This is "production" "technology" that is sufficient for an inherently capable end user to produce or repair a commodity from engineering drawings without any of the following:

(i) Revealing "development" "technology," such as design methodology, engineering analysis, detailed process or manufacturing know-how;

(ii) Revealing the production engineering or process improvement aspect of the "technology;" or

(iii) Requiring assistance from the provider of the technology to produce or repair the commodity.

(2) Acceptance, test, or inspection criteria pertaining to the commodity at issue is included within the scope of "build-to-print technology" only if it is necessary to verify that the commodity is acceptable.

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.

"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".

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.

"Circular Error Probable" ("CEP"). (Cat 7) In a circular normal distribution, the radius of the circle containing 50% of the individual measurements being made, or the radius of the circle within which there is a 50% probability of being located.

"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, 3, 4, 7 and 9) Those "aircraft" listed by designation in published airworthiness certification lists by civil aviation authorities of one or more Wassenaar Arrangement Participating States 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.

"Communications Channel Controller". (Cat 4) - The physical interface which controls the flow of synchronous or asynchronous digital information. It is an assembly that can be integrated into computer or telecommunications equipment to provide communications access.

Commodity. Any article, material, or supply except technology and software.

"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.

Complete breech mechanisms. The mechanism for opening and closing the breech of a breech-

loading firearm, especially of a heavy-caliber weapon.

Component. This is an item that is useful only when used in conjunction with an "end item." "Components" are also commonly referred to as assemblies. For purposes of this definition an assembly and a "component" are the same. There are two types of "components": "major components" and "minor components." A "major component" includes any assembled element which forms a portion of an "end item" without which the "end item" is inoperable. For example, for an automobile, "components" will include the engine, transmission, and battery. If you do not have all those items, the automobile will not function, or function as effectively. A "minor component" includes any assembled element of a "major component." "Components" consist of "parts." References in the CCL to "components" include both "major components" and "minor components."

"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.

"III/V compounds". (Cat 3 and 6) Polycrystalline or binary or complex monocrystalline products consisting of elements of groups IIIA and VA of Mendeleyev's periodic classification table (*e.g.*, gallium arsenide, gallium-aluminum arsenide, indium phosphide).

"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, Kazakhstan, Kyrgyzstan, Laos, Macau, Moldova, Mongolia, North Korea, Russia, Tajikistan, 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.

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: 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, 5P1, 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.

"Crude oil." A mixture of hydrocarbons that existed in liquid phase in underground reservoirs, remains liquid at atmospheric pressure (after passing through surface separating facilities), and has not been processed through a crude oil distillation tower. Crude oil includes reconstituted crude petroleum, lease condensate, and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Drip gases are also included, but topped crude oil, residual oil, and other finished and unfinished oils are excluded.

"Cryptanalytic items" (Cat 5P2) Systems, equipment or components 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' are functions designed to defeat cryptographic mechanisms in order to derive confidential variables or sensitive data, including clear text, passwords or cryptographic keys. These 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.').*

"Cryptographic activation". (Cat 5P2) Any technique that specifically activates or enables cryptographic capability of an item, by means of a mechanism implemented by the manufacturer of the item, where this mechanism is uniquely bound to any of the following:

1. A single instance of the item; or

2. One customer, for multiple instances of the item.

Technical Notes to definition of "Cryptographic activation"*:*

1. "Cryptographic activation" techniques and mechanisms may be implemented as hardware, "software" or "technology".

2. Mechanisms for "cryptographic activation" can, for example, be serial number-based license keys or authentication instruments such as digitally signed certificates.

"Cryptography" (Cat 5P2)-- 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.

Notes:

1. "Cryptography" does not include 'fixed' data compression or coding techniques.

2. "Cryptography" includes decryption.

Technical Notes:

1. 'Secret parameter': a constant or key kept from the knowledge of others or shared only within a group.

2. 'Fixed': the coding or compression algorithm cannot accept externally supplied parameters (e.g., cryptographic or key variables) and cannot be modified by the user.

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-Based Referenced Navigation" ("DBRN") Systems. (Cat 7) Systems which use various sources of previously measured geo-mapping data integrated to provide accurate navigation information under dynamic conditions. Data sources include bathymetric maps, stellar maps, gravity maps, magnetic maps or 3-D digital terrain maps.

"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.*

"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 joining of at least two separate pieces of metals into a single piece with a joint strength equivalent to that of the weakest material, wherein the principal mechanism is interdiffusion of atoms across the interface.

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")

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.)

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 and certain munitions items listed on the Wassenaar Arrangement Munitions List (WAML) or the Missile Technology Control Regime Annex 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.*

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.

"Electronic assembly". (Cat 4) 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.*

"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.

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

End item. This is a system, equipment or assembled commodity ready for its intended use. Only ammunition, fuel or other energy source is required to place it in an operating state. Examples of end items include ships, aircraft, computers, firearms, and milling machines.

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.

Energetic materials. (Cat 1) Substances or mixtures that react chemically to release energy required for their intended application. "Explosives", "pyrotechnics" and "propellants" are subclasses of energetic materials.

Equipment. This is a combination of parts, components, accessories, attachments, firmware, or software that operate together to perform a function of, as, or for an end item or system. Equipment may be a subset of "end items" based on the characteristics of the equipment. Equipment that meets the definition of an end-item is an end-item. Equipment that does not meet the definition of an end-item is a part, component, accessory, attachment, firmware, or software.

