

*Can I classify a kilowatt laser as a cat toy?**
A Physicist's Guide to International Trade

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*Only if it is used in the creation of a cat state.

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1 Outline

This document intends to provide a general overview of key terms and concepts that may be encountered during the import and export process of goods and technology to/from the U.S. Section 3 covers the import process, including entry, liquidation, and assessment of entry duties. Section 3 discusses the necessary background knowledge for Section 4, which covers the procedure to apply for duty-free entry of scientific instruments. Finally, in Section 5, we will explain the process of exporting goods and technology from the U.S., with a focus on common topics such as export control and export for repair.

1.1 Disclaimer

This guide is provided as a practical overview and is not legal advice. U.S. import and export rules are fact-specific and subject to change. All statements and guidance in this document are offered independent of Harvard University. While this guide attempts to be consistent with Harvard policy, it does not directly reflect Harvard policy. This document was last updated on May 2, 2026.

1.2 Resources at Harvard

Prior to importing or exporting research materials, always consult the relevant Harvard authority. At the time of writing, these include:

- **Export Control Compliance:** Each Harvard school has a designated Export Control Administrator (ECA). Before exporting any material, consult your designated ECA to ensure compliance with applicable export control regulations. Within Harvard FAS and SEAS, this responsibility is handled by the Research Compliance Program (RCP), which can be reached at RCP_exportcontrol@harvard.edu.
- **Application for Duty-Free Entry of Scientific Instruments:** there is a new internal process for reviewing duty-free applications to ensure accuracy and consistency within Harvard. Reach out to Krister Anderson (Harvard Global Support Services) and Russell Ashenden (Office of the Vice Provost for Research).
- **Customs Broker:** Harvard's customs broker is E. Sidney Stockwell Co. Inc. The company holds power of attorney to act on behalf of the University in expediting shipments into and out of the United States. See the following [internal resource](#) for additional details and contact information.

2 Federal Regulations and Register

2.1 The Code of Federal Regulations (CFR)

This document will make many references to the Code of Federal Regulations (CFR). The CFR is the organized collection of the federal government's regulations. Congress passes statutes, which are collected in the United States Code (U.S.C.). Federal agencies then issue more detailed rules to carry out those statutes, and those rules are collected in the CFR. Therefore, for programs administered by federal agencies, the CFR is the place to find details such as: what forms must be filed, what deadlines apply, what standards are used, and what procedures an agency follows.

The CFR is divided into Titles, which group broad subject areas of federal regulation. For example, Title 19 has the broad subject area of Customs Duties, while Title 21 has the broad subject area of Food and Drugs. Each Title contains Chapters which usually bear the name of the issuing agency. For example, within Title 19 of the CFR, Chapter I is U.S. Customs and Border Protection. Each chapter is further broken into Parts and Sections which concern specific regulations. In ordinary CFR citation, the chapter is normally dropped. For example, 19 CFR §159.10 means: Title 19, Part 159, Section 10.

The Electronic Code of Federal Regulations (eCFR) is an up-to-date collection of the CFR and is the recommended source to read the CFR. The website for the eCFR is ecfr.gov.

2.2 The Federal Register

The Federal Register is the government's "daily journal." The Office of the Federal Register, within the National Archives and Records Administration, publishes an issue of the Federal Register for every working day of the federal government. Each issue includes documents published by federal agencies and the President, including proposed rules, final rules, agency notices, executive orders, etc.

An important function of the Federal Register is to provide official public notice. It is the formal place where the public can see what the government is doing, what may be changing, and when comments or responses are invited. Agencies also use the federal register to publish notices of specific decisions and proceedings. For example, as we shall see later in this document, the International Trade Administration (ITA) publishes notices and decisions on applications for duty-free entry of scientific instruments in the Federal Register.

The Federal Register can be accessed at federalregister.gov.

3 Import into the U.S.

3.1 Typical Parties

- **Foreign seller:** the company outside the U.S. that manufactures or supplies the goods
- **U.S. buyer:** the person or company in the U.S. that is purchasing the goods.
- **Carrier:** the transportation company that carries the shipment from one place to another. Depending on the mode of transport, the carrier may be an airline, an ocean shipping line, a trucking company, or an express courier (a courier such as FedEx or UPS which provides door-to-door shipping, and handles transportation and much of the customs process).
- **Freight forwarder:** a logistics intermediary that arranges transportation, coordinates documents, and helps move cargo through the transportation chain.
- **Customs broker:** a company or private party licensed ([19 CFR §111](#)) to transact customs business on behalf of others. A broker commonly prepares and transmits customs data, communicates with government agencies, and helps arrange release of the goods. However, even when a broker is used, the legal responsibility for the accuracy of the import filing generally remains with the importer of record.
- **Importer of record:** the person or entity legally responsible for the import transaction. The importer of record is responsible for using reasonable care in presenting the shipment to the government, declaring the goods correctly, and paying any duties, taxes, and fees that are due.
- **CBP:** U.S. Customs and Border Protection (CBP) is the federal agency in the Department of Homeland Security (DHS)¹ that reviews imported goods, enforces customs laws, collects duties, and determines whether goods may enter the U.S.

