SECTION 8

EXPORTING PROCEDURES

EXPORT CONTROL PROGRAM
for
AURA NSF-RELATED ACTIVITIES

Including:
THE NATIONAL OPTICAL ASTRONOMY OBSERVATORY;
THE NATIONAL SOLAR OBSERVATORY;
and
THE GEMINI TELESCOPE PROJECT

Effective Date May 1, 2007

PRODUCED BY
W.C. ENTERLINE
AURA IMPORT/EXPORT CONTROL OFFICER

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

PART 1
EXPORT REGULATION OVERVIEW

All commodities, materials, technical data, services and information transferred to destinations outside the United States are considered exported from the U.S. and are subject to specific regulations established by various departments of the United States government. In addition, transferring information (hereafter referred to as "technical data") to foreign nationals either within the boundaries of United States or during visits to foreign institutions is also considered an export and, depending on the type of data, may also be restricted by those same departments of the United States government.

Illegal circumvention of these export regulations can result in stiff fines, penalties, and/or restriction of future export privileges. Illegal circumvention includes the knowledge that an illegal exportation is occurring and failing to advise the exporter of the potential restrictions or failing to notify the appropriate authority of the illegal activity. In the case of The Association of Universities for Research in Astronomy, Inc. (AURA) employees, the "appropriate authority" is considered to be either the AURA Import/Export Control Officer or the On-Site Certified Export Control Officers.

In the majority of cases, export licenses for AURA shipments must be obtained from either the Department of State's Directorate of Defense Trade Controls (DDTC), the Department of Commerce's Bureau of Industry and Security (BIS) or the Department of Treasury's Office of Foreign Assets Control (OFAC). The reporting of the export shipments must be made to those licensing authorities. Certain other shipments or items may be restricted by other departments within the United States government including:

- *The Drug Enforcement Administration*: Drugs, Chemicals and Precursors; Controlled Substances;
- *The Food and Drug Administration*: Drugs and Biologics; Medical Devices;
- *The Department of the Interior*: Fish and Wildlife Controls/Endangered Species; and
- *The Department of Energy*: Nuclear Technology, Technical Data for Nuclear Weapons, Special Nuclear Materials.

Careful control must be maintained over all items shipped by AURA, its partners or its freight forwarders on behalf of AURA to insure that those exports comply with all appropriate regulations. The failure of an individual, business or organization to comply with the regulations does not relieve AURA of the responsibility for the infraction if that individual, business or organization was working on behalf of or under the direction of an AURA employee

This EXPORT CONTROL PROGRAM FOR NSF RELATED ACTIVITIES is designed to familiarize AURA employees with the export controls that they may encounter within the organization and assist them in knowing what must be done should they encounter a situation that relates to export controls.

PART 2
AURA ORGANIZATION STRUCTURE

1) **AURA OPERATIONS**: AURA is directed with the management of three basic scientific research endeavors through agreements with either the National Science Foundation (NSF) or National Aeronautics and Space Administration (NASA).
2) **AURA NSF-RELATED ACTIVITIES**: The AURA NSF-related activities are those departments within AURA under cooperative agreements with the NSF:

   A) **The National Optical Astronomy Observatories (NOAO),** which comprises Cerro Tololo Inter-American Observatory in Chile, Kitt Peak National Observatory in Tucson, Arizona; and the National Solar Observatories located in Tucson, AZ and Sunspot, NM. Its main office, located in Tucson, AZ, is under cooperative agreement with the National Science Foundation.
   B) **The Gemini 8-Meter Telescope Project,** which is an international undertaking to operate two state-of-the-art 8-meter telescopes - one on Mauna Kea in Hawaii and the other on Cerro Pachon in Chile. The partners in the Gemini Project are the United States, Canada, the United Kingdom, Brazil, Argentina, and Chile. AURA is under cooperative agreement with and is under the direction of the National Science Foundation for this endeavor. The Gemini Board of Directors, as provided by the Gemini Agreement, governs the Gemini project. The United States National Science Foundation is the Executive Agency for the international Gemini Project with AURA designated as the Managing Organization.

3) **AURA NASA-RELATED ACTIVITIES**: The AURA NASA-related activities are:

   A) **The Space Telescope Science Institute.** STScI is an organization established, operated, and maintained under contract with the National Aeronautics and Space Administration (NASA), to conduct the science program of the Hubble Space Telescope (HST). This task will involve the conduct of an integrated science program to include: solicitation, selection, and support of ST observers and archival researchers; detailed science planning; science observation operations; archiving operations; routine science data calibrations; and science data analysis. Although STScI does not export on a regular basis, there are times that the organization does have travelers visit foreign institutions. The majority of STScI exports control activities concern the licensing of employees by the Department of State. An AURA Export/Import Control Officer for NASA-Related Activities employs an outside agency to assist STScI with the licensing processes.

4) **PARTNERSHIPS**: Partnerships that AURA is involved in and that may involve the export of materials include, but are not limited to, the following projects:

   A) **Large Synoptic Survey Telescope Project (LSST) -** The Large Synoptic Survey Telescope (LSST) is a proposed ground-based 8.4-meter, 10 square-degree-field telescope that will provide digital imaging of faint astronomical objects across the entire sky, night after night. In a relentless campaign of 15 second exposures, LSST will cover the available sky every three nights, opening a movie-like window on objects that change or move on rapid timescales: exploding supernovae, potentially hazardous near-Earth asteroids, and distant Kuiper Belt Objects. The superb images from the LSST will also be used to trace billions of remote galaxies and measure the distortions in their shapes produced by lumps of Dark Matter, providing multiple tests of the mysterious Dark Energy. The LSST is a Public-Private partnership, and the data will be public. A non-profit corporation, the LSST Corporation, has been set up to manage the collaboration of over 100 scientists and engineers, and to raise private and agency funding. The LSST Project is a collaboration of a number of national labs and organizations.

B) **Thirty Meter Telescope Project (TMT) -** The Thirty Meter Telescope (TMT) project is a public-private partnership that fulfills the goals of a concept called the Giant Segmented Mirror Telescope (GSMT), which was identified in the National Academy of Sciences report "Astronomy and Astrophysics in the New Millennium" as the highest-priority new ground-based facility for the first decade of the 21st century.

The goal of the TMT project is to construct an extremely large telescope based on more than 700 hexagonal-shaped mirror segments that stretch a total of 30 meters in diameter. Such a telescope also needs adaptive optics systems that compensate for natural distortions of the incoming light by Earth's atmosphere, and huge science instruments containing dozens of mirrors, detectors, and complex filters. The TMT will gather light in visible and infrared wavelengths.

C) **Southern Observatory for Astrophysical Research (SOAR) -** is a 4.1-meter diameter optical telescope constructed by a consortium of the Brazilian Ministry of Science, the National Optical Astronomy Observatories, the University of North Carolina and Michigan State University. It is located at Cerro Pachon, in Chile, and was designed to work from the atmospheric cut-off in the blue (320 nm) to the near infrared, to have excellent image quality, fast slewing and to have up to nine instruments continuously mounted and ready for use.

D) **Panchromatic Robotic Optical Monitoring and Polarimetry Telescopes (PROMPT) –** Consist of six special purpose telescopes at the Cerro Tololo Inter-American Observatory (CTIO) in the Chilean Andes. These telescopes, which have been specifically designed to identify and study the most distant objects in the universe, will also serve as a platform for undergraduate and high school education throughout the state of North Carolina. These telescopes have been specifically designed to study very powerful but very distant explosions called gamma-ray bursts (GRBs). Astronomers have only recently learned that GRBs result when stars that are more than thirty times as massive as the sun reach the end of their lives and collapse to form black holes. The GRB is the birth cry of the black hole.

Each of the PROMPT telescopes has a unique capability: One is optimized to observe violet light; one is optimized to observe blue light; one is optimized to observe red light; one is optimized to observe very red light; one is optimized to observe infrared light; and one measures the polarization, or orientation, of incoming light waves.

E) **Small and Moderate Aperture Research Telescope System (SMARTS) -** Four of the smaller telescopes on Cerro Tololo are now being operated by the SMARTS consortium, a group of several universities and other organizations. The SMARTS CONSORTIUM operates the 1.5-meter telescope, the 1.0-meter telescope, the 1.3-meter telescope and the 0.9-meter telescope. The consortium includes the following:

a) American Museum of Natural History
b) CTIO
c) University of Delaware
d) Fisk University
e) Georgia State University
f) NOAO
g) The Ohio State University
h) Sejong University
i) Space Telescope Science Institute
j) SUNY-Stony Brook University
k) Vanderbilt University
l) Yale University

F) **Curtis Schmidt Telescope** – This instrument is operated by the University of Michigan and is used in their astronomy program. The telescope is a 0.6/0.9-meter instrument.

G) **El Enano Robotic Survey Camera** - Dwarfed by the other telescopes at CTIO, the Swarthmore robotic survey camera sits in a 10-foot dome on a concrete pad near the one-meter telescope building.

Its small size has earned it the nickname of El Enano (the dwarf).

Installed in 1997, the camera was first used to image the sky in the Ha emission line of interstellar hydrogen. The resulting Southern H-Alpha Sky Survey Atlas (http://amundsen.swarthmore.edu/SHASSA/) was published in 2001.

The camera is now being used to obtain images at the wavelength of another emission line, that of ionized sulfur ([SII]) at 676 nm. The Ha/[SII] brightness ratio will help distinguish collisionally ionized supernova remnants from photo ionized HII regions around hot stars.

5) **AURA ACTIVITIES IN CHILE**: Other AURA departments located in Chile:

A) **AURA Observatory Support Services (AOSS)** - AURA established the AURA Observatory (AURA-O) in Chile as an "umbrella" entity for the benefit of U.S. and international astronomy. AURA-O is the primary representative in Chile for AURA and all units operating or wishing to operate on its property. "Units" include National Optical Astronomy Observatories (Cerro Tololo Inter-American Observatory), Gemini South, and Southern Observatory for Astronomical Research and such other observatory operations functioning under the auspices of AURA in Chile. AURA-O is the sole channel for all units in all official dealings with Chilean authorities and with other Chilean institutions.

PART 3
AURA NSF-RELATED OBSERVATORIES, AND INTERNATIONAL PROJECTS

1) Within the NSF-related organizations there are three major projects which are directly involved in the export of materials and equipment:

A) **CERRO TOLOLO INTER-AMERICAN OBSERVATORY (CTIO)**: Within the housing and administrative compound, located in La Serena, a coastal town approximately 300 miles north of Santiago, is a data reduction facility and scientific library that is second to none in the Southern Hemisphere. The observatory is located on Cerro Tololo that is approximately 50 miles East of La Serena. On this mountain are housed six astronomical telescopes ranging from a large 4-meter class instrument to a 0.6-meter telescope. The Cerro Tololo Inter-American Observatory is used predominantly by U.S. astronomers and is the only major U.S. National Optical Astronomical Research Center in the Southern Hemisphere. Established in the 1960's, this facility is of vital importance both to the U.S. astronomical community and to the United States position in basic research. CTIO is a part of the National Optical Astronomy Observatories and is formally referred to as NOAO-South.

a) The Ultimate Consignee listed on export documents for CTIO is:

AURA, Inc.
Cerro Tololo Inter-American Observatory
Casilla 603
La Serena, Chile

b) The Intermediate Consignee listed on export documents for CTIO is:

AURA
AOSS Santiago Opertations
Av. President Riesco 5335
Oficina 507
Los Condes
Santiago
Chile

Attn: Edilia Cerda
Phone: 562-370-1085/1086

B) **GEMINI-SOUTH 8-METER TELESCOPE PROJECT**: The Southern Hemisphere telescope is located on Cerro Pachon, a mountaintop adjoining Cerro Tololo in Chile. Cerro Pachon is on the same AURA property as Cerro Tololo. For all intents and purposes, this telescope is an extension of the existing AURA/Cerro Tololo logistical organization.

Because of its organizational structure, international partners and unique identification from other AURA telescope facilities, the Gemini 8-meter telescope on Cerro Pachon is listed as a separate project even though the mechanisms for exporting to the facility, international transportation between the United States and the Cerro Pachon site, and importation and receiving procedures at the Chilean port of entry will be handled by AOSS administrative services.

a) Virtually all of the instrumentation, equipment, vehicles, materials and supplies required to operate these major research facilities originate in and are exported from the United States although some will be built by and shipped from consortium partners.

b) Until further notice, the Ultimate Consignee listed on export documents for the Southern Gemini telescope is:

AURA, Inc.
GEMINI-South Observatory
Casilla 603
La Serena, Chile

c) The Intermediate Consignee listed on export documents for CTIO is:

AURA
AOSS Santiago Opertations
Av. President Riesco 5335
Oficina 507
Los Condes
Santiago
Chile

Attn: Edilia Cerda
Phone: 562-370-1085/1086

C) **GLOBAL OSCILLATION NETWORK GROUP PROJECT**: The third major United States astronomical project with international partners is the Global Oscillation Network Group Project (GONG). Sponsored by the National Science Foundation through grants to the National Optical Astronomy Observatories, the GONG Project is managed by the National Solar Observatory division within the NOAO organization. The goal of this astronomical project is to observe the internal oscillations of the Sun 24 hours each day. To accomplish this, self-contained, remote-site solar observatories have been shipped to sites around the world. These instruments, known as helioseismographs, were delivered to the sites in 1995 and have been in operation since January 1996. The network of helioseismographs is expected to be operational for 7-10 years before the project is completed.

a) While the instruments contain virtually no restricted items, the project instrumentation is continuously undergoing replacement equipment to ensure that the systems function properly.
b) Astronomers and technicians from the observatory at which the instrument is located maintain the instruments. Periodically, maintenance crews are dispatched from Tucson to service the instruments. Should an instrument failure be caused by a part which does not have an on-site replacement, the repair will be affected by either express shipping the replacement part to the foreign observatory and having the repair accomplished by the local observatory technicians; or by sending AURA employees who will hand carry the replacement part to the site and complete the repairs themselves.
c) Information taken from each instrument is forwarded to and evaluated at the AURA facilities in Tucson. The data received are then published in journals and GONG newsletters for general dissemination to the astronomical community.
d) The sites that house the remote-site, self-contained instruments are the following:

(1) **AUSTRALIA:** The Australian site is at the Learmonth Solar Observatory in Western Australia. This observatory is operated jointly by an Australian government agency, called IPS Radio and Space Services, and the U.S. Air Force. The GONG host is the Australian IPS, under a memorandum of understanding with their federal Department of Administrative Services. IPS scientific and technical staff, and a contractor, provides on-site support including receiving and shipping material. The principal point of contact is Dr. Alan Brockman. The Consignee listed on export documents for the Australian GONG site is:

Learmonth Solar Observatory

1 Observatory Road
Learmonth, Western Australia 6707
Australia

Attn.: Dr. Alan Brockman
Phone: 61-9-949-2427 (Home)
Phone: 61-9-949-1472 (Work)

(2) **INDIA:** The Indian station is located at the Udaipur Solar Observatory (USO) in Udaipur. This observatory is a part of the Physical Research Laboratory (PRL) in Ahmedabad. The PRL is under the Indian Space Research Organization (ISRO). Some departments of the ISRO are listed in the Department of Commerce's Entity List and exports to those departments are restricted. At one time the PRL was listed but no longer is. The Udaipur program is supported in part by PL 480 grants from the U.S. government through the National Science Foundation. The USO scientific and engineering staff provides on-site technical support and PRL provides administrative support. The GONG facility is located at:

Udaipur Solar Observatory
11 Vidya Marg
Udaipur 313 001
India

Phone: 29-456-06-26

All shipments are to be approved by and sent to:

PHYSICAL RESEARCH LABORATORY
Navrangpura
Ahmedabad 380 009
India

Attn.: Purchasing Officer
Phone: 91-79-462-129

(3) **SPAIN - CANARY ISLANDS**: The Canary station is on the island of Tenerife at the Observatorio del Teide. Observatorio del Teide is a part of the Instituto de Astrofisica de Canarias (IAC), based in La Laguna, Tenerife. The IAC scientific and engineering staff provides on-site support. The Consignee listed on the export documents for the Spanish GONG Site is:

INSTITUTO de ASTROFISICAS de CANARIAS
Via Lactea
E-38200 La Laguna
Tenerife, Canary Islands
Spain

Attn.: Sra. Rosa M. Gonzales Gomez
Phone: 34-922-605-214

(4) **CHILE:** The Chilean station is at the Cerro Tololo Inter-American Observatory (CTIO) based in La Serena. CTIO is operated by NOAO as noted above. The NOAO-South scientific and engineering staff provides on-site support. The principal point of contact is the NOAO-South engineering technician assigned to support GONG. The shipping addresses are the same as those to CTIO.