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

"Explosives". (Cat 1) - see Annex "List of Explosives" located at the end of Category 1 of Supplement No. 1 to Part 774 "Commerce Control List".

Export. See § 734.13 of the EAR.

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

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

Export Administration Review Board (EARB). The body authorized by Executive Order 12002 as amended by Executive Orders 12755 and 13268. The Export Administration Review Board's role in export license application review is in accordance with Executive Order 12981 as amended by Executive Orders 13020, 13026 and 13117.

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; Electronic Export Information (EEI) on the Automated Export System (AES) 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.

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.

Facilities. This means a building or outdoor area in which people use an item that is built, installed, produced, or developed for a particular purpose.

"FADEC systems". See "full authority digital engine control systems."

"FMU". See "flexible manufacturing unit"

"Fibrous or filamentary materials". "(Cat 1, 2, 8 and 9)--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.

"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.

"Fly-by-light system". (Cat 7) is a primary digital flight control system employing feedback to control the "aircraft" during flight, where the commands to the effectors/actuators are optical signals.

"Fly-by-wire system". (Cat 7) is a primary digital flight control system employing feedback to control the "aircraft" during flight, where the commands to the effectors/actuators are electrical signals.

"Focal plane array". (Cat 6 and 8)--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, Syria and Crimea region of Ukraine, 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 person. Any natural person who is not a lawful permanent resident of the United States, citizen of the United States, or any other protected individual as defined by 8 U.S.C. 1324b(a)(3). It also means any corporation, business association, partnership, trust, society or any other entity or group that is not incorporated in the United States or organized to do business in the United States, as well as international organizations, foreign governments and any agency or subdivision of a foreign government (*e.g.*, diplomatic mission). "Foreign person" is synonymous with "foreign national," as used in the EAR, and "foreign person" as used in the International Traffic in Arms Regulations (22 CFR 120.16). This definition does not apply to part 760 of the EAR (Restrictive Trade Practices or Boycotts).

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, 5P1, 5P2) -- The "instantaneous bandwidth" divided by the center frequency, expressed as a percentage.

"Frequency hopping". "(Cat 5P1, 5P2 and 6) -- 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) The time

(*i.e.*, delay) taken by a signal when switched from an initial specified output frequency, to arrive at or within any of the following:

(1) ±100 Hz of a final specified output frequency of less than 1 GHz; *or*

(2) ±0.1 part per million of a final specified output frequency equal to or greater than 1 GHz.

Fuel cell. (Cat 8) An electrochemical device that converts chemical energy directly into Direct Current (DC) electricity by consuming fuel from an external source.

"Full Authority Digital Engine Control Systems" ("FADEC Systems") (Cat 9) A digital electronic control system for a gas turbine engine that is able to autonomously control the engine throughout its whole operating range from demanded engine start until demanded engine shut down, in both normal and fault conditions.

Fundamental research. See § 734.8 of the EAR.

"Fusible". (Cat 1) -- Capable of being cross-linked or polymerized further (cured) by the use of heat, radiation, catalysts, etc., or that can be melted without pyrolysis (charring).

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").

"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 (except public schools and universities); civil health and medical organizations (including public civilian hospitals); 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.

Hard selectors. (Cat 5P1) Data or set of data, related to an individual (*e.g.*, family name, given name, e-mail, street address, phone number or group affiliations).

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.

"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 5P2, GSIN, GSN) 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," "cryptographic activation," 'cryptanalysis,' protection against compromising emanations and computer security.

Technical Note to definition of ''Information security'': '*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.

"Interleaved Analog-to-Digital Converter (ADC)". (Cat 3) Devices that have multiple ADC units that sample the same analog input at different times such that when the outputs are aggregated, the analog input has been effectively sampled and converted at a higher sampling rate.

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")

Intrusion software. (5P2) "Software" specially designed or modified to avoid detection by 'monitoring tools', or to defeat 'protective countermeasures', of a computer or network-capable device, and performing any of the following:

(1) The extraction of data or information, from a computer or network-capable device, or the modification of system or user data; or

(2) The modification of the standard execution path of a program or process in order to allow the execution of externally provided instructions.

NOTE 1 TO "INTRUSION SOFTWARE" DEFINITION: *"Intrusion software" does not include any of the following: Hypervisors, debuggers or Software Reverse Engineering (SRE) tools; Digital Rights Management (DRM) "software"; or "Software" designed to be installed by manufacturers, administrators or users, for the purposes of asset tracking or recovery.*

NOTE 2 TO "INTRUSION SOFTWARE" DEFINITION: *Network-capable devices include mobile devices and smart meters.*

TECHNICAL NOTE 1 TO "INTRUSION SOFTWARE" DEFINITION: *'Monitoring tools': "software" or hardware devices, that monitor system behaviors or processes running on a device. This includes antivirus (AV) products, end point security products, Personal Security Products (PSP), Intrusion Detection Systems (IDS), Intrusion Prevention Systems (IPS) or firewalls.*

TECHNICAL NOTE 2 TO "INTRUSION SOFTWARE" DEFINITION: *'Protective countermeasures': techniques designed to ensure the safe execution of code, such as Data Execution Prevention (DEP), Address Space Layout Randomization (ASLR) or sandboxing.*

"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 1, 2, 3, 5P1, 6, 7, 8 and 9)--An item that produces spatially and temporally coherent light through amplification by stimulated emission of radiation. See also: "Chemical 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.