3.2 Prior to Entry

Next, we detail the steps for goods to physically arrive at a U.S. port of entry.

1. **Commercial invoice:** After the foreign seller has prepared goods for shipment, they will create a commercial invoice. This is the seller's billing document for the sale and usually identifies the seller and buyer, gives a description of the goods, states the quantity and price, identifies the currency used, and often states the country of origin and shipping terms.

Customs authorities rely heavily on the commercial invoice because it helps them understand what is being shipped and its declared transaction value, which often sets the rate of applicable duties. The seller may also prepare a packing list, which describes how the goods are packed, the number of boxes or pallets, the weight and dimensions of each package, and which items are contained in each package. Unlike the commercial invoice, the packing list is a logistics document and is not necessary for customs processes.

The commercial invoice is a broadly recognized international shipping document, and most customs authorities expect or accept it as supporting evidence. However, it is not an internationally standardized customs form nor does it have universal legal status. There is no standard format for a commercial invoice and various customs authorities may have different requirements for information that must be listed on the commercial invoice. An example of a commercial invoice can be found in Section 5 of this document generated with this online [commercial invoice template](#).

2. **Air waybill (AWB) or bill of lading (BOL):** Next, transportation is booked. If the shipment is moving by air, the cargo travels under an air waybill, which is the carrier's receipt for the contract of carriage. It identifies the shipper, the consignee, the routing, and the shipment details. If the shipment moves by ocean, a comparable document is the bill of lading.

¹Prior to 2003, the U.S. Customs Service was responsible for the nation's customs functions. In 2003, as part of the creation of the Department of Homeland Security, several federal agencies were reorganized, and the customs function was incorporated into U.S. Customs and Border Protection.

3. **Foreign customs clearance:** Before goods leave their origin country, they may need to pass through that country’s export procedures. This process is separate from the U.S. import process. The foreign government may require an export declaration, may review the documents, and may decide whether the goods may legally leave that country.
4. **Arrival in the United States:** When imported goods arrive in the United States, they are usually unloaded into the carrier’s cargo terminal or another bonded storage location at the port of arrival. The goods remain there while the importer of record, often through a customs broker, files the required entry information and CBP decides whether the shipment may be released. If CBP releases the shipment, the goods may leave that facility and enter domestic delivery. If the shipment is not timely entered or claimed, it may be moved into general order storage, where it remains under customs custody until it is properly entered, exported, or otherwise disposed.

3.3 Incoterms

“Incoterms” is short for International Commercial Terms. They are standardized trade terms published by the International Chamber of Commerce that are used in sales contracts to allocate responsibility for delivery of goods. Specifically, an Incoterm indicates which party (seller/buyer) is responsible for arranging transportation, which party bears the risk of loss at each stage of the shipment, and which party is responsible for export and import formalities.

There are 11 Incoterms in the most recent 2020 revision. Here we discuss a few common Incoterms:

- **EXW (Ex Works):** the seller makes the goods available at its own premises, such as its factory or warehouse. The buyer must arrange pickup, export handling, main international carriage, import clearance, and final delivery. The buyer also bears all of the risk once the goods are made available. This term can be difficult for international shipments because the buyer may not be in a good position to manage export formalities in the seller’s country.
- **FCA (Free Carrier):** The seller delivers the goods, cleared for export, to a carrier nominated by the buyer at a named place. Afterwards, the buyer bears the remaining risk and is responsible for the main international carriage, import clearance, and final delivery. FCA is often more practical than EXW for international shipments because it places export clearance on the seller.
- **DDP (Delivered Duty Paid):** the seller arranges transportation to the named destination, handles both export and import formalities, and pays the import duties and taxes. The seller takes on effectively all of the responsibility and risk.

Incoterms are not well-defined for domestic sales, and are generally ambiguous in a domestic context. However, a notable exception is FOB (Free on Board). FOB is both an Incoterm and also used in domestic U.S. sales law under UCC 2-319. In domestic usage, FOB origin or FOB shipment point means the seller’s delivery obligation is satisfied when the goods are delivered to the carrier at the point of shipment, and from that point forward the buyer bears the transportation risk. In contrast, FOB destination means the seller’s delivery obligation continues until the goods reach the named destination, and the seller generally bears the transportation risk until that delivery is made.

3.4 Entry and Entry Summary

Entry (19 CFR §§141–143) is the filing made to CBP to request release of imported goods from customs custody at the port of entry. The required paperwork for entry, CBP Form 3461 or CBP Form 7533 for merchandise imported from a contiguous country (i.e. Mexico and Canada), must be filed electronically through the Automated Commercial Environment (ACE)². A separate, but complementary filing is the **Entry Summary** (see 19 CFR §141.0a) which contains documentation to enable CBP to assess duties, collect statistics, and determine whether other regulations are met. The entry summary is generally filed via CBP Form 7501 (19 CFR §142.3). There are three common entry scenarios, which we’ll describe below:

²ACE is the federal government’s central electronic system for import and export processing. Through the ACE Portal, CBP, members of the trade community, and certain partner government agencies may submit and view trade data.