PART 4
CORPORATE POLICY COMMITTMENT

The AURA Corporate Office on September 17, 1996 issued a statement concerning Corporate Policy on Export Control. This policy is also included in the NOAO/Gemini employees' handbook that is issued to all NOAO and Gemini employees. Attachment A to this Part is a copy of the Corporate Export Commitment statement. This statement will be updated as required.

ATTACHMENT G

S. Wolff

AURA

ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY, INC.

SUITE 550
1625 MASSACHUSETTS AVENUE, N.W.
WASHINGTON, D.C. 20036
FAX: 202-483-2106
202-483-2101

MEMORANDUM

TO: Center Directors

FROM: Goetz K. Oertel, President

DATE: September 17, 1996

SUBJECT: Statement of AURA Export Control Commitment

In order to comply with revised requirements of the Bureau of Export Administration, U.S. Department of Commerce, the following is promulgated as AURA's Export Control Commitment, effective immediately.

It is AURA Policy that all employees, visitors, grantees, or other individuals utilizing AURA facilities comply with United States export policies and regulations. Under no circumstances will exports be made contrary to U.S. export regulations by any individuals operating on behalf of AURA. In addition, no exports will be made on behalf of AURA to activities covered under the Enhanced Proliferation Control Initiative (such as Nuclear nonproliferation controls, Missile Technology nonproliferation controls, and Chemical & Biological Weapons foreign policy nonproliferation controls).

Violations of the Export Administration Act or any regulation, order or license issued thereunder, including conspiracies to violate, are subject to severe criminal and civil penalties. Knowing violations may be punished by fines of up to five times the value of the export involved or $50,000 (whichever is greater), or imprisonment for up to five years, or both. Willful violations are punishable by fines of up to $1,000,000 ($250,000 in the case of an individual) or imprisonment of up to five years, or both. Civil penalties may be imposed of up to $10,000 for each violation ($100,000 for national security control violations). See Part 787 of Title 15, Code of Federal Regulations. In addition, violations of this policy will result in appropriate disciplinary action with respect to the employment of the individual(s) involved.

Questions concerning export regulations should be directed to the Manager of NOAO Procurement, Clark Enterline, at (520) 318-8277, who is designated as the AURA Export Control Administrator (ECA). Should any AURA employee become aware of violations of U.S. export regulations on the part of or at any AURA facility, they should report such violations to either the AURA Export Control Administrator, the AURA President, or the Department of Commerce's Bureau of Export Administration.

Please provide this statement to all employees involved in export-related activities for AURA. Thank you.

PART 5
AURA EXPORT CONTROL ORGANIZATION

1) EXPORT ORGANIZATION FOR NSF-RELATED ACTIVITIES

A) **AURA IMPORT/EXPORT CONTROL OFFICER FOR NSF-RELATED ACTIVITIES (hereafter identified as the ECO-NSF)**: The individual listed below is designated as the AURA Import/Export Control Officer for those AURA-related activities funded by the National Science Foundation, and is responsible for maintaining control of all exports for those NSF-related activities. This individual will also be available to the NASA-related sites for consultations on and assistance with any export-related problem or question concerning those activities relating to non-Department of State export regulations.

Clifford D. Aldrich,
AURA Import/Export Control Officer
P. O. Box 26732
950 N. Cherry Ave.
Tucson, AZ 85726

(520) 318-8126
(520) 318-8320 (fax)
caldrich@noao.edu

The ECO-NSF is responsible for all export-related activities for NOAO and GEMINI facilities, both domestic and international. This includes the overall responsibility for ensuring that these facilities comply with all appropriate export regulations concerning both the export of goods and services and for the transfer of controlled technology.

The ECO-NSF's activities will be to report to the AURA Corporate Office the export activities for which he/she is responsible.

The ECO-NSF will advise the local sites concerning specific export activities relating to that specific site. The activities located overseas will not have an on-site Certified Export Control Officer but the ECO-NSF will work with the directors at those sites concerning export and technology transfer activities at those sites.

a) **ECO-NSF Responsibilities**: The responsibilities of the ECO-NSF include:

(1) **AURA EXPORT CONTROL POLICY**: Responsible for working with the AURA Corporate Office in determining the AURA Export Policy as detailed in the AURA Policy Manual.
(2) **INTERACT WITH SITE CONTRACTUAL ACTIVITIES**: Responsible for working with site contracting personnel to ensure that specific contracts and MOUs comply with U.S. government export control policies and protect AURA from overzealous contractors violating U.S. government export regulations.
(3) **EXPORT LICENSE APPLICATIONS**: Responsible for applying to the various U.S. government agencies for approval to export products and technologies.
(4) **DDTC TECHNICAL ASSISTANCE AGREEMENTS**: Responsible for obtaining Technical Assistance Agreements for the release of DDTC-controlled technology to foreign national visitors and employees.
(5) **COMMODITY and JURISDICTION CLASSIFICATIONS**: Responsible for applying to the various U.S. government agencies for both commodity classifications requests and commodity jurisdiction requests.
(6) **ON-SITE CERTIFIED EXPORT CONTROL OFFICER TRAINING**: Responsible for training the CECOs in both export controls and international shipping activities.

(7) **ON-SITE EMPLOYEE TRAINING**: Responsible for training on-site employees in both export controls and technology transfer issues. This training will include both periodic lectures and newsletter articles. Training will take place at US and Chilean sites.

(8) **INTERNATIONAL MATERIALS SHIPPING CONTROL**: Responsible for ensuring that AURA international shipments comply with the various shipping regulations.

(A) **INTERNATIONAL HAZARDOUS MATERIALS SHIPPING CONTROL**: As delegated by the AURA Safety Officer, responsible for ensuring that international shipments comply with IATA Hazardous Materials Regulations.

(B) **INTERNATIONAL PACKAGING COMPLIANCE CONTROL**: Responsible for ensuring that all sites comply with international packing regulations

(9) **AURA IMPORT MANAGEMENT**: Responsible for advising sites concerning the importation of goods and materials.

(10) **PERSONNEL MONITORING**: Responsible for advising all sites of individuals within the organization that do not have TSR Certifications in their files to prevent unauthorized access to controlled data.

B) **ON-SITE CERTIFIED EXPORT CONTROL OFFICER (hereafter referred to as the CECO):** The ECO-NSF is supported by the CECO at the primary contract sites.

The ECO-NSF will delegate the day-to-day export functions for the NOAO and Gemini domestic sites to an individual who is certified as an export control officer by the International Export-Import Institute. This certification insures that the on-site individual will be sufficiently trained in export control activities to make sure that the policies and regulations established by the controlling U.S. government export agencies and the ECO-NSF are properly implemented.

The CECO will be responsible for (1) implementing the specific procedures initiated by the ECO-NSF concerning the export activities for which he/she is responsible; (2) advising the ECO-NSF concerning site-unique and site-specific export activities; and (3) advising the site's top management concerning site-related export control activities.

a) **CECO Responsibilities**: The responsibilities of the CECOs include:

(1) **PURCHASING & CONTRACTING ACTIVITIES**:

(A) Coordinate with local Purchasing Managers to determine if the materials purchased would require either an export license or some export controls within the organization;

(B) Work with local contracting activities regarding the inclusion of clauses in contracts relating to export controls;

(C) Advise the ECO-NSF of any materials and/or technical data controlled for export by the Directorate of Defense Trade Controls (DDTC).

(2) **INTERNATIONAL SHIPMENTS**:

(A) Interact with local supervisors concerning the activities of site Shipping and Receiving facilities and contracted freight forwarders;

(B) Ensure that international shipments comply with export regulations;

(C) Electronically file the export declaration via the AES system;

(D) Ensure that international shipments are properly documented and comply with:

(a) IATA Hazardous Materials Regulations

(b) ISPM-15 *Guidelines for Regulating Wood packaging material in International Trade*;

(E) Ensure that international shipments are not consigned to any individual or entity listed on one of the prohibited lists or embargoed countries:

(a) DDTC Debarment List:

http://www.pmddtc.state.gov/debar059intro.htm

(b) BIS Denied Parties Listing - individuals who have violated the law and had their export privileges denied:

http://207.96.48.13/dpl/thedeniallist.asp

(c) BIS Entity List - sites that are prohibited from receiving certain exports:

http://www.access.gpo.gov/bis/ear/pdf/744spir.pdf

(d) OFAC Embargo Listing – countries and organizations for which specific embargos and sanctions are in place:

http://www.treas.gov/offices/enforcement/ofac/programs/index.shtml

(e) OFAC Specially Designated Nationals List – a list of individuals and organization that have been determined to be either terrorist, terrorist supporting or otherwise a threat to the US Security:

http://www.treas.gov/offices/enforcement/ofac/sdn/t11sdn.pdf

(F) Reviews information or technical data transferred to foreign institutions and/or foreign individuals to ensure that they are not released to any individual named on one of the prohibited lists as detailed above.

(3) **INTERNATIONAL TRAVEL**:

(A) Issue travel advisories to employees traveling overseas.
(B) Advise international travelers of export and import control regulations.

(4) **EMPLOYEE TRAINING AND AWARENESS**:

(A) Conduct training seminars as requested by local individuals and departments;
(B) Draft and issue employee export awareness memos;

(5) **PROPERTY DISPOSAL**:

(A) Coordinate with local Property Officers to ensure that materials and equipment loaned to foreign institutions or individuals comply with U.S. government export controls;
(B) Coordinate with local Property Officers to ensure that the disposal of excess property complies with U.S. government export controls.

(6) **MAIL**:

(A) Ensure that international mail is properly monitored to ensure that controlled materials are not distributed to any individual or entity listed on one of the prohibited lists or within embargoed countries.

(7) **GRANTS**:

(A) Coordinate with local Grants Officers to ensure that grants are not issued to individuals listed on any of the prohibited lists as detailed in 1Cb4(A) through (E), above.
(B) Ensure that grants entered into by AURA employees do not have investigators listed on any of the prohibited lists as detailed in 1Cb4(A) through (E), above.

(8) **VISITORS, NON-OBSERVING**:

(A) Interact with the appropriate departments to ensure that visitors are monitored and that they do not receive unauthorized access to controlled technical data or equipment.

(9) **CLOSED WORKSHOPS, MEETINGS and PROJECT REVIEWS**:

(A) Review the proposed agenda to determine if a controlled technology will be released.
(B) Work with the individual meeting coordinators to determine if any foreign nationals will be attending.
(C) Ensure that the proper certifications are obtained or export licenses issued.

(10) **EMPLOYEES**:

(A) Consult with various departments concerning whether or not new hires will require an export license to work in the position for which they will be hired.
(B) Work with Human Resources to ensure that current, foreign national employees are either licensed for their intended work or have a TSR certification in their file.
(C) Work with supervisors to ensure that those foreign national employees who do not have a TSR Certification in their files do not gain access to controlled technology.
(D) Advise the AURA Import/Export Control Officer for NSF-Related of any employee who does not have a TSR Certification completed.

(11) **IMPORTS**:

(A) Certain technical items under control of the Office of Defense Trade Controls require an Import License prior to their import into the United States. As such, all items imported to NOAO facilities of a technical nature are to be approved by the CECO prior to their shipment to the AURA facility.

2) EXPORT ORGANIZATION FOR NASA-RELATED ACTIVITIES

A) **AURA IMPORT/EXPORT CONTROL OFFICER FOR NASA-RELATED ACTIVITIES (hereafter referred to as the ECO-NASA)**: The individual listed below is designated the AURA Import/Export Control Officer for those sites and grants funded by the National Aeronautics and Space Administration and is responsible for maintaining control of all exports for the NASA-related sites. This individual will also be available to the NSF-related sites for consultations on and assistance with any export-related problem or question concerning those activities relating to Department of State export regulations.

The ECO-NASA is responsible for all export-related activities for Space Telescope Science Institute operations. This includes the overall responsibility for ensuring that these facilities comply with all appropriate export regulations concerning both the export of goods and services and for the transfer of controlled technology.

Lynn Kozloski,
AURA Import/Export Control Officer
3700 San Martin Drive
Baltimore, MD 21218

(410) 338-4355
lkozloski@stsci.edu

3) **EXPORT CONTROL ORGANIZATION CHART**: The organization of the export control staff dealing with NSF-related activities is listed below in figure 1. It should be noted that while the on-site CECOs report to the ECO-NSF, they advise their respective site directors and senior staff in all areas of export control. The ECO-NSF reports to the AURA Vice president for Administration but also advises all Associate Directors, Senior Staff and AURA partners concerning export controls.

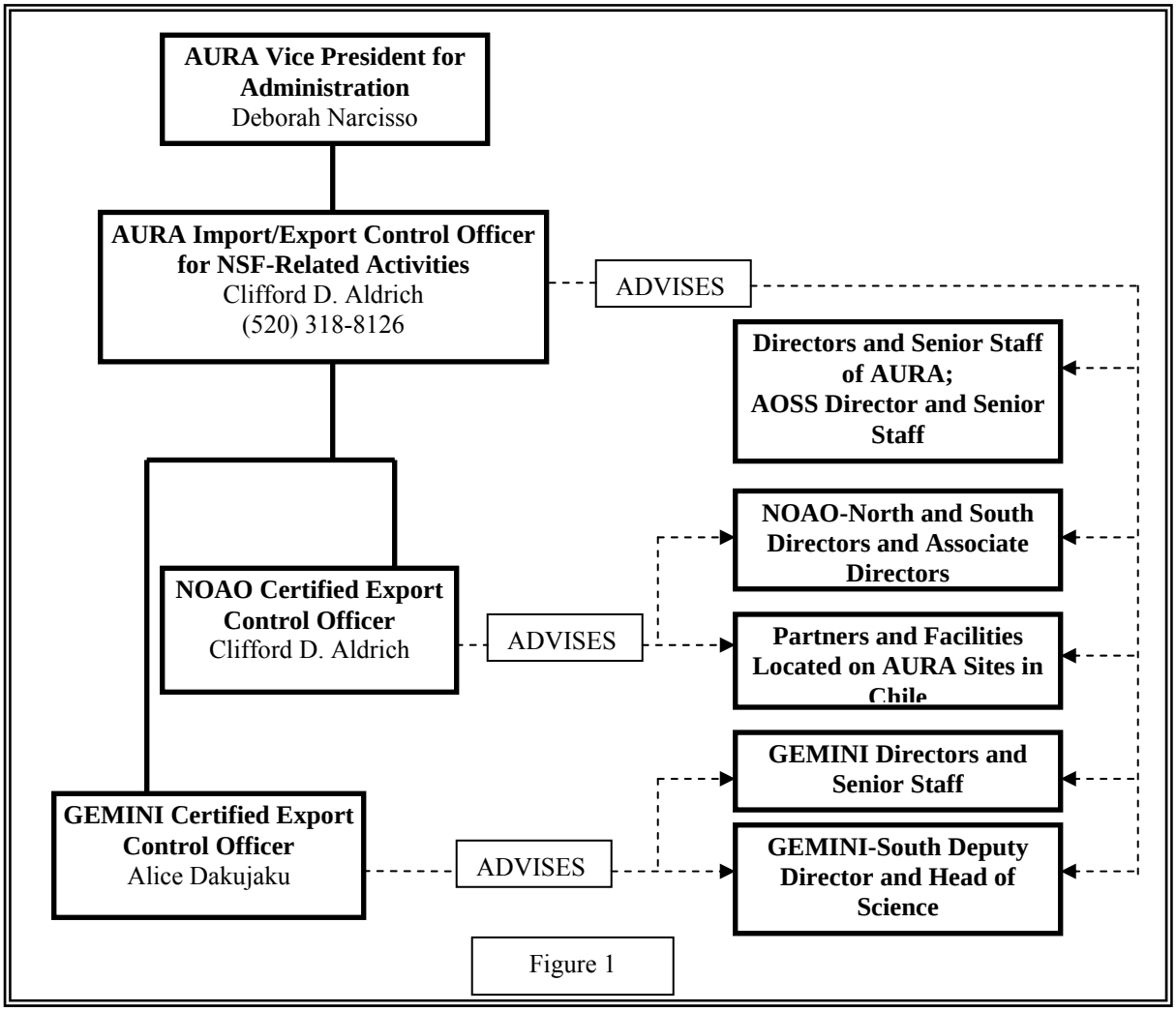


Figure 1

PART 6
FUNDAMENTAL RESEARCH

1) **INTRODUCTION**: As a scientific research organization, the vast majority of the work produced by AURA personnel under the prime NASA Contract and NSF Grants are considered “Fundamental Research” by the U.S. government agencies controlling exports.

The primary regulations governing the release of technology are BIS, DDTC and OFAC. The following is taken form the Export Administration Regulations (15 CFR 734) but the International Traffic in Arms Regulations governing the release of defense technology is similar.

NOTE: It should be noted that fundamental research may be exempt from some export provisions but the equipment and technical data used to conduct that research may not be exempt from the regulations.