Less sensitive government end users (as applied to encryption items). The following "government end users" (as defined in this Section of the EAR) are considered "less sensitive" for the purposes of License Exception ENC (§ 740.17 of the EAR):

(1) Local/state/provincial "government end users" (departments, agencies and entities), including local/state/provincial executive, legislative, judicial, police, fire, rescue and public safety agencies.

(2) National/federal/royal "government end users" (departments, agencies and entities) providing the following civil government functions and services:

(i) Census and statistics services;

(ii) Civil public works infrastructure services (construction, maintenance, repair, regulation and administration) as follows: buildings, public transportation, roads and highways, trucking;

(iii) Civil service administration and regulation, including human resources and personnel/labor management;

(iv) Clean water infrastructure services (treatment, supply and testing);

(v) Economic (trade/commerce/investment), business and industrial development, promotion, regulation and administration, excluding the following end users/end uses:

(A) Agencies, departments, boards and councils for science and technology;

(B) Research, development and national laboratories (other than as specified in paragraphs (2)(xi) (measurements and standards services) and (2)(xii) (meteorology/weather/atmospheric services) of this definition (below);

(C) National telecommunications and information technology agencies, boards, councils and development authorities (including national information center, and Information Communications Technology (ICT) / telecommunications infrastructure / spectrum planning, policy, regulation and testing);

(vi) Elections, balloting and polling services;

(vii) Energy regulation and administration, including oil, gas and mining sectors;

(viii) Environmental/natural resources regulation, administration and protection, including wildlife, fisheries and national parks;

(ix) Food/agriculture regulation and administration;

(x) Labor/community/social services planning, regulation and administration, including: housing and urban development, municipality and rural affairs;

(xi) Measurements and standards services;

(xii) Meteorology (weather, atmospheric) services;

(xiii) National archives/museums;

(xiv) Patents;

(xv) Pilgrimage and religious affairs;

(xvi) Postal services;

(xvii) Public and higher education (excluding government research institutions and any agency, institution or affiliate engaged in the manufacture or

distribution of items or services controlled on the Wassenaar Munitions List);

(xviii) Public health and medicine/pharmaceutical regulation and administration;

(xix) Public libraries;

(xx) Sports/culture (includes film, commercial broadcasting and the arts) promotion, regulation and administration;

(xxi) Travel/tourism promotion, regulation and administration.

"Library" (Cat 1) (parametric technical database) A collection of technical information, reference to which may enhance the performance of the relevant systems, equipment or components.

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.

"Lighter-than-air vehicles". (Cat 2 and 9) Balloons and "airships" that rely on hot air or on lighter-than-air gases such as helium or hydrogen for their lift.

"Local area network". (Cat 4 and 5 Part 1)--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).

Technical Note: *'Data device' means equipment capable of transmitting or receiving sequences of digital information.*

"MBTR".--See "maximum bit transfer rate".

"MMIC". (Cat 3 and 5) See "Monolithic Microwave Integrated Circuit"

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.

Material. This is any list-specified crude or processed matter that is not clearly identifiable as any of the types of items defined in § 772.1 under the defined terms, "end item," "component," "accessories," "attachments," "part," "software," "system," "equipment," or "facilities." The exclusion from the definition of material for clearly identifiable items defined in § 772.1, such as for "parts" and "components," does not apply to the following ECCNs: 1C233, 1C234, 1C235, 1C236, 1C237, 1C239, 1C350, 1C395, 1C991, 1C992, and 1C995.

"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).

"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.

Metal embrittlement agents. (Cat. 0)—Non-lethal weapon substances that alter the crystal structure of metals within a short time span. Metal embrittlement agents severely weaken metals by chemically changing their molecular structure. These agents are compounded in various substances to include adhesives, liquids, aerosols, foams, and lubricants.

"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, mycoplasms, 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.

Military commodity. As used in § 734.4(a)(5), Supplement No. 1 to part 738 (footnote No. 3), §§ 740.2(a)(11), 740.16(a)(2), 740.16(b)(2), 742.6(a)(3), 744.9(a)(2), 744.9(b), ECCN 0A919 and (*Related Controls*) in "600 series" ECCNs, "military commodity" or "military commodities" means an article, material, or supply that is described on the U.S. Munitions List (22 CFR Part 121) or on the Munitions List that is published by the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, but does not include software, technology and any item listed in any ECCN for which the last three numerals are 018 or any item in the "600 series."

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's Bureau of Industry and Security – Export Administration Regulations (15 CFR Parts 730 through 799) or by the Department of State's Directorate of Defense Trade Controls - International Traffic in Arms Regulations (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 missiles, space launch vehicles, and sounding rockets) and unmanned aerial vehicle systems (including cruise missiles, 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.*

"Monolithic Microwave Integrated Circuit" ("MMIC"). (Cat 3, 5P1 and 9) is a "monolithic integrated circuit" that operates at microwave or millimeter wave frequencies.