- **Formal entry (release first, entry summary later):** The importer first files the entry documentation required to obtain release of the merchandise (CBP Form 3461 or Form 7533) and then files the entry summary (CBP Form 7501) with estimated duties attached within 10 working days after the time of entry (19 CFR §142.12). This sequence is often used when the importer or broker is prepared to seek release of the goods, but has not yet finalized all information required for the entry summary (e.g. information relevant to classification, valuation, duty calculation, or other compliance determinations). In addition to depositing estimated duties, a single-entry or continuous bond is generally required for formal entry (19 CFR §142.4). See the following subsection on liquidation for the purpose of the bond.
- **Formal entry (entry summary filed at time of entry):** If the importer or broker has all information necessary to complete the entry summary at the outset, the entry summary may be filed at the time of entry, in which case CBP Form 7501 may serve as both the entry and the entry summary, and a separate CBP Form 3461 or 7533 is not required (19 CFR §142.3). As with formal entries generally, the importer must deposit estimated duties with the entry summary and provide a bond, unless a regulatory exception or waiver applies.
- **Informal entry:** is a separate simplified entry procedure governed by 19 CFR §143, Subpart C. Informal entry is generally limited to low-value (<\$2,500) shipments and noncommercial or personal-use articles. Merchandise eligible for informal entry (19 CFR 143.21) may be entered under the simplified filing procedures such as CBP Form 368 or 368A, CBP Form 7501, or, if authorized, a commercial invoice. Although many shipments not exceeding \$2,500 in value may qualify, that threshold is not absolute, and CBP may still require formal entry for reasons outlined in 19 CFR 143.22. Unlike formal entry, informal entry is not subject to the ordinary bond requirements (19 CFR §142.4).

3.5 Assessment of Import Duties

One of the most important elements of the entry summary is the **HTSUS Classification**. HTSUS stands for the [Harmonized Tariff Schedule of the United States](#), which is the official U.S. tariff schedule published by the U.S. International Trade Commission (USITC). The full HTSUS classification is a 10-digit number where the first 6 digits come from the international Harmonized System (HS). The United States then adds 2 digits to create the 8-digit tariff provision. The final 2 digits are a statistical suffix for U.S. trade-statistics reporting. To determine the tariff rate, the importer or broker first identifies the correct HTSUS heading and subheading. The ordinary duty rate is then read from the tariff-rate column associated with that provision.

Note the following definitions:

- **Customs value:** is the value declared for customs purposes under the valuation rules (19 CFR §152, Subpart E), and is often based on the transaction value. Note that for reimport after repair, the valuation is often limited to the cost or value of repair (items that qualify under provision 9802.00.40 or 9802.00.50).
- **Country of origin:** is the country that customs law recognizes as the legal origin of the merchandise. The country of origin affects duty treatment and admissibility.

The ordinary tariff chapters of the HTSUS are **Chapters 1–97**, which classify goods primarily according to the nature of the merchandise itself. In addition to the ordinary tariff provisions, Chapters 98-99 of the HTSUS contain special provisions. **Chapter 98** contains “Special Classification Provisions,” which apply when an article meets conditions specified by statute. If an article qualifies as a Chapter 98 provision, it may receive special tariff treatment such as duty-free entry or partial-duty treatment, rather than being entered only under its ordinary classification. For example, the duty-free scientific-instrument provision discussed later in this document, 9810.00.60, is a Chapter 98 provision.

Chapter 99 contains temporary legislation and various additional duties or import restrictions imposed under other legal authorities. Chapter 99 provisions do not replace the underlying classification of the goods under Chapters 1–98. A common example is the “Section 301” (Trade Act of 1974) tariff provision in Chapter 99 (9903.88.xx, 9903.91.xx, 9903.92.xx), which imposes additional duties on certain goods from countries such as China. Therefore, when determining tariff treatment, the importer should check not only the ordinary tariff classification but also whether any applicable Chapter 98 or 99 provisions or duty applies.

Note that a Chapter 98 claim can replace or modify the ordinary duty treatment in Chapters 1–97, but it does not automatically waive nor supersede Chapter 99 duties. Rather, each applicable HTSUS measure must be checked separately to determine whether it applies in addition to the Chapter 98 provision, e.g.:

- Section 301 (Trade Act of 1974) Duties: *The additional duties imposed by headings 9903.88.01, 9903.88.02, 9903.88.03, 9903.88.04, 9903.88.09 and 9903.88.15 do not apply to goods for which entry is properly claimed under a provision of chapter 98 of the HTSUS, except for goods entered under headings 9802.00.40, 9802.00.50, 9802.00.60, and 9802.00.80 [source].*
- Section 122 (Trade Act of 1974) Duties: *The additional duty imposed by this heading shall not apply to goods for which entry is properly claimed under a provision of chapter 98 of the tariff schedule pursuant to applicable regulations of U.S. Customs and Border Protection (“CBP”), and whenever CBP agrees that entry under such a provision is appropriate, except for goods entered under heading 9802.00.80 and subheadings 9802.00.40, 9802.00.50 and 9802.00.60 [source].*

| Heading/ Subheading | Stat Suffix | Article Description | Unit of Quantity | RATES OF DUTY ⓘ | | |
|------------------------|----------------|--|---------------------|-----------------|---|-----|
| | | | | 1 | | 2 |
| | | | | General | Special ⓘ | |
| 9013.10.50 | 00 | Other | No. | 5.3% 1/ | Free (A*, AU, BH, CL, CO, D, E, IL, JO, KR, MA, OM, P, PA, PE, S, SG) | 45% |
| 9013.20.00 | 00 | Lasers, other than laser diodes | No. | Free 1/ | | 35% |
| 9013.80 | | Other devices, appliances and instruments: | | | See 9903.88.01. | |
| 9013.80.20 | 00 | Hand magnifiers, magnifying glasses, loupes, thread counters and similar apparatus | No. | 6.6% 1/ | Free (A, AU, BH, CL, CO, D, E, IL, JO, KR, MA, OM, P, PA, PE, S, SG) | 45% |

Figure 1: Excerpt from the HTSUS website. In particular, the duty rate for 9013.20.00.00 which is classified as a “laser, other than laser diodes.” The rate of duty is split into two columns. The “Column 1” general rate of duty is free but directs the user to check endnote 1. Hovering over “1/” reveals 9903.88.01 which is an additional Chapter 99 provision of 25% for goods from China (Section 301). The “Special” column in Column 1 shows reduced or duty-free rates that apply when the goods qualify under a specific free trade agreement or statute. The “Column 2” duty rate is a higher tariff rate that applies to countries not receiving normal trade relations treatment; currently: Belarus, Cuba, North Korea, and Russia. Note that at the time of writing, additional Chapter 99 duties as a result of presidential executive order apply but are not explicitly listed — it is up to the importer to properly identify all additional duties.

Finally, imports may also be subject to the requirements of partner government agencies, often called PGAs. A partner government agency is a U.S. agency other than CBP that regulates particular imported goods. Examples include the Food and Drug Administration (FDA), the Department of Agriculture, and the Environmental Protection Agency. When such requirements apply, the importer may need to submit additional agency-specific data through ACE in addition to the ordinary customs data reported to CBP to demonstrate compliance with other federal import requirements.

3.6 Liquidation, Post-Summary Correction, and Protest

Even after goods are released, the customs process is not complete. **Liquidation (19 CFR §159)** is the government’s final accounting of the import transaction and the point at which CBP makes its final legal and financial determination of the entry. A formal entry may be released soon after arrival and *before* all customs declarations have been certified by CBP because the importer provides a customs bond in addition to depositing the estimated duties. The bond protects the government if CBP later determines that additional duties or other obligations are owed. Liquidation often occurs later, after CBP has had time to review the entry summary. If CBP agrees with the entry summary, liquidation may simply confirm what was declared. If CBP disagrees, liquidation may reflect a different duty rate, valuation, origin determination, or other legal treatment.

For formal entries, official notice of liquidation is provided through CBP’s public online notice system, the [Official Notice of Extension, Suspension and Liquidation](#). Postings are available for 15 months and the same

system may also be used to check whether an entry has been extended or suspended rather than liquidated.

Before liquidation, errors in an entry summary may be corrected through a **Post Summary Correction** (PSC). A PSC must be filed within 300 days from the date of entry. Once an entry has been liquidated, a PSC is no longer available. Instead, the importer may file a **Protest** ([19 CFR §174](#)) to CBP within 180 days from the date of liquidation or from the date of liquidation by operation of law.

Liquidation by Operation of Law ([19 CFR §159.11](#)) means that an entry is treated as liquidated automatically by statute if CBP does not liquidate it within the applicable time period (generally 1 year). In that scenario, the entry is deemed liquidated at the rate of duty, value, quantity, and amount of duties asserted by the importer of record.

3.7 Reasonable Care and the Importer's Responsibility

The importer of record is required to use reasonable care. Reasonable care means that the importer must take appropriate steps to make sure the information given to CBP is accurate and complete. This includes making sure the goods are correctly described, correctly classified, properly valued, etc.

4 Duty-free entry of scientific instruments

4.1 The Florence Agreement and HTSUS Implementation

The duty-free entry of certain scientific instruments is based on the Agreement on the Importation of Educational, Scientific and Cultural Materials, commonly known as the **Florence Agreement**. The Florence Agreement is a UNESCO treaty adopted in Florence, Italy, on June 17, 1950. For scientific instruments, the key provision is Annex D of the agreement. Annex D addresses scientific instruments and apparatus imported for educational purposes or pure scientific research, and it is the foundation for the U.S. duty-free entry procedure discussed in this section. Specifically, Annex D supports duty-free treatment for qualifying instruments imported by eligible nonprofit institutions when no instrument of equivalent scientific value is being manufactured in the importing country.