2) **FUNDAMENTAL RESEARCH**: In accordance with 15 CFR 734.8, “Fundamental Research" is basic and applied research in science and engineering where the resulting information is ordinarily published and shared broadly within the scientific community. It is distinguished from proprietary research and from industrial development, design, production, and product utilizations, the results of which ordinarily are restricted for proprietary and/or specific national security reasons. Normally, the results of "fundamental research" are published in scientific literature, thus making it publicly available. Research which is intended for publication, whether it is ever accepted by scientific journals or not, is considered to be "Fundamental Research." A large segment of academic research is considered "Fundamental Research." Because any information, technological or otherwise, that is publicly available is not subject to the Export Administration Regulations (EAR) (except for encryption object code and source code in electronic form or media) and thus does not require a license, "Fundamental Research" is not subject to the EAR and does not require a license.

"Fundamental Research" can be distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary reasons or specific national security reasons.

A) **University Based Research**: Research conducted by scientists, engineers, or students at a university normally will be considered fundamental research. "University" means any accredited institution of higher education located in the United States.

a) Prepublication review by a sponsor of university research, solely to insure that the publication would not inadvertently divulge proprietary information that the sponsor has furnished to the researchers, does not change the status of the research as fundamental research.
b) The release of information from a corporate sponsor to university researchers where the research results are subject to prepublication review, is subject to the export controls.
c) Prepublication review by a sponsor of university research solely to ensure that publication would not compromise patent rights does not change the status of fundamental research, so long as the review causes no more than a temporary delay in publication of the research results.
d) The initial transfer of information from an industry sponsor to university researchers is subject to export controls where the parties have agreed that the sponsor may withhold from publication some or all of the information so provided.
e) University based research is not considered "Fundamental Research" if the university or its researchers accept other restrictions on publication of scientific and technical information resulting from the project or activity.
f) Scientific and technical information resulting from the research will nonetheless qualify as “Fundamental Research” once all such restrictions have expired or have been removed.
g) University based research is not considered "Fundamental Research" if a university or its researchers accept specific national security controls on a research project or activity sponsored by the U.S. Government.

B) **Federally Funded Research and Development Corporations (FFRDCs)**: Research based at Federal agencies or FFRDCs research conducted by scientists or engineers working for a Federal agency or a Federally Funded Research and Development Center (FFRDC) may be designated as "Fundamental Research" within any appropriate system devised by the agency or the FFRDC to control the release of information by such scientists and engineers. AURA is considered an FFRDC.

C) **Corporate Research**: Corporate research conducted by scientists or engineers working for a business entity will be considered "Fundamental Research" at such time and to the extent that the researchers are free to make scientific and technical information resulting from the research publicly available without restriction or delay based on proprietary concerns or specific national security controls.

a) Prepublication review by the company solely to ensure that the publication would compromise no proprietary information provided by the company to the researchers is not considered to be a proprietary restriction.
b) The release of information to university researchers where the research results are subject to prepublication review is subject to export controls.
c) Prepublication review by the company solely to ensure that publication would compromise no patent rights will not be considered a proprietary restriction for this purpose, so long as the review causes no more than a temporary delay in publication of the research results.
d) However, the initial transfer of information from a business entity to researchers is not authorized under the "fundamental research" provision where the parties have agreed that the business entity may withhold from publication some or all of the information so provided.

D) **Other Research**: Research based elsewhere conducted by scientists or engineers who are not working for any of the institutions described above will be treated as corporate research.

3) **PUBLISHED INFORMATION AND SOFTWARE**: Information is "published" when it becomes generally accessible to the interested public in any form, including:

A) Publication in periodicals, books, print, electronic, or any other media available for general distribution to any member of the public or to a community of persons interested in the subject matter, such as those in a scientific or engineering discipline, either free or at a price that does not exceed the cost of reproduction and distribution;
B) Ready availability at libraries open to the public or at university libraries;
C) Patents and open (published) patent applications available at any patent office; and
D) Release at an open conference, meeting, seminar, trade show, or other open gathering.

a) A conference or gathering is "open" if all technically qualified members of the public are eligible to attend and attendees are permitted to take notes or otherwise make a personal record (not necessarily a recording) of the proceedings and presentations.
b) All technically qualified members of the public may be considered eligible to attend a conference or other gathering notwithstanding a registration fee reasonably related to cost and reflecting an intention that all interested and technically qualified persons be able to attend, or a limitation on actual attendance, as long as attendees either are the first who have applied or are selected on the basis of relevant scientific or technical competence, experience, or responsibility.

E) "Publication" includes submission of papers to domestic or foreign editors or reviewers of journals, or to organizers of open conferences or other open gatherings, with the understanding that the papers will be made publicly available if favorably received.
F) Software and information is published when it is available for general distribution either for free or at a price that does not exceed the cost of reproduction and distribution.

4) **RELEASE OF TECHNOLOGY OR SOFTWARE**:

A) Technology or software is "released" for export through:

a) Visual inspection by foreign nationals of U.S.-origin equipment and facilities;
b) Oral exchanges of information in the United States or abroad; or
c) The application to situations abroad of personal knowledge or technical experience acquired in the United States.

B) Any release of technology or source code subject to export controls to a foreign national of another country is deemed a re-export to the home country or countries of the foreign national. However, this deemed re-export definition does not apply to persons lawfully admitted for permanent residence. Note that the release of any item to any party with knowledge or reason to know a violation is about to occur is prohibited.

5) **FOREIGN NATIONALS**: A foreign national is considered to be any individual holding citizenship in a foreign country who (1) has not been granted permanent residence, as demonstrated by the issuance of a permanent resident visa (i.e., "Green Card"); or (2) has not been granted U.S. citizenship; or (3) who has not been granted status as a "protected person" under 8 U.S.C. 1324b(a)(3).

PART 7
INDIVIDUAL ACTIVITY CONTROL PROCEDURES

1) **INTERNATIONAL TRAVEL**:

1) Export control of the international traveler within the AURA environment begins with the submission of a document that authorizes the travel that will hereafter be referred to as a Travel Request. This Travel Request is the authorization for the traveler to go on a specific trip and ensures that he/she is covered by AURA insurance.

All export rules and procedures stated in this document apply to materials hand carried out of the US by AURA employees or foreign visitors. However, some special precautions must be followed since visitors and some international travelers may not be aware of current export regulations.

A) The Accounting employee receiving the Travel Request will notify the CECO when an employee is traveling overseas by forwarding a copy of the Travel Request (TR) to the CECO.
B) The Hand Carried Notification Memo (Attachment A to this section) will be forwarded to the employee. This memo includes both export control information and safety information supplied by the Safety Officer.
C) If the traveler travels overseas several times each year, this memo will only be forwarded to him or her once every six months, rather than each time he/she travels.
D) Travelers will be told to register any foreign made items with U.S. Customs prior to departure so that they are not assessed duties on the foreign made items when they return to the U.S and pass through Customs.
E) Travelers who are hand carrying materials (laptop computers, cameras, etc.) overseas with the intention of bringing the items back with them will be given the appropriate CIPL and if necessary the AES ITN number, and documentation to assist the traveler in clearing customs in the country of destination. The CECO will file the necessary export information with AES and provide copies of that filing to the employee.
F) Travelers carrying items to be left in the country of destination will be given all the export and import documentation necessary to exit the U.S. and enter the country of destination. Hand carrying items overseas that are to be left in the foreign country is strongly discouraged.

2) **AURA-PRODUCED TECHNICAL DATA:**

A) The astronomical community is a large family, and employees from various domestic and international observatories visit each other and communicate via electronic mail, facsimile, telephone and mail on a regular basis. According to the AURA Policy Manual (Article XVI - Classified Research), nothing produced by NOAO is classified or restricted for publication or general dissemination. The classifications of technical data held by AURA sites are:

a) FUNDAMENTAL RESEARCH: The majority of scientific and engineering research data generated by AURA is freely available to the public and is considered "Fundamental Research". "Fundamental Research" is not controlled for export. See Part 6 of this document for a complete description of FUNDAMENTAL RESEARCH.
b) ENGINEERING DATA: In the promotion of astronomy, much of the technical data created by AURA sites in the support of instrumentation, telescope production and equipment support are also freely available to the interested public.

Occasionally, however, proprietary information or manufacturers' specification sheets are obtained which have some export restrictions applicable to them. When that occurs, the on-site Certified Export Control Officer will take all appropriate action to ensure that the data holder and department are aware of potential export restrictions and that the materials must be prevented from being transmitted overseas or relayed (electronically, verbal, or otherwise) to foreign locations or foreign nationals without proper export documentation.

In addition, some of the technical data may be controlled by one of the controlling U.S. government agencies; password-protected servers and firewalls keep the data separate from the general public.

c) Twice each year, or as otherwise warrants, the ECO-NSF will distribute to the CECO and the directors of the various programs in Chile, a list of employees or visitors who are not to be granted access to the secure technical data.
d) The CECO will ensure that this list is disseminated to his or her director and all personnel and departments holding controlled data.

3) **INTERNATIONAL TRANSPORTATION:**

A) Nothing is to be sent overseas without the CECO's knowledge and approval.

a) Before being sent overseas, all non-document shipments require the clearance of CECO.
b) The CECO will review and approve packing lists, certificates of origin and other shipping documents prior to the actual shipment.
c) Items requiring export licenses will not be shipped until the license is received.

4) **PROPERTY CONTROL**:

A) The AURA sites are not involved with the selling of products. However, property is frequently donated, loaned, scrapped or otherwise disposed of. AURA Facilities are prohibited from disposing of government and AURA property unless specifically approved by the National Science Foundation through the government property control procedures.
B) To ensure that AURA's disposal of any property does not violate any export regulation, no property will be disposed of in any manner without the approval of the CECO. Only after the following checks have taken place and approval received by the CECO, will the property be cleared for transfer.

a) All consignees, either domestic or international, will be checked against the Denied Party Lists, Embargoed lists, Entity List, DDTC Debarment List and Specially Designated National List.
b) All property transferred internationally will be checked against the Commodity Control List and the Munitions Control List.

5) **MAIL**:

A) An individual will be assigned at each site to check all outgoing international mail:

a) To ensure that nothing is sent to individuals listed on the Denied Party Lists, DDTC Debarment List and Specially Designated National List.
b) To ensure that nothing is sent to organizations on the Entity List or prohibited countries on the OFAC Embargoed List.
c) To determine the contents of oversize envelopes or packages.

B) If any mail is found to meet one of the above criteria, the CECO will be notified and will determine if the mail can be sent.
C) If the mail cannot be sent, the CECO will return the mail to the sender and talk to him or her about the restrictions prohibiting the mail from being sent.

6) **GRANTS**:

A) In order to conduct the scientific research, AURA scientists and engineers frequently apply for grants to various granting organizations. In addition, to some respect, AURA sites issue grants to interested scientists and engineers. Finally, AURA sites grant observing time to deserving astronomers based on merit of submitted time request proposals.
B) A Primary Investigator (PI) who may or may not be supported by any number of Co-Investigators (CO-I) normally manages grants. The vast majority of these grants concern fundamental research.

C) All grants issued by AURA or applied for by AURA personnel will be reviewed by the CECO to insure that the PI or CO-Is are not on any denied party list or subject to OFAC embargoes.

7) **PURCHASING**:

A) Export Control in the AURA/NOAO environment begins with the submission of a Purchase Requisition to the appropriate Procurement Office. All requisitions for the purchase of materials, software or technical data either actually destined for overseas locations; incorporated in instruments which will be sent overseas in the future; or which may be sent overseas in the future will be reviewed by the CECO. Copies of purchase orders that will require an export license, Commodity Classification Request or Commodity Jurisdiction Request will be forwarded to the ECO-NSF for processing.

B) **REQUISITION EXPORT REVIEW FLOWCHART:** Attachment B is the flow chart to be used by the site buyers in the review of each purchase requisition to determine whether or not it requires an export license.

8) **PERSONNEL**:

A) **New Hires, Temporary Hires and Summer Students**:

a) The CECO will work with individual departments to ensure that any foreign nationals that are hired comply with all appropriate regulations.

b) Eligible New Hires will be given the TSR Written Assurances Certifications (Attachment C) to sign.

(1) One copy will be kept in the CECO Files.
(2) One copy will be forwarded to the ECO-NSF.
(3) The original will be kept in the Human Resources personnel files.

c) Employees not eligible to sign the TSR Written Assurances Certifications will have their activities reviewed by the CECO and, when their activities do not include controlled technology, the employee's supervisor will sign the Deemed Export Exemption Certification - Employee (Attachment D).

(1) One copy will be kept in the CECO Files.
(2) One copy will be forwarded to the ECO-NSF.
(3) The original will be kept in the Human Resources personnel files.
(4) The CECO will enter the information into a spreadsheet and reissue the Deemed Export Exemption Certification every year to the supervisor to ensure that the employee's position has not changed.
(5) Upon receipt of the Deemed Export Exemption Certification, the ECO-NSF will issue a warning to all NOAO and Gemini Directors, including Engineering, Data Processing and other technical departments, advising them that the individual is employed and is not to be given access to controlled data or web sites.
(6) Supervisors are expected to monitor the employee's activities to ensure that no controlled technology is released to the employee.
(7) If any changes are made to the employee's activities that may include the release of controlled technology, the supervisor will notify the CECO, who will contact the ECO-NSF and determine if an export license is required.

d) Employees not eligible to sign either the TSR Written Assurances Certifications or the Deemed Export Exemption Certification will have their activities reviewed by the CECO and ECO-NSF, and an export license application will be submitted.

(1) These employees cannot begin the activities for which they were hired until the export license is approved.
(2) Human Resources and the individual departments will assist in gathering the necessary documentation for the completion of the export license.

B) **Visitors:**

a) The CECO with work with individual departments to ensure that any foreign visitors that are hired comply with all appropriate regulations.
b) If the visitors are to be given access to controlled technologies:

(1) Eligible visitors will be given the TSR Written Assurances Certification - Visitor (Attachment E) to sign.
(2) One copy will be kept in the CECO Files.
(3) One copy will be forwarded to the ECO-NSF.
(4) The original will be kept in the visiting department's files.
(5) Visitors not eligible to sign the TSR Written Assurances Certifications will have their activities reviewed by the CECO and ECO-NSF, and an export license application will be submitted.

(A) These visitors cannot begin the activities for which they were visiting until the export license is approved.
(B) The individual departments will assist in gathering the necessary documentation for the completion of the export license.

c) If the visitors are not to be given access to controlled technologies, their activities will be reviewed by the CECO and, when their activities do not include controlled technology, the visitor's host will sign the Deemed Export Exemption Certification (Attachment D).

(1) The original will be kept in the CECO Files.
(2) One copy will be forwarded to the ECO-NSF.
(3) If any changes are made to the employee's activities that may include the release of controlled technology, the supervisor will notify the CECO, who will contact the ECO-NSF and determine if an export license is required.

9) **CLOSED WORKSHOPS, MEETINGS and PROJECT REVIEWS:**

A) Meetings or workshops in which attendance is limited to an invited few, even though designed to discuss fundamental research, do not enjoy the same export control exemptions as do open meetings such as the AAS meetings.
B) The CECO with work with individual departments holding closed workshops or meetings to ensure that any foreign nationals that are in attendance comply with all appropriate regulations and are not given controlled technologies. If they are to have access to controlled technologies, the procedures for Visitors (paragraph 8.B), above will be followed.
C) The departments holding the workshops or meetings will notify the CECO as soon as possible to advise him/her of the workshop and if foreign nationals will be invited.
D) When the attendee list for the meeting is completed, the list of foreign nationals and their country of nationality will be submitted to the CECO for review.
E) The meeting host will be given the Deemed Export Exemption Certification - Visitor (Attachment E) to complete. A list of the foreign attendees and their nationalities will be attached.

a) One copy will be kept in the CECO Files.
b) One copy will be forwarded to the ECO-NSF.
c) The original will be kept in the workshop/meeting files.

PART 7
ATTACHMENT A

NOAO EXPORT MEMORANDUM

DT:

TO: NOAO Traveler
FM: Cliff Aldrich, NOAO Export Control Officer

RE: Carrying Equipment, Software & Technical Data to or from Foreign Destinations

I have been advised that you intend to travel to a foreign destination in the near future. To ensure that your travel to and from that destination goes smoothly, you should be aware of certain export and import restrictions as well as some safety issues that you may encounter on your travels.

1. **EXPORTATION OF EQUIPMENT, SOFTWARE, OR TECHNICAL DATA**: To protect both you and AURA from fines and penalties caused by illegally exporting restricted equipment, software, and/or technical data, you should be aware that certain items are prohibited for export by the US Departments of State and/or Commerce. The regulations are continually changing, so what you have taken with you on previous trips may now be restricted. Simply because you experienced no problem exiting the US in the past with similar items is no guarantee that you will not have problems in the future.