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

More sensitive government end users (as applied to encryption items). The following national/federal/royal (departments, agencies and entities) "government end users" (as defined in this section of the EAR) providing the following government functions and services, are considered "more sensitive:"

(1) Agencies, departments, boards and councils for science and technology (including research, development and state / national laboratories, but not including measurements and standards);

(2) Currency and monetary authorities (including departments and offices of the national / federal / royal reserve);

(3) Executive agents of state (including offices of president / vice president / prime minister, royal courts, national security councils, cabinet / council of ministers / supreme councils / executive councils, crown princes and other deputies of the rulers, departments and offices of political / constitutional / mainland affairs);

(4) Legislative bodies responsible for the enactment of laws;

(5) Import/export control, customs and immigration agencies and entities;

(6) Intelligence agencies and entities;

(7) Judiciary (including supreme courts and other national / federal / regional / royal high courts and tribunals);

(8) Maritime, port, railway and airport authorities;

(9) Military and armed services (including national guard, coast guard, security bureaus and paramilitary);

(10) Ministries, departments and garrisons of defense (including defense technology agencies);

(11) Ministries and departments of finance and taxation (including national / federal / royal budget and revenue authorities);

(12) Ministries and departments of foreign affairs / foreign relations / consulates / embassies;

(13) Ministries of interior, internal / home / mainland affairs, and homeland security;

(14) State / national telecommunications and information technology agencies, boards, councils and development authorities

(including national information / critical infrastructure data centers, and Information and Communications Technology (ICT) /telecommunications infrastructure / spectrum planning, policy, regulation and testing);

(15) Police, investigation and other law enforcement agencies and entities (including digital crime / cybercrime / computer forensics, counter narcotics / counter terrorism / counter proliferation agencies);

(16) Prisons;

(17) Public safety agencies and entities (including national / federal / royal agencies and departments of civil defense, emergency management, and first responders).

"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.

"Multiple channel Analog-to-Digital Converter (ADC)". (Cat 3) Devices that integrate more than one ADC, designed so that each ADC has a separate analog input.

"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".

NATO (North Atlantic Treaty Organization). A strategic defensive organization that consists of the following member nations: Albania, Belgium, Bulgaria, Canada, Croatia, 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.

NLR. NLR ("no license required") is a symbol entered on the Electronic Export Information filing on the Automated Export System certifying that no license is required.

NSG. See Nuclear Suppliers Group.

"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.

"Network Access Controller". (Cat 4) - A physical interface to a distributed switching network. It uses a common medium which

operates throughout at the same "digital transfer rate" using arbitration (e.g., token or carrier sense) for transmission. Independently from any other, it selects data packets or data groups (e.g., IEEE 802) addressed to it. It is an assembly that can be integrated into computer or telecommunications equipment to provide communications access.

Non-standard cryptography. Means any implementation of "cryptography" involving the incorporation or use of proprietary or unpublished cryptographic functionality, including encryption algorithms or protocols that have not been adopted or approved by a duly recognized international standards body (e.g., IEEE, IETF, ISO, ITU, ETSI, 3GPP, TIA, and GSMA) and have not otherwise been published.

"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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Mexico, the Netherlands, New Zealand, Norway, People's Republic of China, Poland, Portugal, Republic of Korea, Romania, Russia, Serbia, Slovak Republic, Slovenia, South Africa, Spain, 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).

"OAM" – see *"Operations, Administration or Maintenance"*

"Object code". (or object language) (GSN)--An equipment executable form of a convenient expression of one or more processes ("source code" (or source language)) that has been compiled 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.

"Operations, Administration or Maintenance" ("OAM") (Cat 5P2) Means performing one or more of the following tasks:

a. Establishing or managing any of the following:

1. Accounts or privileges of users or administrators;

2. Settings of an item; or

3. Authentication data in support of the tasks described in paragraphs a.1 or a.2;

b. Monitoring or managing the operating condition or performance of an item; or

c. Managing logs or audit data in support of any of the tasks described in paragraphs a. or b.

***Note**: "OAM" does not include any of the following tasks or their associated key management functions:*

a. Provisioning or upgrading any cryptographic functionality that is not directly related to establishing or managing authentication data in support of the tasks described in paragraphs a.1 or a.2 above; or

b. Performing any cryptographic functionality on the forwarding or data plane of an item.

"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. This is any single unassembled element of a "component," "accessory," or "attachment" which is not normally subject to disassembly without the destruction or the impairment of design use. Examples include threaded fasteners (e.g., screws, bolts, nuts, nut plates, studs, inserts), other fasteners (e.g., clips, rivets, pins), common hardware (e.g., washers, spacers, insulators, grommets, bushings), springs and wire.

"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. Spacecraft (single or multiple), including satellites;

2. Spacecraft-to-launch vehicle adapters including, if applicable, apogee/perigee kick motors or similar maneuvering systems and separation 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 power attained in the "pulse duration".

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).

"Personal area network" (Cat 5 Part 2) -- A data communication system having all of the following characteristics:

(a) Allows an arbitrary number of

independent or interconnected 'data devices' to communicate directly with each other; and

(b) Is confined to the communication between devices within the immediate vicinity of an individual person or device controller (e.g., single room, office, or automobile, and their nearby surrounding spaces).

TECHNICAL NOTE: *'Data device' means equipment capable of transmitting or receiving sequences of digital information.*

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.