In the United States, Annex D is implemented through Chapter 98 of the HTSUS, principally subheading 9810.00.60. To obtain duty-free treatment, the importer must claim classification under **9810.00.60 HTSUS** during the entry summary. If no claim under that subheading is made at entry, the instrument is entered and liquidated in the ordinary course. If the claim is made, a copy of the Form ITA-338P application that is stamped by CBP as accepted for transmittal to the Department of Commerce must accompany the entry³, and estimated duties need not be deposited.

Note that final determination on the duty-free application is made by the **International Trade Administration (ITA)**, Department of Commerce, and a claim made at entry under HTSUS 9810.00.60 remains subject to that determination. Therefore, while an instrument can make entry under HTSUS 9810.00.60 without a final ITA decision (i.e. with only a CBP stamp), if the application is subsequently denied by ITA, the instrument may be liquidated in the ordinary course and the importer of record may still be billed for any waived duties ([15 CFR §301.8](#)).

4.2 Criteria for Eligible Instruments

The following criteria are drawn from Annex D of the Florence Agreement and implemented in [15 CFR §301](#)⁴. Under this framework, certain scientific instruments imported by qualified nonprofit educational or scientific institutions may be entered duty-free if they are intended exclusively for educational purposes or pure scientific research and if no U.S.-manufactured instrument of equivalent scientific value exists for the applicant's intended use.

- The applicant must be a private or public nonprofit institution established for educational or scientific purposes. A for-profit company is not eligible even if it intends to perform scientific or educational work with the instrument.
- The instrument must be intended exclusively for educational purposes or pure scientific research use. Even at a nonprofit institution, an instrument intended mainly for administration, routine business operations, or other non-research purposes is not accepted.
- The applicant must demonstrate that there does not exist a U.S.-manufactured instrument of equivalent scientific value for the applicant's intended purposes.
- The application must be tied to a real procurement. The applicant must either have placed a bona fide order for the foreign instrument or have a firm intention to place a bona fide order within 60 days after a favorable decision.

4.3 Application Process and Review Timeline

The application form is [ITA-338P](#), Request for Duty Free Entry of Scientific Instruments or Apparatus. After completing the form, the applicant must print and sign the 5 paper copies and mail them to the CBP Entry Process and Duty Refunds Branch in Washington, D.C. ([15 CFR §301.3](#)).

³For more context on what this means, see the following subsections.

⁴Title 15 of the Code of Federal Regulations, Part 301. Note that 15 CFR §301 is distinct from Section 301 (Trade Act of 1974) tariffs. The shared 301 is a matter of coincidence.

Responsibility for reviewing the application is divided between CBP and the International Trade Administration (ITA) within the Department of Commerce. CBP first receives the application and determines if the application is complete and in proper form. CBP also checks whether the claim appears to fall within the scope of the duty-free scientific-instrument program and whether the basic statutory eligibility requirements are satisfied for the application to move forward (15 CFR §301.4). After initial review, CBP returns a stamped copy of the application to the applicant and forwards a copy of the application to the ITA. The stamped copy returned to the applicant is important because it allows the applicant to claim the relevant HTSUS duty-free provision at entry while a final decision on the merits of the application is pending.

The substantive review is then handled by ITA. Upon receiving the application from CBP, ITA makes the application available for public inspection on the Federal Register and invites comments on whether an instrument of equivalent scientific value is being manufactured in the United States. After the comment period of 20 days closes, the application and any comments are forwarded to technical consultants for evaluation. The ITA then issues a final decision, which is published in the Federal Register (15 CFR §301.5). In practice, applicants can monitor the status of the application by watching for that Federal Register notice.

4.4 Best Practices, Tips, and Tricks

- For the criteria regarding a comparable domestic instrument, the relevant question is whether an instrument of equivalent scientific value is *manufactured* in the U.S. and not whether the instrument is sold through a U.S. entity. **This is a very important distinction!**

For example, you may obtain a quotation for a laser from TOPTICA Photonics, Inc. in Pittsford, New York, which is TOPTICA's U.S. subsidiary and sales/service presence in the U.S. But if the particular laser being quoted is manufactured in Germany and merely sold through TOPTICA's U.S. entity, it does not become a domestic instrument simply because the quote came from a U.S. office. To extend this example further, TOPTICA also develops and manufactures certain product lines in Rochester, New York. So you should not assume that every TOPTICA product sold through the U.S. subsidiary is foreign-manufactured; the key is determining the manufacturing location of the specific instrument at issue.