   In the vast majority of cases, the restrictions are passive and will result in no inconvenience to you. However, in some cases, the restrictions are complicated and may interfere with your schedule if you delay in obtaining the proper export clearances. Violation of the regulations can result in severe fines, penalties and/or export restrictions for NOAO. For example, certain high-speed computers (High-end Suns or PCs with multiple processors) and some off-the-shelf, retail software programs that include encryption (i.e. Microsoft Outlook, Office and certain Windows programs) may require an export license from the Department of Commerce. In addition, some technical data, manufacturers' specification sheets, and technical publications may be restricted by several different government agencies for your destination.

   All non-personal items either valued in excess of $2,500 or restricted for export (such as encrypted software) require the submission of an Export Declaration to U.S. Customs. I will complete that declaration and submit it electronically to Customs. This process may take up to a day so contact me in advance of your departure with a list of the items you intend to take with you.

   Laptops are not regulated but the software may be. Normally, encrypted software (i.e. Microsoft Office, Netscape, Outlook, etc.) requires an export declaration because of the encryption contained in the programs. However, because you are hand carrying the computer and because the software meets the following Foreign Trade Statistics Regulations (FTSR) requirements, no export documentation is required. If these requirements do not apply, let me know and I will complete the necessary documentation:

   1. Are owned by the individual exporter or exporting company;
   2. Accompany the individual exporter, employee or representative of the exporting company;
   3. Are necessary and appropriate and intended for the personal use and/or business use of the individual exporter, employee or representative of the exporting company or business;
   4. Are not intended for sale; and
   5. Are returned to the United States no later than one year from the date of export.

   If questioned by a Customs Officer in the US, simply let them know that your system meets the requirements of FTSR paragraph 30.56(b).

   Because some export approvals can take weeks or months to obtain, it is important that you contact me as soon as possible to determine whether the items you intend to take are restricted.

2. **HAND CARRYING ITEMS OVERSEAS**: At times you may be asked by a foreign compatriot to bring a specific item with you because the item is urgently needed and it is felt that hand carrying the items will get it there faster than shipping it. This is a misconception.

   You will be required at the foreign destination to declare anything that you have with you that will not leave the country with you when you depart. Failure to declare the hand carried item is a violation of that country's law. All it takes to get caught is a zealous customs inspector to find the undeclared item.

   If you do declare it, the item will be taken from you and set aside until the proper customs paperwork is completed. Because the item will not be properly identified or placed in a secure location, the chance that it will become lost or stolen is vastly increased. In addition, matching up the customs paperwork with the item may be difficult and time consuming.

Remember, Federal Express takes only a matter of a few days to reach the majority of overseas destinations.

3. **TRANSFER OF TECHNOLOGY**: Discussing restricted technology with foreign nationals whether within the US or in a foreign country is considered the export of that restricted technology to the foreign nationals' country. Such transfers may require an export license from the US government.

   Discussing scientific research programs, talking about science-related issues, or conversing about anything available in print, in libraries or on the web is not considered a transfer of technology and is not restricted. A general discussion on the use of equipment, technology or detectors is also not of concern.

   However, if you intend to get into detailed descriptions of IR detectors, large format CCD detectors, deformable mirrors, micro-mirror technology, IR/CCD Cameras or similar topics, then you need to be concerned about the Technology Transfer issue. For example, talking about the construction of an infrared camera may not be controlled. Discussing the criteria and engineering technology that went into the actual design of the instrument may be controlled. Discussing a detector may not be a problem but discussing the detector's construction or its internal operations may be restricted. Care must be taken as the discussions gets deeper and deeper into a specific issue, project or instrument.

   Companies have gotten into serious trouble with the US government when their personnel were approached during an innocent visit and asked for assistance on how to correct a specific problem with a specific instrument.

   If you have any concerns about Technology Transfer, contact me prior to your trip. While an export license may be required in some cases, in others it is simply a matter of having the foreign national sign a letter promising not to transfer the technology to restricted countries or citizens of those countries.

4. **IMPORTATION OF FOREIGN MADE EQUIPMENT**: All foreign made items (cameras, computers, tape recorders, etc.) imported into the US are subject to Customs Duties if the traveler cannot prove that the item was in the US prior to being taken overseas. Unfortunately, the item's age or condition is not sufficient proof.

   If you intend to take a foreign made item (either personal or NOAO property) with you when traveling overseas and you do not have the original Bill of Sale, it is important that this item be registered with US Customs. The process is simple and only takes a few minutes. The only certain method of proving that an item was in the US prior to the overseas trip is a Certificate of Registration (Customs Form 4455). This certificate remains with the item and is valid for the life of the registered item.

   Because you didn't have to pay duties on your Sony Camera the last time you traveled is no guarantee that you won't have to pay on your next trip.

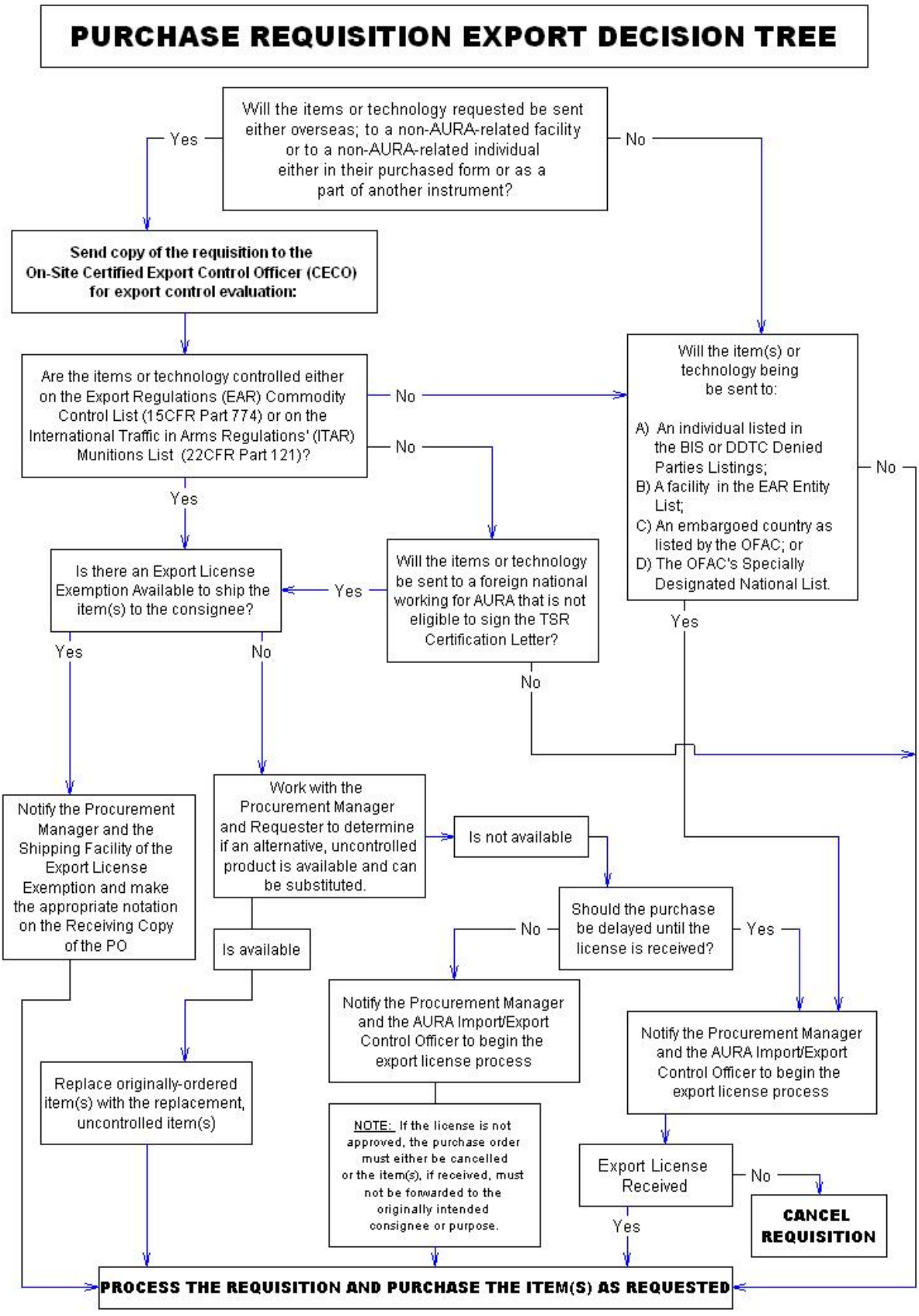
5. **IMPORTATION OF EQUIPMENT OBTAINED OVERSEAS**: Certain items are restricted from importation by the US Department of State and Department of the Treasury (ATF - Alcohol, Tobacco & Firearms). While it is highly doubtful that you will bring back such items, it is important that you notify me if you intend to pickup, purchase, or otherwise obtain a technical or scientific item while overseas and bring it back to the US.

   Normal tourist items and retail purchases do not fall in this category and are governed by standard US government importation regulations. However, astronomical filters, lenses, observing equipment, detectors, software, etc., may either be restricted or subject to import duties and/or customs delays which could interfere with your travel schedule.

   If, while overseas, you are asked to take something back to NOAO for a collaborator; contact me via E-Mail and let's discuss the best method of transportation. If you have any doubts and are unable to contact me, have the person air freight the item to NOAO. The apparent convenience of hand carrying an item may be an illusion.

If you have any questions about these matters, please contact Clark Enterline at **EXT. 8277** or at E-Mail address: centerline@noao.edu

Rev 01/06


PURCHASE REQUISITION EXPORT DECISION TREE
Will the items or technology requested be sent either overseas; to a non-AURA-related facility or to a non-AURA-related individual either in their purchased form or as a part of another instrument?
Yes
No
Send copy of the requisition to the On-Site Certified Export Control Officer (CECO) for export control evaluation:
Are the items or technology controlled either on the Export Regulations (EAR) Commodity Control List (15CFR Part 774) or on the International Traffic in Arms Regulations' (ITAR) Munitions List (22CFR Part 121)?
No
Yes
Will the item(s) or technology being be sent to:
A) An individual listed in the BIS or DDTC Denied Parties Listings;
B) A facility in the EAR Entity List;
C) An embargoed country as listed by the OFAC; or
D) The OFAC's Specially Designated National List.
No
Yes
Is there an Export License Exemption Available to ship the item(s) to the consignee?
Yes
No
Will the items or technology be sent to a foreign national working for AURA that is not eligible to sign the TSR Certification Letter?
No
Yes
Notify the Procurement Manager and the Shipping Facility of the Export License Exemption and make the appropriate notation on the Receiving Copy of the PO
Work with the Procurement Manager and Requester to determine if an alternative, uncontrolled product is available and can be substituted.
Is not available
Is available
Should the purchase be delayed until the license is received?
No
Yes
Notify the Procurement Manager and the AURA Import/Export Control Officer to begin the export license process
Notify the Procurement Manager and the AURA Import/Export Control Officer to begin the export license process
Replace originally-ordered item(s) with the replacement, uncontrolled item(s)
NOTE: If the license is not approved, the purchase order must either be cancelled or the item(s), if received, must not be forwarded to the originally intended consignee or purpose.
Export License Received
No
Yes
CANCEL REQUISITION
PROCESS THE REQUISITION AND PURCHASE THE ITEM(S) AS REQUESTED

PART 7
Attachment C

NOAO EXPORT CONTROL
MEMORANDUM

DT: _____

TO: NOAO Human Resources Manager

CC: AURA Export Control Administrator

FM: _____

RE: Written Assurances per Paragraph 740.6 of the U.S. Export Administration Regulations

In accordance with the requirements set forth in paragraph 740.6 of the U.S. Export Administration Regulations – export license exception TSR for *Technology and Software Under Restriction* – I agree to the following restrictions on the transfer of the technology listed on Attachment 1 to this document which is subject to national security controls as defined in the Commerce Control List (supplement number 1 to the Export Administration Regulations).

Specifically, I will not:

A. Re-export or release the technology, software or the source code for the software to a national of a country listed in Country Group D:1 (Attachment 2 to this document and Supplement Number 1 to Part 740 of the Export Administration Regulations, pages 4 and 5) or E:2 (Attachment 2 to this document and Supplement Number 1 to Part 740 of the Export Administration Regulations, page 6); or

B. Export to Country Group D:1 or E:2 the direct product of the technology, software or the source code for the software, if such foreign produced product is subject to national security controls as defined on the CCL (Attachment 1 to this document and Supplement Number 1 to the Export Administration Regulations); or

C. If the direct product of the technology is a complete plant or any major component of a plant, export to Country Groups D:1 or E:2 the direct product of the plant or major component thereof, if such foreign produced direct product is subject to the U.S. national security controls as defined on the CCL or is subject to State Department controls under the U.S. Munitions List (22 CFR part 121).

Questions concerning this written assurance can be directed to Clark Enterline, Manager, NOAO Procurement (ext. 8277 or centerline@noao.edu).

Signed: _____

Print Name: _____

Country of Citizenship: _____

Position: _____

Date: _____

Attachment 1

RESTRICTED ARTICLES.

(Effective 01 May 2007)

In accordance with the Export Administration Regulations, any release of technology, including electronic mail and verbal discussions, concerning the **development** or **production** for the following items are restricted to any national of a country listed in Country Group D:1 or E:2.

DEVELOPMENT is defined as "related to all stages prior to serial production, such as; design, design research, design analysis, 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."

PRODUCTION is defined as "all production stages, such as; product engineering, manufacture, integration, assembly (mounting), inspection, testing, quality assurance."

6A002 Optical sensors.

a. Optical detectors, as follows:

Note: *6A002.a does not control germanium or silicon photodevices.*

N.B.: *Silicon and other material based 'microbolometer' non "space-qualified" "focal plane arrays" are only specified under 6A002.a.3.f.*

a.1. "Space-qualified" solid-state detectors, as follows:
a.1.a. "Space-qualified" solid-state detectors, having all of the following:
a.1.a.1. A peak response in the wavelength range exceeding 10 nm but not exceeding 300 nm; *and*
a.1.a.2. A response of less than 0.1% relative to the peak response at a wavelength exceeding 400 nm;
a.1.b. "Space-qualified" solid-state detectors, having all of the following:
a.1.b.1. A peak response in the wavelength range exceeding 900 nm but not exceeding 1,200 nm; *and*
a.1.b.2. A response "time constant" of 95 ns or less;
a.1.c. "Space-qualified" solid-state detectors having a peak response in the wavelength range exceeding 1,200 nm but not exceeding 30,000 nm;
a.2. Image intensifier tubes and specially designed components therefor, as follows:
a.2.a. Image intensifier tubes having all of the following:
a.2.a.1. A peak response in the wavelength range exceeding 400 nm but not exceeding 1,050 nm;
a.2.a.2. A microchannel plate for electron image amplification with a hole pitch (center-to-center spacing) of 12 μm or less; *and*
a.2.a.3. Any of the following photocathodes:
a.2.a.3.a. S-20, S-25 or multialkali photocathodes with a luminous sensitivity exceeding 350 μA/lm;
a.2.a.3.b. GaAs or GaInAs photocathodes; *or*
a.2.a.3.c. Other III-V compound semiconductor photocathodes;

Note: *6A002.a.2.a.3.c does not apply to compound semiconductor photocathodes with a maximum radiant sensitivity of 10 mA/W or less.*

a.2.b. Specially designed components, as follows:

a.2.b.1. Microchannel plates having a hole pitch (center-to-center spacing) of 12 μm or less;
a.2.b.2. GaAs or GaInAs photocathodes;
a.2.b.3. Other III-V compound semiconductor photocathodes;

Note: *6A002.a.2.b.3 does not control compound semiconductor photocathodes with a maximum radiant sensitivity of 10 mA/W or less.*

a.3. Non-"space-qualified" "focal plane arrays", as follows:

N.B.: *Silicon and other material based 'microbolometer' non"space-qualified" "focal plane arrays" are only specified in 6A002.a.3.f.*

Technical Notes:
1 *Linear or two-dimensional multi-element detector arrays are referred to as "focal plane arrays".*
2 *For the purposes of 6A002.a.3. 'cross scan direction' is defined as the axis parallel to the linear array of detector elements and the 'scan direction' is defined as the axis perpendicular to the linear array of detector elements.*

Note 1: *6A002.a.3 includes photoconductive arrays and photovoltaic arrays.*

Note 2: *6A002.a.3 does not control:*

a. Multi-element (not to exceed 16 elements) encapsulated photoconductive cells using either lead sulphide or lead selenide;
b. Pyroelectric detectors using any of the following:

b.1. Triglycine sulphate and variants;
b.2. Lead-lanthanum-zirconium titanate and variants;
b.3. Lithium tantalate;
b.4. Polyvinylidene fluoride and variants; or
b.5. Strontium barium niobate and variants.

a.3.a. Non-"space-qualified" "focal plane arrays", having all of the following:
a.3.a.1. Individual elements with a peak response within the wavelength range exceeding 900 nm but not exceeding 1,050 nm; *and*
a.3.a.2. A response "time constant" of less than 0.5 ns;
a.3.b. Non-"space-qualified" "focal plane arrays", having all of the following:
a.3.b.1. Individual elements with a peak response in the wavelength range exceeding 1,050 nm but not exceeding 1,200 nm; *and*
a.3.b.2. A response "time constant" of 95 ns or less;
a.3.c. Non-"space-qualified" non-linear (2-dimensional) "focal plane arrays", having individual elements with a peak response in the wavelength range exceeding 1,200 nm but not exceeding 30,000 nm;

N.B.: *Silicon and other material based 'microbolometer' non"space-qualified" "focal plane arrays" are only specified in 6A002.a.3.f.*

a.3.d. Non-"space-qualified" linear (1-dimensional) "focal plane arrays", having all of the following:
a.3.d.1. Individual elements with a peak response in the wavelength range exceeding 1,200 nm but not exceeding 2,500 nm; *and*
a.3.d.2. Any of the following :

a.3.d.2.a. A ratio of scan direction dimension of the detector element to the cross-scan direction dimension of the detector element of less than 3.8; *or*

a.3.d.2.b. Signal processing in the element (SPRITE);

a.3.e. Non-"space-qualified" linear (1-dimensional) "focal plane arrays", having individual elements with a peak response in the wavelength range exceeding 2,500 nm but not exceeding 30,000 nm.

a.3.f. Non-"space-qualified" non-linear (2-dimensional) infrared "focal plane arrays" based on 'microbolometer' material having individual elements with an unfiltered response in the wavelength range equal to or exceeding 8,000 nm but not exceeding 14,000 nm.