"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 "production equipment" and specially designed "software" therefor integrated into installations for "development" or for one or more phases of "production".

"Program". (Cat 2, 4, 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.*

Proscribed person. A person who is prohibited from receiving the items at issue or participating in a transaction that is subject to the EAR without authorization under the EAR, such as persons on the Entity List or denied persons.

Publicly available encryption software. See § 742.15(b) of the EAR.

Published. See § 734.7 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 is the time between the half-power points on the leading edge and trailing edge of an individual pulse.

"Pulsed Laser". (Cat 6)--A "laser" 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.

"Pyrotechnic(s)" (Cat 1) Mixtures of solid or liquid fuels and oxidizers which, when ignited, undergo an energetic chemical reaction at a controlled rate intended to produce specific time delays, or quantities of heat, noise, smoke, visible light or infrared radiation. Pyrophorics are a subclass of pyrotechnics, which contain no oxidizers but ignite spontaneously on contact with air.

"Quantum cryptography" (Cat 5P2) A family of techniques for the establishment of a shared key for "cryptography" by measuring the quantum-mechanical properties of a physical system (including those physical properties explicitly governed by quantum optics, quantum field theory, or quantum electrodynamics).

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.

''Radiant sensitivity'' (Cat 6)—Radiant sensitivity (mA/W) = 0.807 × (wavelength in nm) × 'Quantum Efficiency (QE)'.

***TECHNICAL NOTE**: 'QE' is usually expressed as a percentage; however, for the purposes of this formula 'QE' is expressed as a decimal number less than one, e.g., 78% is 0.78.*

"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 Processing". (Cat 2, 4, and 6) 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), Chemical Weapons Convention (CW), Crime Control (CC), Encryption Items (EI), Firearms Convention (FC), Missile Technology (MT), National Security (NS), Nuclear Nonproliferation (NP), Regional Stability (RS), Short Supply (SS), Significant Items (SI), Surreptitious Listening (SL) 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 TO THIS DEFINITION: *"Plaintext" indicates that data that is initially received by or presented to the recoverable product before encryption takes place.*

Reexport. See § 734.14 of the EAR.

Release. See § 734.15 of the EAR.

"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 for Inertial Sensor Terminology 528-2001 in the Definitions section paragraph 2.214 titled repeatability (gyro, accelerometer) 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) --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 on the CCL 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 peculiarly responsible for making the controlled product and are thus "required" technology under

the General Technology Note. (See the General Technology Note.)

NOTE 1 TO THE DEFINITION OF Required: *The ITAR and the EAR often divide within each set of regulations or between each set of regulations:*

(a) Controls on parts, components, accessories, attachments, and software; and

(b) Controls on the end items, systems, equipment, or other items into which those parts, components, accessories, attachments, and software are to be installed or incorporated.

NOTE 2 TO THE DEFINITION OF Required: *The references to "characteristics" and "functions" are not limited to entries on the CCL that use specific technical parameters to describe the scope of what is controlled. The "characteristics" and "functions" of an item listed are, absent a specific regulatory definition, a standard dictionary's definition of the item. For example, ECCN 9A610.a controls military aircraft specially designed for a military use that are not enumerated in USML paragraph VIII(a). No performance level is identified in the entry, but the control characteristic of the aircraft is that it is specially designed "for military use." Thus, any technology, regardless of significance, peculiar to making an aircraft "for military use" as opposed to, for example, an aircraft controlled under ECCN 9A991.a, would be technical data "required" for an aircraft specially designed for military use thus controlled under ECCN 9E610.*

NOTE 3 TO THE DEFINITION OF Required: *Unclassified technology not specifically enumerated on the USML is "subject to the EAR" if it is "required" for the "development," "production," "use," operation, installation, maintenance, repair, overhaul, or refurbishing (or other terms specified in ECCNs on the CCL that control "technology") of a commodity or software that is subject to the EAR. Thus, for example, if unclassified technology not specifically enumerated on the USML is "required" for the development or production of a 9A610.x aircraft component that is to be integrated or installed in a USML VIII(a) aircraft, then the "technology" is controlled under ECCN 9E610, not USML VIII(i). Conversely, technical data directly related to, for example, the development or production of a component subject to the ITAR does not become subject to the EAR merely because it is developed or produced with equipment subject to the EAR.*

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.

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.

"Sample rate". (Cat 3) For an Analog-to-Digital Converter (ADC) the maximum number of samples that are measured at the analog input over a period of one second, except for oversampling ADCs. For oversampling ADCs the "sample rate" is taken to be its output word rate. "Sample rate" may also be referred to as sampling rate, usually specified in Mega Samples Per Second (MSPS) or Giga Samples Per Second (GSPS), or conversion rate, usually specified in Hertz (Hz).

"Satellite navigation system" (Cat 5P2, 7)-- A system consisting of ground stations, a constellation of satellites, and receivers, that enables receiver locations to be calculated on the basis of signals received from the satellites. It includes Global Navigation Satellite Systems (GNSS) and Regional Navigation Satellite Systems (RNSS).

"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.)

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 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 1, 4, 5P2, 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 9)--Active and passive satellites and space probes.

"Spacecraft bus" (Cat 9) Equipment that provides the support infrastructure of the "spacecraft" and location for the "spacecraft payload".