- The timeline of CBP review is variable. We have on occasion received CBP approval within 2 weeks, while on other occasions (e.g. the DHS shutdown during 2026) we heard back after more than half a year. After the application has been passed to ITA, you will not receive direct communication from the ITA on the status of your application. Your application can be tracked from ITA's postings on the Federal Register. For example, see the following [request for public comment](#) and this [notice of decision](#).
- To check whether an entry has been liquidated, use [The Official Notice of Extension, Suspension and Liquidation](#) website.
- A common scenario is that an order is ready to be imported before initial CBP review of the application has completed. If the instrument is imported without making the duty-free claim at entry, the importer may file a Post Summary Correction if the entry has not yet liquidated (see Section 3 of this document). If the entry has already been liquidated, the importer must instead file a protest within 180 days. Practically, this means there may be a limited period after importation during which the importer can still seek correction or protest of the entry and obtain a refund of duties paid.
- Express carriers such as FedEx and UPS are often not well suited to uncommon customs procedures such as duty-free entry of scientific instruments. In many cases, their standard import workflows are designed for routine entries rather than specialized claims. As a result, their personnel may not have the specific experience needed for this process, and resolving a misfiled entry through customer service can be slow and frustrating. It is often preferable to use FedEx or UPS for transportation or freight-forwarding functions, but to request that entry be handled by your own customs broker with the requisite expertise.
- Another common question is: *which duties are waived?* The HTSUS classification of 9810.00.60 replaces the ordinary Chapters 1–97 duty with a Free rate; however, it does not automatically supersede Chapter

99 duties. Therefore, one must check all applicable Chapter 99 provisions at the time of entry, to determine if they apply despite making a claim under Chapter 98. At the time of writing, the language of Section 301 (25% retaliatory tariff against Chinese goods) and Section 122⁵ (10% temporary tariff on all goods) provisions allow tariffs under these provisions to be waived under proper claim of 9810.00.60. However, this is not a comprehensive list of potentially applicable Chapter 99 provisions. For more guidance on tariff determination, see Section 3 of this document

- An example duty-free application is available by request to the author.

⁵On February 20, 2026, the Supreme Court struck down President Trump's tariffs imposed under the International Emergency Economic Powers Act (IEEPA), a statute that gives the President certain emergency economic powers during a declared national emergency. Afterwards, the administration pivoted to Section 122 of the Trade Act of 1974 and imposed a temporary import surcharge under this separate statutory authority.

5 Export out of the U.S.

5.1 Overview of the export process

In U.S. trade law, an export can include shipping a physical item out of the United States, carrying equipment abroad in luggage, sending software or technical information electronically to a person outside the United States, or releasing controlled technology to a foreign person inside the United States⁶. Below we will describe the steps and documents required for exporting a physical item. We will discuss the remaining export scenarios in further subsections on export control.

1. **Commercial invoice:** the basic shipping document describing what is being exported, who is sending it, who is receiving it, and the declared value of the goods (see Section 3 of this document for a more complete description). Carriers may also issue transportation documents such as an air waybill or bill of lading, but the commercial invoice is the exporter's core document (online [commercial invoice template](#)).

Note that a commercial invoice is required even when the export is not a *sale* to a foreign buyer. For example, if equipment is being sent abroad to an OEM for repair, the U.S. exporter should still provide a commercial invoice. Export for repair is discussed in a later subsection, including how to complete the commercial invoice in that situation.

2. **EEI filing:** A second question is whether the shipment must be reported electronically to the U.S. government through the Automated Export System (AES)⁷. The filing made in AES is called Electronic Export Information (EEI). The Foreign Trade Regulations, found in [15 CFR §30](#), govern when EEI must be filed. As a general rule, EEI is required for unlicensed exports when the value under a single Schedule B number exceeds \$2,500, and it is required for licensed shipments regardless of value.
3. **Schedule B classification:** is the Census Bureau's 10-digit export commodity classification. It is the code used to classify goods for U.S. export reporting, e.g. in AES/EEI filings. Schedule B is based on the international Harmonized System (HS). Its first six digits are the HS code used internationally, and the final four digits are U.S. statistical subdivisions for exports. The Schedule B number can be found through the Census Bureau's [Schedule B Search Tool](#) or by browsing the published [Schedule B Chapters](#).

Although Schedule B is closely related to the HTSUS, which is used for imports, the two are not identical. They generally match through the first six digits, but may differ at the 8-digit and 10-digit levels. Because of their shared HS structure, it is often possible to use an HTSUS number to identify the corresponding export classification, but the mapping is not always exact.

4. **Export license:** is an official government authorization permitting an export transaction that would otherwise be restricted. A license is required only when the applicable export-control or sanctions rules require prior government approval for that particular transaction. For most commercial, scientific, and dual-use items⁸, export restrictions come from the Export Administration Regulations (EAR), administered by the Bureau of Industry and Security (BIS). For defense articles, defense services, and related technical data, export restrictions generally come from The International Traffic in Arms Regulations (ITAR), administered by the Directorate of Defense Trade Controls (DDTC). Separate sanctions rules administered by Office of Foreign Assets Control (OFAC) may also require authorization.

Whether a license is needed depends on the governing regime and the facts of the transaction, including the item, destination, recipient, and intended end use. It is the exporter's responsibility to determine which rules apply and whether a license is required before the export takes place.

5. **Restricted-party screening:** A useful compliance step is restricted-party screening. Before exporting, the exporter should check whether the recipient, consignee, intermediate parties, or other known participants in the transaction appear on a U.S. government screening list. The main public tool for

⁶Under Export Administration Regulations (EAR), the last scenario is called "deemed export."