Technical Notes:

1 *For the purposes of 6A002.a.3.f. 'microbolometer' is defined as a thermal imaging detector that, as a result of a temperature change in the detector caused by the absorption of infrared radiation, is used to generate any usable signal.*

2 *Non- imaging thermal detectors are not controlled by 6A002.a.3. Imaging thermal detectors are a multi-element array of thermal detectors with the capacity to form a visual, electronic or other representation of an object with sufficient fidelity to enable understanding of its shape or other spatial characteristics, such as height, width, or area. A multi-element array of thermal detectors without the capacity to form spatial representation of an object is non-imaging.*

3 *6A002.a.3.f captures all non-"space-qualified"non-linear (2-dimensional) infrared "focal plane arrays" based on microbolometer material having individual elements with any unfiltered response between 8,000 nm and 14,000 nm.*

b. "Monospectral imaging sensors" and "multispectral imaging sensors" designed for remote sensing applications, having any of the following:

b.1. An Instantaneous-Field-Of-View (IFOV) of less than 200 μrad (microradians); *or*

b.2. Being specified for operation in the wavelength range exceeding 400 nm but not exceeding 30,000 nm and having all the following:

b.2.a. Providing output imaging data in digital format; *and*

b.2.b. Being any of the following:

b.2.b.1. "Space-qualified"; *or*

b.2.b.2. Designed for airborne operation, using other than silicon detectors, and having an IFOV of less than 2.5 mrad (milliradians).

c. Direct view imaging equipment operating in the visible or infrared spectrum, incorporating any of the following:

c.1. Image intensifier tubes having the characteristics listed in 6A002.a.2.a; *or*

c.2. "Focal plane arrays" having the characteristics listed in 6A002.a.3.

Technical Note: *"Direct view" refers to imaging equipment, operating in the visible or infrared spectrum, that presents a visual image to a human observer without converting the image into an electronic signal for television display, and that cannot record or store the image photographically, electronically or by any other means.*

Note: *6A002.c does not control the following equipment incorporating other than GaAs or GaInAs photocathodes:*

a. Industrial or civilian intrusion alarm, traffic or industrial movement control or counting systems;
b. Medical equipment;
c. Industrial equipment used for inspection, sorting or analysis of the properties of materials;
d. Flame detectors for industrial furnaces;
e. Equipment specially designed for laboratory use.

d. Special support components for optical sensors, as follows:

d.1. "Space-qualified" cryocoolers;

d.2.Non-"space-qualified" cryocoolers, having a cooling source temperature below 218 K (-55° C), as follows:

d.2.a. Closed cycle type with a specified Mean-Time-To-Failure (MTTF), or Mean-Time-Between-Failures(MTBF), exceeding 2,500 hours;

d.2.b. Joule-Thomson (JT) self-regulating minicoolers having bore (outside) diameters of less than 8 mm;

d.3. Optical sensing fibers specially fabricated either compositionally or structurally, or modified by coating, to be acoustically, thermally, inertially, electromagnetically or nuclear radiation sensitive.

e. "Space qualified" "focal plane arrays" having more than 2,048 elements per array and having a peak response in the wavelength range exceeding 300 nm but not exceeding 900 nm.

6A003 Cameras.

a. Instrumentation cameras and specially designed components therefor, as follows:

Note: *Instrumentation cameras, controlled by 6A003.a.3 to 6A003.a.5, with modular structures should be evaluated by their maximum capability, using plug-ins available according to the camera manufacturer's specifications.*

a.1. High-speed cinema recording cameras using any film format from 8 mm to 16 mm inclusive, in which the film is continuously advanced throughout the recording period, and that are capable of recording at framing rates exceeding 13,150 frames/s;

Note: *6A003.a.1 does not control cinema recording cameras designed for civil purposes.*

a.2. Mechanical high speed cameras, in which the film does not move, capable of recording at rates exceeding 1,000,000 frames/s for the full framing height of 35 mm film, or at proportionately higher rates for lesser frame heights, or at proportionately lower rates for greater frame heights;

a.3. Mechanical or electronic streak cameras having writing speeds exceeding 10 mm/μs;

a.4. Electronic framing cameras having a speed exceeding 1,000,000 frames/s;

a.5. Electronic cameras, having all of the following:

a.5.a. An electronic shutter speed (gating capability) of less than 1μs per full frame; *and*

a.5.b. A read out time allowing a framing rate of more than 125 full frames per second.

a.6. Plug-ins, having all of the following characteristics:

a.6.a. Specially designed for instrumentation cameras which have modular structures and that are controlled by 6A003.a; *and*

a.6.b. Enabling these cameras to meet the characteristics specified in 6A003.a.3, 6A003.a.4 or 6A003.a.5, according to the manufacturer's specifications.

b. Imaging cameras, as follows:

Note: *6A003.b does not control television or video cameras specially designed for television broadcasting.*

b.1. Video cameras incorporating solid state sensors, having a peak response in the wavelength range exceeding 10 nm, but not exceeding 30,000 nm and having all of the following:

b.1.a. Having any of the following:

b.1.a.1. More than 4×10^6 "active pixels" per solid state array for monochrome (black and white) cameras;

b.1.a.2. More than 4 x 10^6 "active pixels" per solid state array for color cameras incorporating three solid state arrays; *or*

b.1.a.3. More than 12 x 10^6 "active pixels" for solid state array color cameras incorporating one solid state array; *and*

b.1.b. Having any of the following:

b.1.b.1. Optical mirrors controlled by 6A004.a.;

b.1.b.2. Optical control equipment controlled by 6A004.d.; *or*

b.1.b.3. The capability for annotating internally generated camera tracking data.

Technical Notes:

1. For the purposes of this entry, digital video cameras should be evaluated by the maximum number of "active pixels" used for capturing moving images.
2. *For the purpose of this entry, camera tracking data is the information necessary to define camera line of sight orientation with respect to the earth. This includes: 1) the horizontal angle the camera line of sight makes with respect to the earth's magnetic field direction and; 2) the vertical angle between the camera line of sight and the earth's horizon.*

b.2. Scanning cameras and scanning camera systems, having all of the following:

b.2.a. A peak response in the wavelength range exceeding 10 nm, but not exceeding 30,000 nm;

b.2.b. Linear detector arrays with more than 8,192 elements per array; *and*

b.2.c. Mechanical scanning in one direction;

b.3. Imaging cameras incorporating image intensifier tubes having the characteristics listed in 6A002.a.2.a;

b.4. Imaging cameras incorporating "focal plane arrays" having any of the following:

b.4.a. Incorporating "focal plane arrays" controlled by 6A002.a.3.a. to 6A002.a.3.e.; *or*

b.4.b. Incorporating "focal plane arrays" controlled by 6A002.a.3.f.

Note 1: *'Imaging cameras' described in 6A003.b.4 include "focal plane arrays" combined with sufficient signal processing electronics, beyond the read out integrated circuit, to enable as a minimum the output of an analog or digital signal once power is supplied.*

Note 2: *6A003.b.4.a does not control imaging cameras incorporatinglinear "focal plane arrays" with twelve elements or fewer, not employing time-delay-and-integration within the element, designed for any of the following:*

a. Industrial or civilian intrusion alarm, traffic or industrial movement control or counting systems;

b. Industrial equipment used for inspection or monitoring of heat flows in buildings, equipment or industrial processes;

c. Industrial equipment used for inspection, sorting or analysis of the properties of materials;

d. Equipment specially designed for laboratory use; or

e. Medical equipment.

Note 3: *6A003.b.4.b. does not control imaging cameras having any of the following characteristics:*

a. A maximum frame rate equal to or less than 9 Hz;

b. Having all of the following:

1 *Having a minimum horizontal or vertical Instantaneous-Field -of-View (IFOV) of at least 10 mrad/pixel (milliradians/pixel);*

2 *Incorporating a fixed focal-length lens that is not designed to be removed;*

3 *Not incorporating a direct view display, and*

Technical Note: *'Direct view' refers to an imaging camera operating in the infrared spectrum that presents a visual image to a human observer using a near-to-eye micro display incorporating any light-security mechanism.*

4. Having any of the following:

a. No facility to obtain a viewable image of the detected field-of-view, or

b. The camera is designed for a single kind of application and designed not to be user modified, or

Technical Note:

Instantaneous Field of View (IFOV) specified in Note 3.b is the lesser figure of the Horizontal FOV or the Vertical FOV.

Horizontal IFOV = horizontal Field of View (FOV)/number of horizontal detector elements

Vertical IFOV= vertical Field of View (FOV)/number of vertical detector elements.

c. Where the camera is specially designed for installation into a civilian passenger land vehicle of less than three tons (gross vehicle weight) and having all of the following:

1. Is operable only when installed in any of the following:

a. The civilian passenger land vehicle for which it was intended; or

b. A specially designed, authorized maintenance test facility; and

2. Incorporates an active mechanism that forces the camera not to function when it is removed from the vehicle for which it was intended.

Note: *When necessary, details of the items will be provided, upon request, to the Bureau of Industry and Security in order to ascertain compliance with the conditions described in Note 3.b.4. and Note 3.c. in this Note to 6A003.b.4.b.*

6A004 Optics

a. Optical mirrors (reflectors), as follows:

a.1. "Deformable mirrors" having either continuous or multi-element surfaces, and specially designed components therefor, capable of dynamically repositioning portions of the surface of the mirror at rates exceeding 100 Hz;

a.2. Lightweight monolithic mirrors having an average "equivalent density" of less than 30 kg/m^2 and a total mass exceeding 10 kg;

a.3. Lightweight "composite" or foam mirror structures having an average "equivalent density" of less than 30 kg/m^2 and a total mass exceeding 2 kg;

a.4. Beam steering mirrors more than 100 mm in diameter or length of major axis, that maintain a flatness of lambda/2 or better (lambda is equal to 633 nm) having a control bandwidth exceeding 100 Hz.

b. Optical components made from zinc selenide (ZnSe) or zinc sulphide (ZnS) with transmission in the wavelength range exceeding 3,000 nm but not exceeding 25,000 nm and having any of the following:

b.1. Exceeding 100 cm^3 in volume; *or*

b.2. Exceeding 80 mm in diameter or length of major axis and 20 mm in thickness (depth).

c. "Space-qualified" components for optical systems, as follows:

c.1. Lightweighted to less than 20% "equivalent density" compared with a solid blank of the same aperture and thickness;
c.2. Substrates, substrates having surface coatings (single-layer or multi-layer, metallic or dielectric, conducting, semiconducting or insulating) or having protective films;
c.3. Segments or assemblies of mirrors designed to be assembled in space into an optical system with a collecting aperture equivalent to or larger than a single optic 1 m in diameter;
c.4. Manufactured from "composite" materials having a coefficient of linear thermal expansion equal to or less than 5×10^{-6} in any coordinate direction.

d. Optical control equipment, as follows:

d.1. Specially designed to maintain the surface figure or orientation of the "space-qualified" components controlled by 6A004.c.1 or 6A004.c.3;
d.2. Having steering, tracking, stabilizationor resonator alignment bandwidths equal to or more than 100 Hz and an accuracy of 10 :rad (microradians) or less;
d.3. Gimbals having all of the following:
d.3.a. A maximum slew exceeding 5°;
d.3.b. A bandwidth of 100 Hz or more;
d.3.c. Angular pointing errors of 200 :rad (microradians) or less; *and*
d.3.d. Having any of the following:
d.3.d.1. Exceeding 0.15 m but not exceeding 1 m in diameter or major axis length and capable of angular accelerations exceeding 2 rad (radians)/s^2 ; *or*
d.3.d.2. Exceeding 1 m in diameter or major axis length and capable of angular accelerations exceeding 0.5 rad (radians)/s^2 ;
d.4. Specially designed to maintain the alignment of phased array or phased segment mirror systems consisting of mirrors with a segment diameter or major axis length of 1 m or more.

e. Aspheric optical elements having all of the following characteristics:

e.1. The largest dimension of the optical-aperture is greater than 400 mm;
e.2. The surface roughness is less than 1 nm (rms) for sampling lengths equal to or greater than 1 mm; *and*
e.3. The coefficient of linear thermal expansion's absolute magnitude is less than 3×10^{-6} /K at 25° C;

Technical Notes:
1 *An 'aspheric optical element' is any element used in an optical system whose imaging surface or surfaces are designed to depart from the shape of an ideal sphere.*
2 *Manufacturers are not required to measure the surface roughness listed in 6A004.e.2 unless the optical element was designed or manufactured with the intent to meet, or exceed, the control parameter.*

Note: *6A004.e does not control aspheric optical elements having any of the following:*
1. *a. A largest optical-aperture dimension less than 1 m and a focal length to aperture ratio equal to or greater than 4.5:1;*
2. *b. A largest optical-aperture dimension equal to or greater than 1 m and a focal length to aperture ratio equal to or greater than 7:1;*
3. *c. Being designed as Fresnel, flyeye, stripe, prism or diffractive optical elements;*
4. *d. Being fabricated from borosilicate glass having a coefficient of linear thermal expansion greater than 2.5×10^{-6} /K at 25° C;or*
5. *e. Being an x-ray optical element having inner mirror capabilities (e.g., tube-type mirrors).*

***N.B.**: For aspheric optical elements specially designed for lithographic equipment, see 3B001.*

6A005 "Lasers"

Related Definitions:
1.) Pulsed "lasers" include those that run in a continuous wave (CW) mode with pulses superimposed.
2.) Pulse-excited "lasers" include those that run in a continuously excited mode with pulse excitation superimposed.
3.) The control status of Raman "lasers" is determined by the parameters of the pumping source "lasers". The pumping source "lasers" can be any of the "lasers" described as follows: *Items*:

a. Gas "lasers", as follows:
a.1. Excimer "lasers", having any of the following:
a.1.a. An output wavelength not exceeding 150 nm and having any of the following:
a.1.a.1. An output energy exceeding 50 mJ per pulse; *or*
a.1.a.2. An average output power exceeding 1 W;
a.1.b. An output wavelength exceeding 150 nm but not exceeding 190 nm and having any of the following:
a.1.b.1. An output energy exceeding 1.5 J per pulse; *or*
a.1.b.2. An average output power exceeding 120 W;
a.1.c. An output wavelength exceeding 190 nm but not exceeding 360 nm and having any of the following:
a.1.c.1. An output energy exceeding 10 J per pulse; *or*
a.1.c.2. An average output power exceeding 500 W; *or*
a.1.d. An output wavelength exceeding 360 nm and having any of the following:
a.1.d.1. An output energy exceeding 1.5 J per pulse; *or*

a.1.d.2. An average output power exceeding 30 W;