"Spacecraft payload" (Cat 9) Equipment, attached to the "spacecraft bus", designed to perform a mission in space (e.g., communications, observation, science).

"Space-qualified". (Cat 3, 6, and 7) Designed, manufactured, or qualified through successful testing, for operation at altitudes greater than 100 km above the surface of the Earth.

***NOTE 1**: A determination that a specific item is "space-qualified" by virtue of testing does not mean that other items in the same production run or model series are "space-qualified" if not individually tested.*

***NOTE 2:** The terms 'designed' and 'manufactured' in this definition are synonymous with "specially designed." Thus, for example, an item that is "specially designed" for a spacecraft is deemed to be 'designed' or 'manufactured' for operation at altitudes greater than 100 km and an item that is not "specially designed" for a spacecraft is not deemed to have been so 'designed' or 'manufactured.'*

"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. When applying this definition, follow this sequential analysis set forth below. (For additional guidance on the order of review of "specially designed," including how the review of the term relates to the larger CCL, see Supplement No. 4 to Part 774 of the EAR – Commerce Control List Order of Review.)

(a) Except for items described in (b), an "item" is "specially designed" if it:

(1) As a result of "development" has properties peculiarly responsible for achieving or exceeding the performance levels, characteristics, or functions in the relevant ECCN or U.S. Munitions List (USML) paragraph; *or*

(2) Is a "part," "component," "accessory," "attachment," or "software" for use in or with a commodity or defense article 'enumerated' or otherwise described on the CCL or the USML.

(b) A "part," "component," "accessory," "attachment," or "software" that would be controlled by paragraph (a) is not "specially designed" if it:

(1) Has been identified to be in an ECCN paragraph that does not contain "specially designed" as a control parameter or as an EAR99 item in a commodity jurisdiction (CJ) determination or interagency-cleared commodity classification (CCATS) pursuant to § 748.3(e);

(2) Is, regardless of 'form' or 'fit,' a fastener (*e.g.*, screw, bolt, nut, nut plate, stud, insert, clip, rivet, pin), washer, spacer, insulator, grommet, bushing, spring, wire, solder;

(3) Has the same function, performance capabilities, and the same or 'equivalent' form and fit, as a commodity or software used in or with an item that:

(i) Is or was in "production" (*i.e.*, not in "development"); *and*

(ii) Is either not 'enumerated' on the CCL or USML, or is described in an ECCN controlled only for Anti-Terrorism (AT) reasons;

(4) Was or is being developed with "knowledge" that it would be for use in or with commodities or software (i) described in an ECCN *and* (ii) also commodities or software either not 'enumerated' on the CCL or the USML (e.g., EAR99 commodities or software) or commodities or software described in an ECCN controlled only for Anti-Terrorism (AT) reasons;

(5) Was or is being developed as a general purpose commodity or software, i.e., with no "knowledge" for use in or with a particular commodity (e.g., an F/A-18 or HMMWV) or type of commodity (e.g., an aircraft or machine tool); *or*

(6) Was or is being developed with "knowledge" that it would be for use in or with commodities or software described (i) in an ECCN controlled for AT-only reasons and also EAR99 commodities or software; or (ii) exclusively for use in or with EAR99 commodities or software.

NOTE 1: *'Enumerated' refers to any item (i) on either the USML or CCL not controlled in a*

'catch-all' paragraph and (ii) when on the CCL, controlled by an ECCN for more than Anti-Terrorism (AT) reasons only. An example of an 'enumerated' ECCN is 2A226, which controls valves with the following three characteristics: a "nominal size" of 5 mm or greater; having a bellows seal; and wholly made of or lined with aluminum, aluminum alloy, nickel, or nickel alloy containing more than 60% nickel by weight. The CCL also contains notes excluding from control "parts" and "components" "specially designed" for uncontrolled items. Such uncontrolled items are merely 'described' and are not 'enumerated.' Note 2 to ECCN 1A002 is an example of items excluded from control based on being "specially designed" for a 'described' item. Commodities or software in an ECCN controlled only for AT reasons are other examples of items 'described' on the CCL. ECCN 2B996, which controls dimensional inspection or measuring systems or equipment not controlled by 2B006, is an example of a commodity 'described' in an ECCN controlled only for AT reasons. For purposes of "specially designed," ECCNs 0B505.c, 0B999, 0D999, 1B999, 1C992, 1C995, 1C997, 1C999, 6A998 (except for .b), and 9A991 are treated as ECCNs controlled exclusively for AT reasons.

