

*Related Definitions:* (1) 'Mole fraction' is defined as the ratio of moles of ZnTe to the sum of the moles of CdTe and ZnTe present in the crystal. (2) 'Beat length' is the distance over which two orthogonally polarized signals, initially in phase, must pass in order to achieve a 2 Pi radian(s) phase difference.

*Items:* \* \* \*

#### 6C994 Optical materials.

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#### List of Items Controlled

*Unit:* \* \* \*

*Related Controls:* \* \* \*

*Related Definitions:* (1) 'Fluoride fibers' are fibers manufactured from bulk fluoride compounds. (2) 'Optical fiber preforms' are bars, ingots, or rods of glass, plastic or other materials that have been specially processed for use in fabricating optical fibers. The characteristics of the preform determine the basic parameters of the resultant drawn optical fibers.

*Items:*

a. Low optical absorption materials, as follows:

a.1. Bulk fluoride compounds containing ingredients with a purity of 99.999% or better; or

**Note:** 6C994.a.1 controls fluorides of zirconium or aluminum and variants.

a.2. Bulk fluoride glass made from compounds controlled by 6C004.e.1;

b. 'Optical fiber preforms' made from bulk fluoride compounds containing ingredients with a purity of 99.999% or better, specially designed for the manufacture of 'fluoride fibers' controlled by 6A994.b.

#### 6D003 Other "software", as follows (see List of Items Controlled).

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#### List of Items Controlled

*Unit:* \* \* \*

*Related Controls:* \* \* \*

*Related Definitions:* \* \* \*

*Items:*

a. Acoustics "software", as follows:

a.1. "Software" specially designed for acoustic beam forming for the "real time processing" of acoustic data for passive reception using towed hydrophone arrays;

a.2. "Source code" for the "real time processing" of acoustic data for passive reception using towed hydrophone arrays;

a.3. "Software" specially designed for acoustic beam forming for the "real time processing" of acoustic data for passive reception using bottom or bay cable systems;

a.4. "Source code" for the "real time processing" of acoustic data for passive reception using bottom or bay cable systems;

b. Optical sensors. None.

c. Cameras. None.

d. Optics. None.

e. Lasers. None.

f. Magnetometers.

f.1. "Software" specially designed for magnetic compensation systems for magnetic sensors designed to operate on mobile platforms;

f.2. "Software" specially designed for magnetic anomaly detection on mobile platforms;

g. Gravimeters. "Software" specially designed to correct motional influences of gravity meters or gravity gradiometers;

h. Radar "software", as follows:

h.1. Air Traffic Control "software" application "programs" hosted on general purpose computers located at Air Traffic Control centers and capable of any of the following:

h.1.a. Processing and displaying more than 150 simultaneous "system tracks"; or

h.1.b. Accepting radar target data from more than four primary radars;

h.2. "Software" for the design or

"production" of radomes which:

h.2.a. Are specially designed to protect the "electronically steerable phased array antennae" controlled by 6A008.e.; and

h.2.b. Result in an antenna pattern having an "average side lobe level" more than 40 dB below the peak of the main beam level.

**Technical Note:** "Average side lobe level" in 6D003.h.2.b is measured over the entire array excluding the angular extent of the main beam and the first two side lobes on either side of the main beam.

15. In Supplement No. 1 to part 774 (the Commerce Control List), Category 7—Navigation and Avionics, the following Export Control Classification Numbers (ECCNs) are amended by:

(a) Revising the Heading and the *Related Controls* paragraph, the *Related Definitions* paragraph, and the *Items* paragraph in the List of Items Controlled section of ECCN 7A003;

(b) Revising the Heading of ECCN 7D002; and

(c) Revising the *Related Definitions* paragraph and the *Items* paragraph in the List of Items Controlled section of ECCN 7D003, to read as follows:

#### 7A003 Inertial Navigation Systems (INS) and specially designed components therefor.

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#### List of Items Controlled

*Unit:* \* \* \*

*Related Controls:* See also 7A103 and 7A994. Inertial Navigation Systems (INS) and inertial equipment, and specially designed components therefor specifically designed, modified or configured for military use are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.)

*Related Definitions:* "Data-Based Referenced Navigation" ("DBRN") systems are 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.

*Items:*

a. Inertial navigation systems (gimbal or strapdown) and inertial equipment designed for "aircraft", land vehicle or "spacecraft" for attitude, guidance or control, having any of

the following characteristics, and specially designed components therefor:

a.1. Navigation error (free inertial) subsequent to normal alignment of 0.8 nautical mile per hour (nm/hr) Circular Error Probable (CEP) or less (better); or

a.2. Specified to function at linear acceleration levels exceeding 10 g.

b. Hybrid Inertial Navigation Systems embedded with Global Navigation Satellite System(s) (GNSS) or with "Data-Based Referenced Navigation" ("DBRN") System(s) for attitude, guidance or control, subsequent to normal alignment, having an INS navigation position accuracy, after loss of GNSS or "DBRN" for a period of up to 4 minutes, of less (better) than 10 meters Circular Error Probable (CEP).

**Note 1:** The parameters of 7A003.a and 7A003.b are applicable with any of the following environmental conditions:

1. Input random vibration with an overall magnitude of 7.7 g rms in the first half hour and a total test duration of one and one half hour per axis in each of the three perpendicular axes, when the random vibration meets the following:

a. A constant power spectral density (PSD) value of 0.04 g<sup>2</sup>/Hz over a frequency interval of 15 to 1,000 Hz; and

b. The PSD attenuates with frequency from 0.04 g<sup>2</sup>/Hz to 0.01 g<sup>2</sup>/Hz over a frequency interval from 1,000 to 2,000 Hz; or

2. A roll and yaw rate of equal to or more than +2.62 radian/s (150 deg/s); or

3. According to national standards equivalent to 1. or 2. of this note.

**Note 2:** 7A003 does not control inertial navigation systems that are certified for use on "civil aircraft" by civil authorities of a country in Country Group A:1.

**Technical Notes:** 1. 7A003.b refers to systems in which an INS and other independent navigation aids are built into a single unit (embedded) in order to achieve improved performance.

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

#### 7D002 Source code" for the "use" of any inertial navigation equipment including inertial equipment not controlled by 7A003 or 7A004, or Attitude and Heading Reference Systems (AHRS) (except gimbal AHRS).

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#### 7D003 Other "software", as follows (see List of Items Controlled).

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#### List of Items Controlled

*Unit:* \* \* \*

*Related Controls:* \* \* \*

*Related Definitions:* "Data-Based Referenced Navigation" ("DBRN") systems are 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