***N.B.** For excimer "lasers" specially designed for lithography equipment, see 3B001.*

a.2. Metal vapor "lasers", as follows:
a.2.a. Copper (Cu) "lasers" having an average output power exceeding 20 W;
a.2.b. Gold (Au) "lasers" having an average output power exceeding 5 W;
a.2.c. Sodium (Na) "lasers" having an output power exceeding 5 W;
a.2.d. Barium (Ba) "lasers" having an average output power exceeding 2 W;
a.3. Carbon monoxide (CO) "lasers" having any of the following:
a.3.a. An output energy exceeding 2 J per pulse and a pulsed "peak power" exceeding 5 kW; *or*
a.3.b. An average or CW output power exceeding 5 kW;
a.4. Carbon dioxide (CO_2) "lasers" having any of the following:
a.4.a. A CW output power exceeding 15 kW;
a.4.b. A pulsed output having a "pulse duration" exceeding 10 :s and having any of the following:
a.4.b.1. An average output power exceeding 10 kW; *or*
a.4.b.2. A pulsed "peak power" exceeding 100 kW; *or*
a.4.c. A pulsed output having a "pulse duration" equal to or less than 10 :s; and having any of the following:
a.4.c.1. A pulse energy exceeding 5 J per pulse; *or*
a.4.c.2. An average output power exceeding 2.5 kW;
a.5. "Chemical lasers", as follows:
a.5.a. Hydrogen Fluoride (HF) "lasers";
a.5.b. Deuterium Fluoride (DF) "lasers";
a.5.c. "Transfer lasers", as follows:

a.5.c.1. Oxygen Iodine (O_2-I) "lasers";

a.5.c.2. Deuterium Fluoride-Carbon dioxide (DF-CO_2) "lasers";

a.6. Krypton ion or argon ion "lasers" having any of the following:

a.6.a. An output energy exceeding 1.5 J per pulse and a pulsed "peak power" exceeding 50 W; *or*

a.6.b. An average or CW output power exceeding 50 W;

a.7. Other gas "lasers", having any of the following:

***Note**: 6A005.a.7 does not control nitrogen "lasers".*

a.7.a. An output wavelength not exceeding 150 nm and having any of the following:

a.7.a.1. An output energy exceeding 50 mJ per pulse and a pulsed "peak power" exceeding 1 W; *or*

a.7.a.2. An average or CW output power exceeding 1 W;

a.7.b. An output wavelength exceeding 150 nm but not exceeding 800 nm and having any of the following:

a.7.b.1. An output energy exceeding 1.5 J per pulse and a pulsed "peak power" exceeding 30 W; *or*

a.7.b.2. An average or CW output power exceeding 30 W;

a.7.c. An output wavelength exceeding 800 nm but not exceeding 1,400 nm and having any of the following:

a.7.c.1. An output energy exceeding 0.25 J per pulse and a pulsed "peak power" exceeding 10 W; *or*

a.7.c.2. An average or CW output power exceeding 10 W; *or*

a.7.d. An output wavelength exceeding 1,400 nm and an average or CW output power exceeding 1 W.

b. Semiconductor "lasers", as follows:

***Note 1**: 6A005.b. includes semiconductor "lasers" having optical output connectors (e.g., fiber optic pigtails).*

***Note 2**: The control status of semiconductor "lasers" specially designed for other equipment is determined by the control status of the other equipment.*

b.1. Individual single-transverse mode semiconductor "lasers" having any of the following:

b.1.a. A wavelength equal to or less than 1510 nm, and having an average or CW output power exceeding 1.5 W; *or*

b.1.b. A wavelength greater than 1510 nm, and having an average or CW output power exceeding 500 mW;

b.2. Individual, multiple-transverse mode semiconductor "lasers" , having any of the following:

b.2.a. A wavelength of less than 1400 nm, and having an average or CW output power exceeding 10W;

b.2.b. A wavelength equal to or greater than 1400 nm and less than 1900 nm, and having an average or CW output power exceeding 2.5 W;*or*

b.2.c. A wavelength equal to or greater than 1900 nm and having an average or CW output power exceeding 1 W.

b.3. Individual semiconductor "laser"arrays, having any of the following:

b.3.a. A wavelength of less than 1400 nm and having an average or CW output power exceeding 80 W; *or*

b.3.b. A wavelength equal to or greater than 1400 nm and less than 1900 nm, and havingan average or CW output power exceeding 25 W; or

b.3.c. A wavelength equal to or greater than 1900 nm, and having an average or CW output power exceeding 10 W.

b.4. Array stacks of semiconductor "lasers" containing at least one array that is controlled under 6A005.b.3.

***Technical Notes**:*

1 *Semiconductor "lasers" are commonly called "laser" diodes.*

2 *An 'array' consists of multiple semiconductor "laser" emitters fabricated as a single chip so that the centers of the emitted light beams are on parallel paths.*

3 *An 'array stack' is fabricated by stacking, or otherwise assembling, 'arrays' so that the centers of the emitted light beams are on parallel paths.*

c. Solid state "lasers", as follows:

c.1. "Tunable" "lasers" having any of the following:

***Note**: 6A005.c.1 includes titanium - sapphire (Ti: Al_2O_3), thulium - YAG (Tm: YAG), thulium YSGG (Tm: YSGG), alexandrite (Cr: $BeAl_2O_4$) and color center "lasers".*

c.1.a. An output wavelength less than 600 nm and having any of the following:
c.1.a.1. An output energy exceeding 50 mJ per pulse and a pulsed "peak power" exceeding 1 W; *or*
c.1.a.2. An average or CW output power exceeding 1 W;
c.1.b. An output wavelength of 600 nm or more but not exceeding 1,400 nm and having any of the following:
c.1.b.1. An output energy exceeding 1 J per pulse and a pulsed "peak power" exceeding 20 W; *or*
c.1.b.2. An average or CW output power exceeding 20 W; *or*
c.1.c. An output wavelength exceeding 1,400 nm and having any of the following:
c.1.c.1. An output energy exceeding 50 mJ per pulse and a pulsed "peak power" exceeding 1 W; *or*
c.1.c.2. An average or CW output power exceeding 1 W;
c.2. Non-"tunable" "lasers", as follows:

***Note**: 6A005.c.2 includes atomic transition solid state "lasers".*

c.2.a. Neodymium glass "lasers", as follows:
c.2.a.1. "Q-switched lasers" having any of the following:
c.2.a.1.a. An output energy exceeding 20 J but not exceeding 50 J per pulse and an average output power exceeding 10 W; *or*
c.2.a.1.b. An output energy exceeding 50 J per pulse;
c.2.a.2. Non-"Q-switched lasers" having any of the following:
c.2.a.2.a. An output energy exceeding 50 J but not exceeding 100 J per pulse and an average output power exceeding 20 W; *or*
c.2.a.2.b. An output energy exceeding 100 J per pulse;
c.2.b. Neodymium-doped (other than glass) "lasers", having an output wavelength exceeding 1,000 nm but not exceeding 1,100 nm, as follows:

***N.B.**: For neodymium-doped (other than glass) "lasers" having an output wavelength not exceeding 1,000 nm or exceeding 1,100 nm, see 6A005.c.2.c.*

c.2.b.1. Pulse-excited, mode-locked, "Q-switched lasers" having a "pulse duration" of less than 1 ns and having any of the following:
c.2.b.1.a. A "peak power" exceeding 5 GW;
c.2.b.1.b. An average output power exceeding 10 W; *or*
c.2.b.1.c. A pulsed energy exceeding 0.1 J;
c.2.b.2. Pulse-excited, "Q-switched lasers" having a pulse duration equal to or more than 1 ns, and having any of the following:
c.2.b.2.a. A single-transverse mode output having:
c.2.b.2.a.1. A "peak power" exceeding 100 MW;

c.2.b.2.a.2. An average output power exceeding 20 W; *or*
c.2.b.2.a.3. A pulsed energy exceeding 2 J; *or*
c.2.b.2.b. A multiple-transverse mode output having:
c.2.b.2.b.1. A "peak power" exceeding 400 MW;
c.2.b.2.b.2. An average output power exceeding 2 kW; *or*
c.2.b.2.b.3. A pulsed energy exceeding 2 J;
c.2.b.3. Pulse-excited, non-"Q-switched lasers", having:
c.2.b.3.a. A single-transverse mode output having:
c.2.b.3.a.1. A "peak power" exceeding 500 kW; *or*
c.2.b.3.a.2. An average output power exceeding 150 W; *or*
c.2.b.3.b. A multiple-transverse mode output having:
c.2.b.3.b.1. A "peak power" exceeding 1 MW; *or*
c.2.b.3.b.2. An average power exceeding 2 kW;
c.2.b.4. Continuously excited "lasers" having:
c.2.b.4.a. A single-transverse mode output having:
c.2.b.4.a.1. A "peak power" exceeding 500 kW; *or*
c.2.b.4.a.2. An average or CW output power exceeding 150 W; *or*
c.2.b.4.b. A multiple-transverse mode output having:
c.2.b.4.b.1. A "peak power" exceeding 1 MW; *or*
c.2.b.4.b.2. An average or CW output power exceeding 2 kW;
c.2.c. Other non-"tunable" "lasers", having any of the following:
c.2.c.1. A wavelength less than 150 nm and having any of the following:
c.2.c.1.a. An output energy exceeding 50 mJ per pulse and a pulsed "peak power" exceeding 1 W; *or*
c.2.c.1.b. An average or CW output power exceeding 1 W;
c.2.c.2. A wavelength of 150 nm or more but not exceeding 800 nm and having any of the following:
c.2.c.2.a. An output energy exceeding 1.5 J per pulse and a pulsed "peak power" exceeding 30 W; *or*
c.2.c.2.b. An average or CW output power exceeding 30 W;
c.2.c.3. A wavelength exceeding 800 nm but not exceeding 1,400 nm, as follows:
c.2.c.3.a. "Q-switched lasers" having:
c.2.c.3.a.1. An output energy exceeding 0.5 J per pulse and a pulsed "peak power" exceeding 50 W; *or*
c.2.c.3.a.2. An average output power exceeding:
c.2.c.3.a.2.a. 10 W for single-mode "lasers";
c.2.c.3.a.2.b. 30 W for multimode "lasers";
c.2.c.3.b. Non-"Q-switched lasers" having:
c.2.c.3.b.1. An output energy exceeding 2 J per pulse and a pulsed "peak power" exceeding 50 W; *or*
c.2.c.3.b.2. An average or CW output power exceeding 50 W; *or*
c.2.c.4. A wavelength exceeding 1,400 nm *and* having any of the following:
c.2.c.4.a. An output energy exceeding 100 mJ per pulse and a pulsed "peak power" exceeding 1 W; *or*
c.2.c.4.b. An average or CW output power exceeding 1 W;

d. Dye and other liquid "lasers", having any of the following:

d.1. A wavelength less than 150 nm and:
d.1.a. An output energy exceeding 50 mJ per pulse and a pulsed "peak power" exceeding 1 W; *or*
d.1.b. An average or CW output power exceeding 1 W;
d.2. A wavelength of 150 nm or more but not exceeding 800 nm and having any of the following:

d.2.a. An output energy exceeding 1.5 J per pulse and a pulsed "peak power" exceeding 20 W;
d.2.b. An average or CW output power exceeding 20 W; *or*
d.2.c. A pulsed single longitudinal mode oscillator having an average output power exceeding 1 W and a repetition rate exceeding 1 kHz if the "pulse duration" is less than 100 ns;
d.3. A wavelength exceeding 800 nm but not exceeding 1,400 nm and having any of the following:
d.3.a. An output energy exceeding 0.5 J per pulse and a pulsed "peak power" exceeding 10 W; *or*
d.3.b. An average or CW output power exceeding 10 W; *or*
d.4. A wavelength exceeding 1,400 nm and having any of the following:
d.4.a. An output energy exceeding 100 mJ per pulse and a pulsed "peak power" exceeding 1 W; *or*
d.4.b. An average or CW output power exceeding 1 W;

e. Components, as follows:

e.1. Mirrors cooled either by active cooling or by heat pipe cooling;

***Technical Note**: Active cooling is a cooling technique for optical components using flowing fluids within the subsurface (nominally less than 1 mm below the optical surface) of the optical component to remove heat from the optic.*

e.2. Optical mirrors or transmissive or partially transmissive optical or electro-optical components specially designed for use with controlled "lasers";

f. Optical equipment, as follows:

***N.B.:** For shared aperture optical elements, capable of operating in "Super-High Power Laser" ("SHPL") applications, see the U.S. Munitions List (22 CFR part 121).*

f.1. Dynamic wavefront (phase) measuring equipment capable of mapping at least 50 positions on a beam wavefront having any the following:
f.1.a. Frame rates equal to or more than 100 Hz and phase discrimination of at least 5% of the beam's wavelength; *or*
f.1.b. Frame rates equal to or more than 1,000 Hz and phase discrimination of at least 20% of the beam's wavelength;
f.2. "Laser" diagnostic equipment capable of measuring "SHPL" system angular beam steering errors of equal to or less than 10 :rad;
f.3. Optical equipment and components specially designed for a phased-array "SHPL" system for coherent beam combination to an accuracy of lambda/10 at the designed wavelength, or 0.1 :m, whichever is the smaller;
f.4. Projection telescopes specially designed for use with "SHPL" systems.

6C002 Optical sensor materials, as follows

a. Elemental tellurium (Te) of purity levels of 99.9995% or more;
b. Single crystals (including epitaxial wafers) of any of the following:
b.1. Cadmium zinc telluride (CdZnTe), with zinc content less than 6% by mole fraction;
b.2. Cadmium telluride (CdTe) of any purity level; *or*
b.3. Mercury cadmium telluride (HgCdTe) of any purity level.

***Technical Note**: 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.*

6C004 Optical materials, as follows

a. Zinc selenide (ZnSe) and zinc sulphide (ZnS) "substrate blanks" produced by the chemical vapor deposition process, having any of the following:
  a.1. A volume greater than 100 cm^3; *or*
  a.2. A diameter greater than 80 mm having a thickness of 20 mm or more;
b. Boules of the following electro-optic materials:
  b.1. Potassium titanyl arsenate (KTA);
  b.2. Silver gallium selenide ($AgGaSe_2$);
  b.3. Thallium arsenic selenide (Tl_3AsSe_3, also known as TAS);
c. Non-linear optical materials, having all of the following:
  c.1. Third order susceptibility (chi 3) of 10^{-6} m^2/V^2 or more; *and*
  c.2. A response time of less than 1 ms;
d. "Substrate blanks" of silicon carbide or beryllium beryllium (Be/Be) deposited materials exceeding 300 mm in diameter or major axis length;
e. Glass, including fused silica, phosphate glass, fluorophosphate glass, zirconium fluoride (ZrF_4) and hafnium fluoride (HfF_4), having all of the following:
  e.1. A hydroxyl ion (OH-) concentration of less than 5 ppm;
  e.2. Integrated metallic purity levels of less than 1 ppm; *and*
  e.3. High homogeneity (index of refraction variance) less than 5×10^{-6};
f. Synthetically produced diamond material with an absorption of less than 10^{-5} cm^{-1} for wavelengths exceeding 200 nm but not exceeding 14,000 nm.

6E003 Other "technology", as follows

d. Optics, "technology", as follows:

  d.1. Optical surface coating and treatment "technology" "required" to achieve uniformity of 99.5% or better for optical coatings 500 mm or more in diameter or major axis length and with a total loss (absorption and scatter) of less than 5×10^{-3};
  d.2. Optical fabrication "technology" using single point diamond turning techniques to produce surface finish accuracies of better than 10 nm rms on non-planar surfaces exceeding 0.5 m^2;

e. Lasers. "Technology" "required" for the "development", "production" or "use" of specially designed diagnostic instruments or targets in test facilities for "SHPL" testing or testing or evaluation of materials irradiated by "SHPL" beams;

Attachment 2

RESTRICTED COUNTRIES

(Effective 01 May 2007)

COUNTRY GROUP D:1

Albania	Armenia	Azerbaijan	Belarus
Cambodia	China (PRC)	Georgia	Iraq
Kazakhstan	Korea (North)	Kyrgyzstan	Laos
***Libya**	Macau	Moldova	Mongolia
Russia	Tajikstan	Turkmenistan	Ukrane
Uzbekistan	Vietnam		

COUNTRY GROUP E:2

Cuba

EMBARGOED COUNTRIES per Dept of the Treasury:

A comprehensive embargo is in effect against Cuba, Iran and Sudan

DEEMED EXPORT EXEMPTION CERTIFICATION - EMPLOYEE

FROM:

TO: NOAO Human Resources
CC: Clark Enterline, AURA Export Control Administrator

RE: CERTIFICATION OF NON-ACCESS TO RESTRICTED TECHNOLOGIES

The new AURA employee name:
Country of Origin is:
Will be employed with this department in the position of:

As the employee's supervisor, I will insure that the employee will not have access internal AURA project design or production information or AURA-initiated or held technical data concerning any of the following technologies. If I determine that this employee will require assess to these technologies in the course of his/her assignments, I will immediately contact the AURA Export Control Administrator and insure that an Export License is received before the employee is given access to the technology.

