

MEMORANDUM

To: Jehan Azad

From: Roz Thomsen

Date: March 12, 2026

Re: **Jurisdiction and Classification of Passive Radar Systems, Components, and Technology**

Background

The Open Research Institute retained Thomsen and Burke LLP to advise with respect to the export controls on Synthetic Aperture Radar (“SAR”) under the U.S. Munitions List (“USML”) of the International Traffic in Arms Regulations (“ITAR”, 22 CFR Part 120 *et seq.* at 121), and the U.S. Commerce Control List (“CCL”) of the Export Administration Regulations (“EAR”, 15 CFR Part 730 *et seq.* at 774). The purpose of this memorandum is to provide a similar analysis for passive radar for Offworld Lab.

SAR Systems vs. Passive Radar

SAR systems generate and send their own signals and can function independently of external electromagnetic systems. SAR systems, for example, combined with Orthorectified Radar Imaging (“ORI”) technology can be used in geographic elevation maps to create high-resolution maps and images that accentuate features more detailed than those generated from traditional aerial photographs. Passive radar systems do not emit their own signals but rely on external electromagnetic systems. The use of ORI may be compatible, but passive radar systems generally have lower variable bandwidth and do not control the transmitters necessary for clear, detailed images.

Export Control Jurisdiction and Classification of Passive Radar Systems

Depending on their technical specifications, passive radar systems may be subject to the jurisdiction of the ITAR in Category XI (Military Electronics) on the USML or under one of several Export Control Classification Numbers (“ECCNs”) on the CCL of the EAR. See *Table 1: Jurisdiction and Classification of Passive Radars on the USML of the ITAR and CCL of the EAR*.

Table 1: Jurisdiction and Classification of Passive Radars on the USML/ITAR and CCL/EAR

	ITAR	EAR
Export Control Jurisdiction and Classification	USML Category XI(a)(3)(xxvii) ¹	ECCNs 3A611, 5A001.g, 6A008.1.4, and EAR99 ²

Export Control Classification of Commercial-Off-The-Shelf Components of Passive Radar Systems

Passive radar systems may be manufactured using commercial-off-the-shelf (“COTS”) components. Typical components and their ECCNs on the CCL of the EAR are summarized below in *Table 2: Classification of COTS Components of Passive Radar Systems*.

Table 2: Classification of COTS Components of Passive Radar Systems

	Hardware Components	Vendor	Export Commodity Classification Number (“ECCN”)
Main Components	RSPduo SDR	SDR Play	5A991.b.7.d
	Raspberry Pi 5	N/A	5A992.c
Ancillary Components	Aluminum and Plastic Enclosures	N/A	EAR99
	64GB SanDisk Max Endurance MicroSDXC Memory Card	Bulk Memory Cards	EAR99 ³
	Raspberry Pi 5 Heatsink/Case	Various B2B Vendors	EAR99
	USB A to USB C Cable	Various B2B Vendors	EAR99
	Raspberry Pi 5 35W USB C Power Supply	Various B2B Vendors	EAR99

Jurisdiction and Classification of Information Describing Passive Radar Systems

Proprietary information describing passive radar systems may be controlled under the ITAR or EAR, depending on the jurisdiction and classification of the particular passive radar system. However, both the ITAR and the EAR include exemptions for technical information that is “public domain” (as defined in the ITAR) or “published” (as defined in the EAR). These definitions are different in one important respect: unlike definition of “published” information in the EAR, the ITAR *does not* explicitly include publication on the internet as meeting the definition of “public domain”. Therefore, Offworld Lab’s published the software [on Github](#) as well [as in a book available on Amazon](#). These exemptions are summarized in *Table 3: ITAR and EAR Exemptions for Technical Information*.

Table 3: ITAR and EAR Exemptions for Certain Technical Information

Exemptions for Certain Technical Information	Information in the “public domain” ⁴	“Published” information ⁵
Implications of Jurisdiction	Registration and licensing required prior to export, with few exceptions. ⁶ However, there is a registration exemption for experimental or scientific purposes, including R&D. ⁷	A license may be required for export depending on destination, end-user and end-use. ⁸

Possible Next Steps

Offworld Lab may wish to consider two possible next steps. The first would be to obtain a Commodity Jurisdiction ruling from the Department of State’s Directorate for Defense Trade Controls with respect to treatment of passive radar systems, components and technical data under the ITAR.⁹ The second would be to obtain a Commodity Classification ruling from the Department of Commerce’s Bureau of Industry and Security with respect to treatment of passive radar systems, components and technology under the EAR.¹⁰

¹22 CFR 121:

Category XI—Military Electronics

(a) Electronic equipment and systems not included in Category XII of the U.S. Munitions List, as follows:

(3) Radar systems and equipment, as follows:

(xxvii) Bi-static/multi-static radar that exploits greater than 125 kHz bandwidth and is lower than 2 GHz center frequency to passively detect or track using radio frequency (RF) transmissions (e.g., commercial radio, television stations);

See: <https://www.ecfr.gov/current/title-22/chapter-I/subchapter-M/part-121>.

² 15 CFR Supplement No. 1 to Part 774:

3A661 Military electronics, as follows (see List of Items Controlled).

See: <https://www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-774/appendix-Supplement%20No.%201%20to%20Part%20774>.

5A001.g Telecommunications systems, equipment, “components” and “accessories,” as follows

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

See: <https://www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-774/appendix-Supplement%20No.%201%20to%20Part%20774>.

6A008.1.4 Radar systems, equipment and assemblies, having any of the following (see List of Items Controlled), and “specially designed” “components” therefor.

.l Having data processing sub-systems and having any of the following:

...