⁷Not to be confused with the Automated Commercial Environment (ACE). AES is a subsystem of ACE.

⁸Dual-use means an item has an ordinary civilian or commercial use, but it could also have a military, intelligence, weapons, or proliferation-related use.

this is the Consolidated Screening List (CSL). The [CSL Search Engine](#) is maintained by the International Trade Administration (ITA) and combines multiple screening lists from the Departments of Commerce, State, and the Treasury into a single searchable database.

5.2 Export Administration Regulations (EAR)

The EAR are the main U.S. export-control rules for most commercial, scientific, and dual-use items. The EAR are administered by the Bureau of Industry and Security (BIS), in the Department of Commerce and are codified at [15 CFR §730–774](#). The types of exported items, technology, and activities that are subject to EAR are explained in [15 CFR Part 734](#). For ordinary commercial exports, it is usually safe to assume that the EAR applies. However, 15 CFR Part 734 contains important exceptions, including certain published information or certain technology or software arising from fundamental research (e.g. see the following subsection on the fundamental research exclusion).

If a commodity, technology, or activity is subject to EAR:

1. First determine if the item is listed on the **Commerce Control List (CCL)**. The CCL, found in [Supplement No. 1 to 15 CFR §774](#), is the part of the EAR text that lists controlled items. Each entry of the CCL is identified by a five-character alphanumeric code termed the **Export Control Classification Number (ECCN)**. If an item is listed on the CCL, its ECCN will usually state one or more reasons for control⁹. The exporter should then compare the reasons for control against the destination country via the **Commerce Country Chart**, which is found in [Supplement No. 1 to 15 CFR Part 738](#). The Commerce Country Chart indicates whether a destination country, together with the applicable reason for control, creates an export license requirement.
2. If an item is subject to the EAR but is not specifically listed on the CCL, it is classified as EAR99. Items with ECCN of EAR99 may often be exported without a license, but not always. In particular, additional restrictions may still apply based on export controls arising under 15 CFR Part 744 (see the following paragraph) or under controls elsewhere in the EAR.
3. For any item subject to the EAR, regardless of whether it has a specific ECCN or is classified as EAR99, the exporter must also consider whether any specific end-user or end-use restrictions apply under [15 CFR §744](#). Part 744 restrictions are generally uncommon for routine shipments to a well-known collaborator or vendor in a low-risk country, but a basic screening check, such as a search of the [Consolidated Screening List \(CSL\)](#), is still good practice. In contrast, if the recipient is unfamiliar, the destination is sensitive, or the item is sensitive, Part 744 becomes an important consideration for export-control analysis.

5.3 EAR: Deemed Export and Foreign Persons

Under the EAR, an export does not always require a physical shipment out of the United States. A **Deemed Export**, defined in [15 CFR §734.13](#), occurs when controlled technology or source code is released to a foreign person *inside* the United States. In that situation, the release is legally treated as an export to the foreign person’s most recent country of citizenship or permanent residency. Under [15 CFR §734.15](#), technology or source code may be “released” through visual inspection, oral or written exchanges, email, shared files, or other disclosures that reveal controlled technical information. A **Foreign Person** is defined in [15 CFR §772](#) as a person who is not a U.S. citizen, lawful permanent resident, or other protected individual under 8 U.S.C. 1324b(a)(3). The term also includes foreign corporations, organizations, and governments.

Deemed exports are controlled through the ordinary EAR classification and licensing framework. The relevant technology or source code must first be classified under the EAR, and the release is then analyzed as though it were an export to the foreign person’s country of citizenship or permanent residency.

⁹Common examples include national security (“NS”), missile technology (“MT”), nuclear nonproliferation (“NP”), and anti-terrorism (“AT”).

5.4 EAR: Fundamental Research Exclusion (FRE)

The **Fundamental Research Exclusion** is a narrow carve-out of the EAR that is relevant for universities and research institutions. Under [15 CFR §734.8](#), technology or software that arises during, or results from, fundamental research and is intended to be published is not subject to the EAR. The regulation defines **Fundamental Research** as research in science, engineering, or mathematics whose results are ordinarily published and shared broadly within the research community, and for which the researchers have not accepted restrictions for proprietary or national-security reasons.

Note that the fundamental research exclusion applies to the research results themselves and does not automatically extend to the technology or software used to conduct the research. For example, a lab may produce publishable research results that qualify as fundamental research, while still using controlled source code, design files, or proprietary technical data that remain subject to the EAR.

Also note that qualifying fundamental research results are not classified as EAR99, but rather *not subject to the EAR*. In contrast, EAR99 refers to items that are subject to the EAR but are not specifically listed on the Commerce Control List. The Fundamental Research Exclusion is an exclusion *only* from the EAR and other applicable export-control or federal regulatory rules still apply.