NOTE 2: *A 'catch-all' paragraph is one that does not refer to specific types of "parts," "components," "accessories," or "attachments" but rather controls non-specific "parts," "components," "accessories," or "attachments" because they were "specially designed" for an enumerated item. For example, ECCN paragraph 9A610.x is a catch-all, because it controls "parts," "components," "accessories," and "attachments" "specially designed" for military aircraft, but does not identify specific types of "parts," "components," "accessories," or "attachments" within its control. Another example of a 'catch-all' is the heading of 7A102, which controls "specially designed" components for the gyros enumerated in 7A102, but does not identify the specific types of "components" within its control.*

NOTE TO PARAGRAPH (a)(1): *Items that as a result of "development" have properties peculiarly responsible for achieving or exceeding the performance levels, 'functions' or characteristics in a relevant ECCN paragraph may have properties shared by different products. For example, ECCN 1A007 controls equipment and devices, specially designed to initiate charges and devices containing energetic materials, by electrical means. An example of equipment not meeting the peculiarly responsible standard under paragraph (a)(1) is a garage door opener, that as a result of "development" has properties that enable the garage door opener to send an encoded signal to another piece of equipment to perform an action (i.e., the opening of a garage door). The garage door opener is not "specially designed" for purposes of 1A007 because although the garage door opener could be used to send a signal by electrical means to charges or devices containing energetic materials, the garage door opener does not have properties peculiarly responsible for achieving or exceeding the performance levels, 'functions' or characteristics in 1A007. For example, the garage door opener is designed to only perform at a limited range and the level of encoding is not as advanced as the encoding usually required in equipment and devices used to initiate charges and devices containing energetic materials, by electrical means. Conversely, another piece of equipment that, as a result of "development," has the properties (e.g., sending a signal at a longer range, having signals with advanced encoding to prevent interference, and having signals that are specific to detonating blasting caps) needed for equipment used to initiate charges and devices containing energetic materials, would be peculiarly responsible because the equipment has a direct and proximate causal relationship that is central or special for achieving or exceeding the performance levels, 'functions' or characteristics identified in 1A007.*

NOTE 1 TO PARAGRAPH (b)(3): *Commodities in "production" that are*

subsequently subject to "development" activities, such as those that would result in enhancements or improvements only in the reliability or maintainability of the commodity (e.g., an increased mean time between failure (MTBF)), including those pertaining to quality improvements, cost reductions, or feature enhancements, remain in "production." However, any new models or versions of such commodities developed from such efforts that change the basic performance or capability of the commodity are in "development" until and unless they enter into "production."

NOTE 2 TO PARAGRAPH (b)(3): *With respect to a commodity, 'equivalent' means that its form has been modified solely for 'fit' purposes.*

NOTE 3 TO PARAGRAPH (b)(3): *The 'form' of a commodity is defined by its configuration (including the geometrically measured configuration), material, and material properties that uniquely characterize it. The 'fit' of a commodity is defined by its ability to physically interface or interconnect with or become an integral part of another item. The 'function' of the item is the action or actions it is designed to perform. 'Performance capability' is the measure of a commodity's effectiveness to perform a designated function in a given environment (e.g., measured in terms of speed, durability, reliability, pressure, accuracy, efficiency). For software, 'form' means the design, logic flow, and algorithms. 'Fit' means the ability to interface or connect with an item subject to the EAR. The 'function' means the action or actions it performs directly to an item subject to the EAR or as a stand-alone application. 'Performance capability' means the measure of software's effectiveness to perform a designated function.*

NOTE TO PARAGRAPHS (b)(3) AND (b)(4): *ECCNs controlled for AT-only reasons that use "specially designed" are eligible for paragraphs (b)(3) and (b)(4). However, the criteria for release under (b)(3) or (b)(4) must be met by another ECCN controlled for AT-only reasons or an EAR99 item in addition to the AT-only ECCN being reviewed for release from "specially designed." For example, if a single gasket is used in ECCN 9A990 tractors (9A990 includes a control on "specially designed" "parts") and also pick-up trucks designated as EAR99 that are in "production", the single gasket would be released from "specially designed" on the basis of paragraph (b)(3). Or if the single gasket is or was used in 9A990 tractors and also 9A991.b aircraft (another AT-only controlled ECCN), that are in "production," the gasket would be released from "specially designed" on the basis of paragraph (b)(3). Alternatively, if the single gasket is or was only used in ECCN 9A990 tractors that are in "production," then paragraph (b)(3) would not be available. This same concept applies for paragraph (b)(4).*

NOTE TO PARAGRAPHS (b)(4), (b)(5) AND (b)(6): *For a commodity or software to be not "specially designed" on the basis of paragraphs (b)(4), (b)(5) or (b)(6), documents contemporaneous with its "development," in their totality, must establish the elements of paragraphs (b)(4), (b)(5) or (b)(6). Such documents may include concept design information, marketing plans, declarations in patent applications, or contracts. Absent such documents, the "commodity" may not be excluded from being "specially designed" by paragraphs (b)(4), (b)(5) or (b)(6).*

"Specific modulus". (Cat 1)--Young's modulus in pascals, equivalent to N/m^2, divided by specific weight in N/m^3, 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^2, divided by specific weight in N/m^3, 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:

"Spectral efficiency" =

Digital transfer rate " (bits/second)

---

6 dB spectrum bandwidth (Hz).

"Spinning mass gyros". (Cat 7) "Spinning mass gyros" are gyros which use a continually rotating mass to sense angular motion.

"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.

Note to the Definition of "Stability": *For gyroscopes and accelerometers, "stability" can be estimated by determining the Allan variance noise-analysis value at the integration period (i.e., sample time) consistent with the stated measurement period, which may include extrapolating the Allan variance noise analysis beyond the instability point into the rate/acceleration random walk or rate/acceleration ramp regions to an integration period consistent with the stated measurement period (Reference: IEEE Std. 952-1997 [R2008] or IEEE Std 1293-1998 [R2008]).*

Standard. This term is equivalent to "standard" or "technical standard" as defined in Office of Management and Budget Circular A-119 (Rev. 2016) (81 FR 4673 (Jan. 27, 2016)), "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities" section 2.a, available at https://www.nist.gov/system/files/revised_circular_a-119_as_of_01-22-2016.pdf.