.4 Configured to provide superposition and correlation, or fusion, of target data within six seconds from two or more 'geographically dispersed' radar sensors to improve the aggregate performance beyond that of any single sensor specified by 6A008.f, or 6A008.i.

See: <https://www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-774/appendix-Supplement%20No.%201%20to%20Part%20774>

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

See: <https://www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-774/appendix-Supplement%20No.%201%20to%20Part%20774>

Other ECCNs were considered and rejected for the following reasons:

- ECCN 5A992.c was considered and rejected because the system is a passive radar containing a Raspberry Pi component and is not elsewhere specified on the CCL, as consistent with Commodity Interpretation 2 located at 15 CFR 770.2.
- ECCNs 6A008.f and 6A008.i were considered and rejected as non-applicable.
- ECCN 6A108 was rejected because the product does not meet or exceed the required technical control parameters
- ECCN 6A611 was rejected because the product is dual-use and not specially designed for military applications.
- ECCN 6A998 was considered and rejected because the product is not airborne, space-qualified, or millimeter wave.

³ Memory cards are a finished consumer product and are listed as EAR99 from the vendor, Transcend, located here: <https://us.transcend-info.com/support/ECCN>.

⁴ 22 CFR 120.34(a):

Public domain means information which is published and which is generally accessible or available to the public:

- (1) Through sales at newsstands and bookstores;
- (2) Through subscriptions which are available without restriction to any individual who desires to obtain or purchase the published information;
- (3) Through second class mailing privileges granted by the U.S. Government;
- (4) At libraries open to the public or from which the public can obtain documents;
- (5) Through patents available at any patent office;
- (6) Through unlimited distribution at a conference, meeting, seminar, trade show, or exhibition, generally accessible to the public, in the United States;
- (7) Through public release (*i.e.*, unlimited distribution) in any form (e.g., not necessarily in published form) after approval by the cognizant U.S. Government department or agency (see also [§ 125.4\(b\)\(13\) of this subchapter](#)); or
- (8) Through fundamental research in science and engineering at accredited institutions of higher learning in the U.S. where the resulting information is ordinarily published and shared broadly in the scientific community. Fundamental research is defined to mean basic and applied research in science and engineering where the resulting information is ordinarily published and shared broadly within the scientific community, as distinguished from research the results of which are restricted for proprietary reasons or specific U.S. Government access and dissemination controls. University research will not be considered fundamental research if:

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- (i) The University or its researchers accept other restrictions on publication of scientific and technical information resulting from the project or activity; or
 - (ii) The research is funded by the U.S. Government and specific access and dissemination controls protecting information resulting from the research are applicable.

See: <https://www.ecfr.gov/current/title-22/chapter-I/subchapter-M/part-120/subpart-C/section-120.34>

⁵ 15 CFR 734.3(b)(3)(i):

- (b) The following are not subject to the EAR:
 - (3) Information and “software” that:
 - (i) Are published, as described in § 734.7;

See: [https://www.ecfr.gov/current/title-15/part-734/section-734.3#p-734.3\(b\)\(3\)\(i\)](https://www.ecfr.gov/current/title-15/part-734/section-734.3#p-734.3(b)(3)(i)).

As defined at 15 CFR 734.7:

- (a) Except as set forth in paragraphs (b) and (c) of this section, unclassified “technology” or “software” is “published,” and is thus not “technology” or “software” subject to the EAR, when it has been made available to the public without restrictions upon its further dissemination such as through any of the following:
 - (1) Subscriptions available without restriction to any individual who desires to obtain or purchase the published information;
 - (2) Libraries or other public collections that are open and available to the public, and from which the public can obtain tangible or intangible documents;
 - (3) Unlimited distribution at a conference, meeting, seminar, trade show, or exhibition, generally accessible to the interested public;
 - (4) Public dissemination (i.e., unlimited distribution) in any form (e.g., not necessarily in published form), including posting on the Internet on sites available to the public; or
 - (5) Submission of a written composition, manuscript, presentation, computer-readable dataset, formula, imagery, algorithms, or some other representation of knowledge with the intention that such information will be made publicly available if accepted for publication or presentation:
 - (i) To domestic or foreign co-authors, editors, or reviewers of journals, magazines, newspapers or trade publications;
 - (ii) To researchers conducting fundamental research; or
 - (iii) To organizers of open conferences or other open gatherings.

See: [https://www.ecfr.gov/current/title-15/part-734/section-734.7#p-734.7\(a\)](https://www.ecfr.gov/current/title-15/part-734/section-734.7#p-734.7(a)).

⁶ 22 CFR 122.1(a):

Temporarily importing defense articles, or furnishing defense services, is required to register with the Directorate of Defense Trade Controls under § 122.2. For the purpose of this subchapter, engaging in such a business requires only one occasion of manufacturing or exporting or temporarily importing a defense article or furnishing a defense service. A manufacturer who does not engage in exporting must nevertheless register. (See part 129 of this subchapter for requirements for registration of persons who engage in brokering activities.)

See: [https://www.ecfr.gov/current/title-22/part-122/section-122.1#p-122.1\(a\)](https://www.ecfr.gov/current/title-22/part-122/section-122.1#p-122.1(a)).

⁷ 22 CFR 122.1(b)(4):

- (b) Exemptions. The registration requirements of paragraph (a) of this section do not apply to:

...

(4) Persons who engage in the fabrication of articles solely for experimental or scientific purposes, including research and development.

See: [https://www.ecfr.gov/current/title-22/part-122/section-122.1#p-122.1\(b\)\(4\)](https://www.ecfr.gov/current/title-22/part-122/section-122.1#p-122.1(b)(4)).

⁹ 22 CFR Part 120 *et seq.* at 121.

¹⁰ 15 CFR Part 730 *et seq.* at 774.