5.5 International Traffic in Arms Regulations (ITAR)

The **International Traffic in Arms Regulations** (ITAR) are a separate set of export-control rules administered by the Directorate of Defense Trade Controls (DDTC), Department of State. The ITAR are codified in [22 CFR §120–130](#) which implement Section 38 of the Arms Export Control Act. Unlike the EAR, which mainly govern commercial and dual-use items, the ITAR govern items, information, and services that are specifically defense-related. The **United States Munitions List** (USML), found in [22 CFR §121](#), contains all **Defense Articles** and related technical data that fall under ITAR control.

Note that, in addition to defense articles listed in the USML, the ITAR also cover **Defense Services**, defined in [22 CFR §120.32](#); and **Technical Data**, defined in [22 CFR §120.33](#). Thus, the ITAR can regulate not only physical defense-related hardware, but also certain defense-related information and assistance. We will not discuss these categories in detail here, as they are relatively uncommon in the ordinary lab context.

5.6 Export for Repair and Subsequent Import

An export for repair should be understood as two distinct legal events. First, the item is exported from the U.S. for repair or warranty service. This export is treated like any other export, meaning the ordinary export-control analysis, licensing, and filing requirements still apply. Second, the item is reimported into the U.S. after repair or replacement. Again, the item must pass through the ordinary import process, though there are special considerations on its valuation for the purposes of calculating duties.

Export for repair: must be handled under the ordinary export rules¹⁰, including preparation of a commercial invoice, any required EEI filing, and compliance with any applicable export-control requirements. The commercial invoice should clearly identify the item, include the serial number if available, and state that the shipment is a temporary export for repair or warranty service and not a sale.

Reimport after repair: the treatment of the item when it returns to the U.S. after repair generally falls into three scenarios:

- If the item is repaired under warranty, so that the user has no out-of-pocket repair cost, the reimport may qualify under HTSUS subheading 9802.00.40 ([19 CFR §10.8](#)). In which case, duty is assessed only on the cost or value of the repair or alteration performed abroad. Accordingly, the invoice and entry papers should state the value of the repair performed abroad. *The customs value cannot be zero.*
- If the item is repaired without warranty, the reimport may qualify under HTSUS subheading 9802.00.50 ([19 CFR §10.8](#)). In that case, duty is likewise assessed only on the cost or value of the repair or alteration

¹⁰So just because you can easily import an instrument does not mean it can be easily exported again for repair.

actually performed abroad, and the invoice and entry papers for the returned article should state the actual cost of the foreign repair or alteration.

- A warranty replacement is different from a warranty repair. If the original item is not repaired and the foreign party instead sends back a replacement article at no cost, then the relevant customs valuation is generally the value of the replacement article itself.

| | | | | | |
|---|---------------------------------|--|---------------------------------|------------------|-----------|
| COMMERCIAL INVOICE | | DATE (YYYY-MM-DD) 2026-04-12 | INVOICE NO. GS20260412 | | |
| | | CUSTOMER PO NO. | CURRENCY USD | | |
| SHIPPER / EXPORTER Yi Zhu 60 Oxford Street Cambridge MA, 02138 +1-xxx-xxx-xxxx [email]@g.harvard.edu | | CONSIGNEE Shanghai Precilaser Co. Ltd. Floor 2, Building 2 No. 1918, Xupan Road Jiading District, Shanghai +86-xxxxxxxxxxx [email]@precilasers.com | | | |
| INTERMEDIATE CONSIGNEE | | NOTES / SPECIAL INSTRUCTIONS TEMPORARY EXPORT FOR WARRANTY REPAIR VALUE FOR CUSTOMS DECLARATIONS | | | |
| COUNTRY OF EXPORT USA | COUNTRY OF DESTINATION CHINA | B/L / AWB NO. | NO. OF PACKAGES | | |
| TERMS OF PAYMENT | EXPORT ROUTE / CARRIER | ADDITIONAL REFERENCE | | | |
| MARKS / DESCRIPTION / COUNTRY OF MANUFACTURE | HS NO. | QTY | WEIGHT | UNIT VALUE | TOTAL |
| Single frequency xxx nm fiber laser, xxx W; manufacture: China | 9013.20 | 1 | 90 | 100000 | 100000.00 |
| DECLARATION I declare that the information contained in this invoice is true and correct and that the contents of this shipment are as stated above. | | Sub Total | | 100000.00 | |
| | | Freight | | 0 | |
| | | Insurance | | 0 | |
| | | Total Invoice Value | | 100000.00 | |
| SHIPPER / AUTHORIZED SIGNATURE | | TITLE Research Assistant | DATE (YYYY-MM-DD) 2026-04-12 | | |

Figure 2: An example commercial invoice generated using an [online template](#). For export for repair, the commercial invoice should list the real value of the equipment. The invoice should state clearly that the export is for repair, and that the listed value is for customs formalities only.

5.7 Exporter's Responsibility

An exporter has the responsibility to determine what export rules apply to the transaction and to comply with them. This includes determining whether the item is subject to the EAR or another export-control, whether a license or other authorization is required, and whether any required EEI filing is accurate and complete. Although customs brokers, freight forwarders, and other service providers may assist with shipping, filings, and logistics, the core compliance responsibility remains with the exporter or principal U.S. party directing the transaction.