Standards organization. This term is equivalent to "voluntary consensus standards body," as defined in Office of Management and Budget Circular A-119 (Rev. 2016) (81 FR 4673 (Jan. 27, 2016)), "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities" section 2.e, available at https://www.nist.gov/system/files/revised_circular_a-119_as_of_01-22-2016.pdf.

"Steady State Mode". (Cat 9) The term 'steady state mode' defines engine operation conditions, where the engine parameters, such as thrust/power, rpm and others, have no appreciable fluctuations, when the ambient air temperature and pressure at the engine inlet are constant.

"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.*

"Sub-orbital craft". (Cat 9) A craft having an enclosure designed for the transport of people or cargo, which is designed to:

(1) Operate above the stratosphere;
(2) Perform a non-orbital trajectory; *and*
(3) Land back on Earth with the people or cargo intact.

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).

Subject to the ITAR. A term used in the EAR to describe those commodities, software, technology (e.g., technical data) and defense services over which the U.S. Department of State, Directorate of Defense Trade Controls (DDTC) exercises regulatory jurisdiction under the International Traffic in Arms Regulations (ITAR) (see 22 CFR parts 120 through 130).

"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 3 and 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 (649˚C) under severe environmental and operating conditions.

"Superconductive". (Cat 1, 3, 5P1, 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. This is any combination of "end items," "equipment," "parts," "components," "accessories," "attachments," firmware, or "software" that operate together to perform a function.

NOTE: *The industrial standards established by INCOSE and NASA provide examples for when commodities and software operate together to perform a function as a system. References to these standards are included in this note to provide additional examples for when commodities or software operate together to perform a function as a system. See the INCOSE standards for what constitutes a system at*

(http://g2sebok.incose.org/app/mss/asset.cfm?ID=INCOSE%20G2SEBOK%202.00&ST=F), and in the (INCOSE SE Handbook v3.1 2007; ISO/IEC 15288:2008). Also see the NASA standards for examples of what constitutes a system in the (NASA SE Handbook SP-2007-6105 Rev 1).

"Technology". Technology means: Information necessary for the "development," "production," "use," operation, installation, maintenance, repair, overhaul, or refurbishing (or other terms specified in ECCNs on the CCL that control "technology") of an item.

N.B.: *Controlled "technology" is defined in the General Technology Note and in the Commerce Control List (Supplement No. 1 to part 774 of the EAR).*

NOTE 1 TO DEFINITION OF Technology: *"technology" may be in any tangible or intangible form, such as written or oral communications, blueprints, drawings, photographs, plans, diagrams, models, formulae, tables, engineering designs and specifications, computer-aided design files, manuals or documentation, electronic media or information revealed through visual inspection;*

NOTE 2 TO DEFINITION OF Technology*: The modification of the design of an existing item creates a new item and technology for the modified design is technology for the development or production of the new item.*

"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 integrated circuit". (Cat 3) A collection of semiconductor dies or active device layers, integrated together, and having through semiconductor via connections passing completely through an interposer, substrate, die or layer to establish interconnections between the device layers. An interposer is an interface that enables electrical connections.

"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).

''Tip shroud'' (Cat 9)—A stationary ring component (solid or segmented) attached to the inner surface of the engine turbine casing or a feature at the outer tip of the turbine blade, which primarily provides a gas seal between the stationary and rotating components.

"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 shipment, transmission, or release of items subject to the EAR either within the United States or outside the United States. For *In-country transfer / Transfer (in-country),* see § 734.16 of the EAR.

NOTE TO DEFINITION OF Transfer: *This definition of "transfer" does not apply to § 750.10 of the EAR or Supplement No. 8 to part 760 of the EAR. The term "transfer" may also be included on licenses issued by BIS. In that regard, the changes that can be made to a BIS license are the non-material changes described in § 750.7(c) of the EAR. Any other change to a BIS license without authorization is a violation of the EAR. See § 750.7(c) and 764.2(e) of the EAR.*

"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 §§740.21(e)(1), 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 740.21(f)(2) and parts 746 and 760 of the EAR for definitions of "U.S. person" that are specific to those sections and 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.

"Unidirectional positioning repeatability" (Cat 2) The smaller of values R↑ and R↓ (forward and backward), as defined by 3.21 of ISO 230-2:2014 or national equivalents, of an individual machine tool axis.

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.

Note to definition of *"Unmanned aerial vehicle" ("UAV")***:** For the purposes of § 744.3 of the EAR, unmanned air vehicles, which are the same as "unmanned aerial vehicles," include, but are not limited to, cruise missiles, 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.

NOTE: *If an ECCN specifies one or more of the six elements of "use" in the heading or control text, only those elements specified are classified under that ECCN.*

"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.

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

"Vacuum electronic devices". (Cat 3) Electronic

devices based on the interaction of an electron beam with an electromagnetic wave propagating in a vacuum circuit or interacting with radio-frequency vacuum cavity resonators. "Vacuum electronic devices" include klystrons, travelling-wave tubes, and their derivatives.

"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.