1. Image intensifiers,
2. Encryption source codes,
3. Micro-mirror technology,
4. High bandwidth optics (> 1GHZ),
5. High bandwidth electronics (> 2GHZ). The restriction specifically does not apply to desktop computers, standard laboratory oscilloscopes, or consumer electronics. However, Use of computers with a CTP above the current civilian Tier 3 limit (119,000 MTOPS) (high-end, multi-processor systems) must be controlled and monitored to ensure that only job related work is performed.
6. Low light detectors or low-light level detection systems with wavelengths between 0.8 microns and 30 microns, inclusive.
7. Optical communications or laser communications technology.
8. MEMS technology,
9. High-power (>15KW) laser adaptive processing technology,
10. Infrared arrays, cameras or spectrographs including high-speed, low-noise, high-quantum-efficiency focal plane arrays, or focal plane array technology, in the visible or infrared regions. Restriction in the infrared region includes prohibition against access to focal plane arrays, or focal plane array technology, with frame rates exceeding 4 frames-per-second, or with read noise less than 200 electrons, or with quantum efficiencies exceeding 70%,
11. Large format CCD detectors and other optical detectors in the visible region including access to focal plane arrays with frame rates exceeding 4 frames-per-second, or with read noise less than five electrons, or with quantum efficiencies exceeding 85%,
12. Adaptive Optics including deformable mirrors, or deformable mirror technology, with greater than 400 actuators, or with actuator spacing less than 5mm, or with update rates greater than 1.25KHz. or with processing latencies less than 500 microseconds,
13. High powered lasers and dynamic wave front measuring equipment.
14. ITAR (Defense/Military) controlled defense articles, defense services, and technical data is not authorized. ITAR controlled software source code and/or source code documentation is not releasable.
15. Spread spectrum technology.

Signed _____
Supervisor Name: Date:

Rev 09/05

PART 7
Attachment E

DEEMED EXPORT EXEMPTION CERTIFICATION -VISITOR

FROM:

TO: NOAO Human Resources
CC: Clark Enterline, AURA Export/Import Control Officer for NSF Activities

RE: CERTIFICATION OF NON-ACCESS TO RESTRICTED TECHNOLOGIES

The AURA visitor name: (Attach Attendee list)
Country of Origin is:
Will be working with this department in the following areas:

As the visitor's host, I will insure that the visitor will not have access internal AURA project design or production information or AURA-initiated or held technical data concerning any of the following technologies. If I determine that this visitor will require assess to these technologies in the course of his/her assignments, I will immediately contact the AURA Export/Import Control Officer for NSF Activities and insure that an Export License is received before the visitor is given access to the technology.

1. Image intensifiers,
2. Encryption source codes,
3. Micro-mirror technology,
4. High bandwidth optics (> 1GHZ),
5. High bandwidth electronics (> 2GHZ). The restriction specifically does not apply to desktop computers, standard laboratory oscilloscopes, or consumer electronics. However, Use of computers with a CTP above the current civilian Tier 3 limit (119,000 MTOPS) (high-end, multi-processor systems) must be controlled and monitored to ensure that only job related work is performed.
6. Low light detectors or low-light level detection systems with wavelengths between 0.8 microns and 30 microns, inclusive.
7. Optical communications or laser communications technology.
8. MEMS technology,
9. High-power (>15KW) laser adaptive processing technology,
10. Infrared arrays, cameras or spectrographs including high-speed, low-noise, high-quantum-efficiency focal plane arrays, or focal plane array technology, in the visible or infrared regions. Restriction in the infrared region includes prohibition against access to focal plane arrays, or focal plane array technology, with frame rates exceeding 4 frames-per-second, or with read noise less than 200 electrons, or with quantum efficiencies exceeding 70%,
11. Large format CCD detectors and other optical detectors in the visible region including access to focal plane arrays with frame rates exceeding 4 frames-per-second, or with read noise less than five electrons, or with quantum efficiencies exceeding 85%,
12. Adaptive Optics including deformable mirrors, or deformable mirror technology, with greater than 400 actuators, or with actuator spacing less than 5mm, or with update rates greater than 1.25KHz. or with processing latencies less than 500 microseconds,
13. High powered lasers and dynamic wave front measuring equipment.
14. ITAR (Defense/Military) controlled defense articles, defense services, and technical data is not authorized. ITAR controlled software source code and/or source code documentation is not releasable.
15. Spread spectrum technology.

Signed _____	
Host Name:	Date:

Rev 03/07

PART 8
EXPORT LICENSING

1) **OVERVIEW**: Not all materials and supplies exported from the United States are restricted for export by U.S. government agencies. It is important that a determination be made for each item to be exported to see if it is, in fact, controlled by one of the controlling agencies. The type of license used for the export will vary according to the materials being shipped, the location to which the items are being sent, and the regulating authority.

2) **CONTROLLING AGENCIES**:

   A) **Department of State, Directorate of Defense Trade Controls (DDTC) - 22CFR 120-130**: The DDTC controls those items that may have military or space applications. Items that we deal with in these areas are some IR arrays, some Adaptive Optics, Telescopes and space qualified electronics. DDTC would like to control everything, even commercial products. DDTC also maintains a list of those individuals who have had their export privileges denied. That list is:

      a) DDTC Debarment List: http://www.pmddtc.state.gov/debar059intro.htm

   B) **Department of Commerce, Bureau if Industry and Security (BIS)- 15CFR 730-774**: The BIS controls all items that have commercial uses. In addition, they handle the export licenses for the OFAC (below). AURA deals with this organization most of the time as we have very few items that are defense-related. All licenses submitted to BIS are reviewed by DDTC.

      There are several lists that need to be checked when transferring technical data or equipment:

      a) Denied Parties Listing - individuals who have had their export privileges denied:
         http://207.96.48.13/dpl/thedeniallist.asp
      b) Entity List - sites that are prohibited from receiving certain exports:
         http://www.access.gpo.gov/bis/ear/pdf/744spir.pdf -

   C) **Department of the Treasury's Office of Foreign Assets Control (OFAC) - 31CFR Parts 500-598**: The OFAC controls, through BIS, assets related to those countries for which some embargo is in place or who are determined to be a threat to the U.S. OFAC administers and enforces economic and trade sanctions based on U.S. foreign policy and national security goals against targeted foreign countries, terrorists, international narcotics traffickers, and those engaged in activities related to the proliferation of weapons of mass destruction. OFAC acts under Presidential wartime and national emergency powers, as well as authority granted by specific legislation, to impose controls on transactions and freeze foreign assets under U.S. jurisdiction. Many of the sanctions are based on United Nations and other international mandates, are multilateral in scope, and involve close cooperation with allied governments. The specific sites are:

      a) Embargo Listing – countries or organizations for which specific embargos and sanctions are in place:
         http://www.treas.gov/offices/enforcement/ofac/programs/index.shtml
      b) Specially Designated Nationals List – a list of individuals and organizations that have been determined to be either terrorist, terrorist supporting or otherwise a threat to U.S. Security:
         http://www.treas.gov/offices/enforcement/ofac/sdn/t11sdn.pdf

3) **DETERMINING THE CONTROLLING AGENCY**: Everything is controlled for export to some extent based on:

   A) **Use**: The ultimate use of the item being sent – commercial, military, space, nuclear, etc. – will dictate in many cases who actually controls the commodity or technical data.

a) In general, the Office of Defense Trade Controls has jurisdiction over all those items that have military uses including, but not limited to, IR detectors and image tubes.
b) The Bureau of Industry and Security has control of all items classified as commercial articles, which includes the vast majority of controlled materials and technical data held by AURA sites.
c) The Nuclear Regulation Commissions controls those items destined for nuclear sites or end uses. BIS controls the export of these commodities.

B) **Commodity**: The commodity being shipped or technology being released also determines who will control the items. The specific items under control are detailed in BIS's Export Administration Regulations (EAR) and DDTC's International Traffic in Arms Regulations (ITAR).

a) The EAR is very specific as to descriptions that reflect the importance of the items or technology being exported.
b) The ITAR is very vague in the commodity descriptions, which reflect DDTC's emphasis more on military applications and less on actual commodities.
c) OFAC does not refer to commodities at all.

C) **Destination**: The country or organization to which the materials are being sent or technology released will determine if export controls are to be enforced. The BIS's Entity List, the OFAC's Embargo List and Specially Designated Nationals List identify those countries or organizations for which export licenses must be obtained.

NOTE: Remember that technical data released to a foreign national are controlled in the same manner as though the data were being sent to that national's country.

D) **End User**: The ultimate end user of the commodity or technical data will also determine if export controls must be followed. The BIS's Denied Party List, the DDTC's Debarment List and the OFAC's Specially Designated Nationals List all identify those individuals for whom export licenses must be received prior to shipment.

NOTE: Remember, there are export controls for end users located within the U.S.

4) **DETERMINING COMMODITY CLASSIFICATIONS**:

A) In order to determine if a specific item is restricted for export, the EAR Commodity Control List (CCL - (15CFR774) and ITAR (22CFR121) should be carefully reviewed. To assist in this classification process, one of the following methods should be followed:

a) For regular purchases, the specific manufacturer should be contacted. In most cases, the manufacturer will be able to provide the appropriate export information (Export Control Classification Number - ECCN - and Schedule "B" Number).
b) For instruments made at NOAO engineering facilities, copies of the applicable sections of Part 774 of the Export Administration Regulations will be distributed to the project engineer for his or her review, evaluation and determinations.
c) Discuss the commodity with the ECO-NSF or ECO-STScI who may have had experience exporting similar items in the past.
d) If the correct determination cannot be made by one of the above methods, the ECO-NSF or ECO-STScI will submit either a Commodity Classification Request (BIS) or Commodity Jurisdiction request (DDTC) to the appropriate agency.

5) **EXPORT LICENSE APPLICATIONS**: All export license applications; Commodity Classification Requests or Commodity Jurisdiction Requests will be filed by the ECO-NSF or ECO-STScI, or as otherwise delegated.

A) **Department of Commerce's Bureau of Industry and Security (BIS)**:

a) If, after following the appropriate classification procedures detailed in the Export Administration Regulations, it is determined that an export license is not required, then the designation "**NLR**" will be so indicated on the Export Declaration.

b) The Bureau of Industry and Security has established an Export License procedure whereby an exporter can apply for the approval to export any commodity listed on the Commerce Control List and restricted for export to the ultimate consignee's country. These licenses must be applied for and their export approved by BIS, which carefully reviews each application, the end user, the end use, the exporter, the country of destination, and other factors that are deemed important to the administration. These procedures are detailed in 15CFR738 and the application process is covered in 15CFR748.

c) Several Export License Exceptions are available and are detailed in 15CFR740. The descriptions below are generalized and it is strongly suggested that the appropriate section within the EAR be consulted for more in-depth information on the specific license. A few of the Export Licenses Exemptions used by AURA are listed below.

(1) **LVS** (*15CFR740.3(a)*) – Shipments of Limited Value - This exemption is an authorization to export in a single shipment any commodity on the Commerce Control List valued below a specified amount as listed under the specific Export Control Classification Number.

(2) **GBS** (*15CFR740.4)* – Shipments to Country Group B Countries - This exemption concerns shipments of any value to countries listed under Country Group B (Chile is included in this list) if the specific Commerce Control List allows such shipments. The Export Control Classification Number (ECCN) of the item shipped under this exemption must be listed on the Export Declaration.

(3) **CIV** (*15CFR740.5*) – Civil End Users - This exemption is applicable to shipments destined for civilian end users in Country Group D1 of accompanied, or unaccompanied personal goods, tools of trade, or other items, whether or not they appear on the Commerce Control List. The ECCN of the item shipped under this exemption must be listed on the Export Declaration.

(4) **TSR** (*15CFR740.6*) – Technology and Software Under Restriction - This exemption is established to permit the export of technology and software as allowed by the specific Commerce Control List.

(5) **CTP** (*15CFR740.7*) – Computers - This exemption authorizes the export of computers to specific destinations depending on the computers' capabilities. The ECCN of the item shipped under this exemption must be listed on the Export Declaration.

(6) **TMP** (*15CFR740.9*) – Temporary Imports, Exports and Re-Exports - License Exemptions based on the Commerce Control List. The code "TMP" must appear on the shipping documentation for export clearance purposes. This exemption is established to allow the temporary export of certain commodities that would otherwise require an Export License.

(7) **RPL** (*15CFR740.10*) – Servicing and Replacement of Parts and Equipment - This exemption is established to cover the shipment of repair parts on a one-for-one basis under specific prohibitions. Since there are no sub-categories for RPL, if the RPL exception is used, enter "RPL" in the appropriate area on the Export Declaration.

(8) **TSU** (*15CFR*740.13) – Technology and Software, Unrestricted - This license authorizes exports and re-exports of operation technology and software; such sales technology and software; software updates (bug fixes); and "mass market" software subject to the General Software Note.

(9) **BAG** (*15CFR740.14*) – Baggage - This exemption covers the export of materials and equipment of certain personal items for international travelers departing the United States. Since there are no subcategories for BAG, if the BAG exception is used, enter "BAG" In the appropriate area on the Export Declaration.

(10) **APR** (*15CFR740.16*) – Additional Permissive Re-Exports - This exemption covers the export of materials and equipment from certain countries as long as the rules for the exemption are followed.

(11) **ENC** (*15CFR740.17*) – Encryption Commodities and Software - This exemption covers the export of commodities and software that are controlled for encryption purposes. There are reporting requirements that require semi-annual reports to the BIS.

(12) Other exemptions are available. However, these concern categories that are not appropriate to AURA shipments. Check 15CFR740 of the Export Administration Regulations for all export license exemptions.

B) **Department of State's Directorate of Defense Trade Controls (DDTC)**:

a) Manufacturers and exporters of military related items must be registered with the DDTC. While AURA does not manufacturer military-related items, it does export those items and, as such, AURA has registered with the Department of State. AURA's registration number is ***M14580.***

(1) Applications for registration renewals and payment of the renewal fee will be the responsibility of the AURA Corporate Office.
(2) Copies of DDTC registration letters will be distributed to the AURA Import/Export Officer for its NSF-related activities and the AURA Import/Export Officer for its NASA-related activities.

b) Certain articles and commodities are subject to the export and import regulations issued by the DDTC. The licensing procedure is somewhat similar to the BIS's but the process may take considerably longer.
c) License applications may take up to 8 weeks (or longer) to process since all departments of the military must review them.
d) Once issued, the license is valid for 4 years.
e) All licenses must be turned in to the U.S. Customs Service at the Port of Export and, unlike the Bureau of Industry and Security procedures, it is the Customs Agent who verifies the validity of the license and returns the license to the Department of State when completed.
f) Temporary export licenses are available from the Office of Defense Trade Controls and cover the export and import (return) of the licensed item to AURA. Such temporary exports and entries can take place over a number of months. NOAO Procurement will hold the licenses in Tucson and the exportation and importation will take place in Tucson.
g) Licenses are available for classified materials, although AURA has no need for such licenses since all of AURA's exports are Unclassified.
h) DDTC prohibits any re-import for servicing or for whatever reason unless specifically licensed by them. Unauthorized imports may result in confiscation of the articles and stiff fines.

6) **SHIPPER'S EXPORT DECLARATIONS**:

A) All items exported from the United States require notification by the shipper to the U.S. government via the U.S. Customs Service located at the port of export. Such notification is done with a completed Shipper's Export Declaration that accompanies the shipping documentation. Shipper's Export Declarations are to be completed in accordance with the United States Department of Commerce's Bureau of the Census' U.S. Foreign Trade Statistics Regulations (FTSR) *(15CFR 0-299)*.

a) In accordance with those regulations, certain shipments are exempted from this notification procedure *(15CFR 30.55)*:

(1) Shipments where the value of commodities classified under each individual Schedule "B" number is $2500.00 or less, and for which an Export License is not required, and when shipped to countries not prohibited by the Export Administration Regulations *(15CFR 30.55(h)*.
(2) Diplomatic pouches and their contents *(15CFR 30.55(a))*.
(3) Shipments of interplant correspondence *(15CFR 30.55(i))*.
(4) Shipments form one point in the United States to another point in the United States by routes passing through Mexico *(15CFR 30.55(c))*, and shipments from one point in Mexico to another point in those countries by routes passing through the United States *(15CFR 30.55(d))*.
(5) Laptop computers when accompanying an AURA traveler overseas and which will be brought back to the U.S. by the traveler when he/she returns to the U.S. *(15CFR 30.56(b))*.

B) All Export Declarations will be submitted by the CECO, the ECO-NSF, or the ECO-NASA.
C) Export Declarations shall be submitted via the U.S. Bureau of Census' Automated Export System (AES). The AES system is an electronic system allowing the shipper to enter the export declaration information and re-

ceive approval from the U.S. government prior to the actual export of the item. Contact the AURA Export Control Administrator for further information on the AES system and on AURA's username and password. When approval is received, the "AES ITN:" number must be included on the Commercial Invoice and Packing List and on the Air Waybill.

a) AURA's Export Identification Number (EIN) is the Corporation's tax identification number -- 860138043.

PART 9
Training Activities

1) AURA and its departments are consumers and rarely get involved with the selling of items. The majority of items purchased to conduct the management and operations of the various facilities are used at or consumed by those facilities. As such, there is no sales staff to educate concerning export restrictions, denial lists, or diversion warning signs.
2) AURA occasionally enters into agreements to build instruments or parts of instruments for other facilities. The local CECO is to be notified of such sales and advise the ECO-NSF of the project. All such sales to overseas facilities are to be cleared by the ECO-NSF.
3) Export awareness on the part of AURA employees is maintained via the many export memos passed out to travelers, visitors and others who are involved in purchasing materials. Export training is achieved by the holding of periodic seminars by the CECO.

   In addition, it is important that the CECO remain visible to those sending materials overseas. This is a difficult area to maintain control over, but it is safe to say that, with the centralization of shipping activities under shipping and receiving facilities and the CECO's proactive stance on export control, all employees know who to contact concerning export questions and are aware that export control is an issue that they must deal with when working with international partners or foreign visitors.

   Responsibility for insuring that the appropriate memos and letters are maintained up-to-date rests with the CECO and the ECOs:

PART 10
Record Keeping

1) In accordance with Part 762.6 of the Export Administration Regulations, records must be maintained for at least five (5) years. The record keeping provisions apply to the following transactions:

A) Part 736, General Prohibitions;
B) Part 732.6, Steps for other requirements;
C) Part 740.1, Introduction (to License Exceptions);
D) Part 740.10(c), Servicing and replacement of parts and equipment (RPL);
E) Part 740.13(f), Technology and software unrestricted (TSU);
F) Part 743.2, High Performance Computers;
G) Supplement No. 3 to part 742 High Performance Computers; Safeguards and related Information;
H) Part 742.15, Key Escrow Encryption Items;
I) Part 740.7, Humanitarian donations (NEED);
J) Part 746.3, Iraq;
K) Part 747, Special Iraq Reconstruction License;
L) Part 748.4(a), Disclosure and substantiation of facts on license applications;
M) Part 748.6, General instructions for license applications;
N) Part 748.9, Support documents for license applications;
O) Part 748.10, Import and End-user Certificates;
P) Part 748.11, Statement by Ultimate Consignee and Purchaser;
Q) Part 748.13, Delivery Verification (DV);
R) Part 748.2(c), Obtaining forms; mailing addresses;
S) Part 750.7, Issuance of license and acknowledgment of conditions;
T) Part 750.8, Revocation or suspension of license;
U) Part 750.9, Duplicate licenses;
V) Part 750.10, Transfer of licenses for export;
W) Part 752.7, Direct shipment to customers;
X) Part 752.9, Action on SCL applications;
Y) Part 752.10, Changes to the SCL;
Z) Part 752.11, Internal Control Programs;
AA) Part 752.12, Record keeping requirements;
BB) Part 752.13, Inspection of records;
CC) Part 752.14, System reviews;
DD) Part 752.15, Export clearance;
EE) Part 754.2(j)(3), Record keeping requirements for deep water ballast exchange;
FF) Part 754.4, Unprocessed western red cedar;
GG) Part 758.1(h), Record and proof of agent's authority;
HH) Part 758.1 and 758.2, Shipper's Export Declaration or Automated Export System record;
II) Part 758.6, Destination control statements;
JJ) Part 760.6, Restrictive Trade Practices and Boycotts;
KK) Part 762.2, Records to be retained;
LL) Part 764.2, Violations;
MM) Part 764.5, Voluntary self-disclosure;
NN) Part 766.10, Subpoenas;
OO) Part 743.1, Wassenaar reports;
PP) Part 748.14, Exports of firearms;
QQ) Part 745.1, Annual reports;
RR) Part 745.2, End-use certificates; and
SS) Part 758.2(c), Assumption writing.

2) In accordance with Part 122.5 of the International Traffic in Arms Regulations, all records pertaining to any transaction subject to those requirements must be kept for a period of not less than five (5) years.
3) Since the CECO is the point of contact for all exports, they will maintain the primary files for all export activities at their site.
4) The AURA Facilities in Chile will maintain files of all export shipments and activities processed directly by that organization.
5) Whatever the case, it is AURA's policy to comply with the Export Administration Regulations' record keeping requirements as detailed in the appropriate regulations and the AURA-NSF record keeping requirement, whichever is longer.

PART 11
Notification of Non-Compliance

1) **NON-COMPLIANCE**: As per the AURA Corporate Policy Statement, violations of the export regulations are to be reported to the ECO-NSF, ECO-STScI, the AURA President or the appropriate U.S. government agency. Violations may include:

   A) Engaging in prohibited activities;
   B) Causing, aiding, or abetting a violation;
   C) Solicitation and attempt;
   D) Conspiracy;
   E) Acting with knowledge of a violation;
   F) Possession with intent to export illegally;
   G) Misrepresentation and concealment of facts;
   H) Evasion;
   I) License alteration; or
   J) Acting contrary to the terms of a denial order.

2) **REPORTING PROCEDURES**: Should any AURA employee become aware of violations of U.S. export regulations at any AURA facility, they should report such violations to the appropriate AURA Export/Import Control Officer, the AURA President, the AURA Whistle Blower Ombudsman or the appropriate controlling agency, as listed below.

   A) Violations can be reported to the Bureau of Industry and Security at the following addresses:

Bureau of Industry and Security
Department of Commerce
14th Street and Constitution Avenue, N. W.
Room H-4520
Washington, D. C. 20230

(202) 482-1208
(202) 482-0964 (fax)
or
Office of Anti-boycott Compliance
Bureau of Export Administration
Department of Commerce
14th Street and Constitution Avenue, N. W.
Room H-6099C
Washington, D. C. 20230

(202) 482-2381
(202) 482-0913 (fax)

   B) Violations can be reported to the Directorate of Defense Trade Controls at the following addresses:

U.S. Department of State
Directorate of Defense Trade Controls
Compliance & Registration Division
2401 E Street NW, SA-1, Room H1200
Washington, DC 20522-0112

(202) 736-9230

C) Violations can be reported to the Office of Foreign Asset Controls at the following addresses:

Office of Foreign Assets Control
U.S. Department of the Treasury
Treasury Annex
1500 Pennsylvania Avenue, NW
Washington, DC 20220

1-800-540-6322

PART 12
Compliance Review Program

1) **ANNUAL REVIEW**: Once each year, the AURA Import/Export Control Officer for NSF-related activities will travel to NOAO and Gemini sites, including those in Chile, to review the export control activities at those sites.

Following the export review process, a report detailing the findings of the review will occur to ensure that the necessary information and training of NOAO and Gemini staff is taking place. This internal evaluation process will ensure that current AURA Export Policies are meeting Bureau of Industry and Security, Defense Trade Control and Office of Foreign Asset Control Standards. Periodically, the AURA Import/Export Control Officer for NSF-related activities will inspect or review the individual NOAO, AURA Facilities in Chile and GEMINI sites in the following manner:

A) NOAO/GEMINI Annual Review: A checklist will be used in this annual review for all applicable NOAO and Gemini export control activities. This checklist is included at as Attachment A to this element and may be modified as deemed necessary by the AURA Import/Export Control Officer for NSF-related activities.

B) Copies of communications with the various points of contact within NOAO and GEMINI concerning export policies and procedures and all completed checklists will be maintained in the Administrator's files.

C) When deficiencies are found during these periodic reviews, they will be noted with suggested courses of action. The deficient department will make the necessary corrections and respond in writing of the specific corrections made.

Annual Export Control Compliance Review Checklist

1) Date of Review: _____

2) Individual Conducting Review: _____
   A) Phone number: _____
   B) E-mail address: _____

3) **ACTIVITIES:**

A) **PURCHASING ACTIVITIES**: Review is accomplished via random selection of no less than twelve (12) purchase documents for goods and materials ordered by or for overseas sites.

a) Were purchases routed to the On-Site Certified Export Control Officer (CECO) or AURA Import/Export Control Officer for NSF-related activities (ECO-NSF) for review?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Were export control requirements noted on the documents?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

c) Were these notations relayed to the exporting site?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

d) If an export license was required:

(1) Was the ECO-NSF notified in a timely manner?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(2) Were the supporting documents relayed to the ECO-NSF?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(3) Was the license received prior to the purchase?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(4) Did the CECO keep copies of the license on file?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

B) **CONTRACTING ACTIVITIES**:

a) Do issued contracts contain an acceptable export control clause?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Does the contracting officer coordinate with the CECO or ECO-NSF concerning contractual issues that concern the export of materials or technology?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

C) **INTERNATIONAL SHIPMENTS**: Review no less than twelve (12) international shipments including at least five shipments to international sites other than Chile;

a) Did the international shipments comply with export regulations?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Was the documentation clear, concise, and properly described the materials being shipped?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

c) Were the proper export declarations electronically filed via the AES system?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

d) Were international shipments properly documented and in compliance with:
(1) IATA Hazardous Materials Regulations?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(2) ISMP-15 Wood-Crating regulations?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

e) Were the international shipment consignees reviewed against the various exclusions and embargo lists?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

f) Did the CECO or his/her designate sign the AWB and CIPL?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

g) Are there records accompanying the shipping documents to show that the international shipment was received and not diverted?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

D) **INTERNATIONAL TRAVEL**:

a) Were Travel Requests or other notices of impending international travel forwarded to the CECO?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Were those notices received well in advance of the travel?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

c) Were export control memos issued to international travelers?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

d) Were export control memos up to date?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

e) Were records kept regarding the issuance of the memos, dates issued and travelers receiving the memos?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

E) **EMPLOYEE TRAINING AND AWARENESS**:

a) Were training seminars conducted?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) On what date(s) were the seminars conducted?
Dates: _____

c) How many people attended all of the seminars?
Total Number: _____

d) What topics were covered?
Topics: _____
_____
_____.

F) **PROPERTY DISPOSAL**:

a) Were loan agreements forwarded to the CECO for review?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Were those agreements signed by or otherwise approved by the CECO or the ECO-NSF?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

c) Were Chilean excess property disposal requests routed to the CECO for review?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

d) Were the excess property disposal requests signed by or otherwise approved by the CECO or ECO-NSF?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

G) **MAIL**:

a) Is the outgoing mail being monitored?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) By who?
Site 1: _____
Name: _____
Position: _____

Site 2: _____
Name: _____
Position: _____

c) Is that person familiar with embargos or other restrictions?
Site 1:
[ ] Yes [ ] No (if not, please explain on a separate sheet)

Site 2:
[ ] Yes [ ] No (if not, please explain on a separate sheet)

d) If not, does that person notify and receive approval from the CECO for all international mail?
Site 1:
[ ] N/A [ ] Yes [ ] No (if not, please explain on a separate sheet)

Site 2:
[ ] N/A [ ] Yes [ ] No (if not, please explain on a separate sheet)

H) **GRANTS**:

a) Are the grants, obtained by local staff, monitored for PIs or CO-PIs from embargoed countries or exclusion lists?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(1) By who?
Name: _____
Position: _____

(2) Is that person familiar with embargos or other restrictions?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(3) If not, does that person notify and receive approval from the CECO?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(4) Do the Grant Files contain either an indication that the file was reviewed or, if necessary, a copy of the export licenses?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Are grants issued by sites monitored for PIs or CO-PIs from embargoed countries or exclusion lists?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(1) By who?
Site 1: _____
Name: _____
Position: _____

(2) Is that person familiar with embargos or other restrictions?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(3) If not, does that person notify and receive approval from the CECO for all international mail?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(4) Do the Grant Files contain either an indication that the file was reviewed or, if necessary, a copy of the export licenses?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

I) **EMPLOYEES**:

a) Does Human Resources advise the CECO of all incoming employees that are considered foreign nationals?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Does the CECO send a TSR Certification, TSR Exemption Certification to all newly hired employees that are considered foreign nationals?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

c) Does the CECO maintain copies of all certifications and exemptions issued and signed?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

d) Is a tickler file kept on all TSR Exemption Certifications?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(1) Are TSR Exemption Certifications updated at least once each year?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(2) Is the ECO-NSF notified whenever a TSR Exemption Certification is issued in lieu of a TSR Certification?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

e) Do Human Resources advise the CECO of all potential hires that are considered foreign nationals?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(1) Does the CECO interact with departments concerning the hiring of foreign nationals?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

(2) Before or after the hire?
[ ] Before [ ] After (if after, please explain on a separate sheet)

f) Do all foreign national employees have a TSR Certification, TSR Exemption Certification or Export License copy in their files?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

J) **VISITORS, NON-OBSERVING**:

a) Is the CECO notified of or have access to all visitors, summer students and other short-tem users of the facilities?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Does the CECO advise the host employee or department of export restrictions concerning the visitor if that visitor is a foreign national?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

c) Does the CECO issue TSR Certifications or TSR Exemption Certifications to the foreign national?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

d) Are the other departments advised when a foreign national is issued a TSR Exemption Certification in lieu of a TSR Certification?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

K) **CLOSED WORKSHIPS, MEETINGS and PROJECT REVIEWS**:

a) Is the CECO notified of or have access to all closed workshops, meetings or Project Reviews?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

b) Does the CECO advise the meeting host or department of export restrictions concerning any attendees that are foreign nationals?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

c) Does the CECO issue TSR Certifications or TSR Exemption Certifications to host or department, to have signed by the foreign national or meeting sponsor?
[ ] Yes [ ] No (if not, please explain on a separate sheet)

L) **IMPORTS**:

a) Review import records to ensure technical items under control of the Office of Defense Trade Controls have obtained the appropriate import clearance.

PART 13
ACRONYMS

1) **AOSS** stands for the **A**URA **O**bservatory **S**upport **S**ervices, a division of AURA, and is located in Santiago and La Serena, Chile. It is operated by AURA to support the NOAO-South (CTIO), GEMINI, and SOAR telescopes in Chile along with other tenants at the Cerro Tololo and Cerro Pachon sites.
2) **ATST** stands for **A**dvanced **T**echnology **S**olar **T**elescope and is a collaborative effort within the solar community to design and produce the next generation solar telescope. See http://atst.nso.edu/ for more detailed information on the telescope.
3) **AURA** stands for the **A**ssociation of **U**niversities for **R**esearch in **A**stronomy, Inc. and is the corporation that oversees the NSF contracts under which NOAO functions. AURA is an Arizona corporation and is the legal entity under which NOAO operates. For further information, see http://www.aura-astronomy.org/.
4) **BIS** stands for the Department of Commerce's **B**ureau of **I**ndustry and **S**ecurity. This is the organization responsible for the control of commercially related exports. For more information, see http://207.96.48.13/about/index.htm.
5) **CECO** stands for the On-Site **C**ertified **E**xport **C**ontrol **O**fficer. This individual is responsible for export activities at the individual NOAO and Gemini sites and functions under the direction of the ECO-NSF.
6) **CTIO** stands for the **C**erro **T**ololo **I**nter-American **O**bservatory, an NOAO facility located near La Serena, Chile. It is currently known as NOAO-South. For more information on this observatory, see http://www.ctio.noao.edu/.
7) **DDTC** stands for the State Department's **D**irectorate of **D**efense **T**rade **C**ontrols. This organization is responsible for military-related export controls. For further information, see http://www.pmddtc.state.gov/.
8) **ECO-NASA** stands for the AURA **E**xport **C**ontrol **O**fficer for **NASA**-Related Activities. This individual controls the export activities for STScI.
9) **ECO-NSF** stands for the AURA **E**xport **C**ontrol **O**fficer for **NSF**-Related Activities. This individual controls the export activities for NOAO and GEMINI.
10) **FTSR** stands for the Department of Commerce's Bureau of the Census' U.S. **F**oreign **T**rade **S**tatistics **R**egulations (FTSR) and is officially identified as 15CFR 0-299.
11) **GEMINI** is short for the International Gemini Observatory, an international project managed by AURA, with 8-meter telescopes located on Mauna Kea near Hilo, HI and on Cerro Pachon near La Serena, Chile. For more information on the Gemini telescopes, see http://www.gemini.edu.
12) **GONG** stands for the **G**lobal **O**scillation **N**etwork **G**roup. Managed by the National Solar Observatory, GONG facilities are located at the following sites. For more information on the GONG network, see http://gong.nso.edu/.
    A) Tucson, Arizona
    B) The Big Bear Observatory, California
    C) The High Altitude Observatory at Mauna Loa, Hawaii
    D) The Cerro Tololo Inter-American Observatory, Chile
    E) The Learmonth Solar Observatory, Australia
    F) The Udaipur Solar Observatory, India
    G) The Instituto de Astrofisicas de Canarias, the Canary Islands, Spain
13) **GSMT** stands for **G**iant **S**egmented **M**irror **T**elescope. For more information on the GSMT, see http://www.aura-nio.noao.edu/book/index.html.
14) **ITAR** stands for the State Department's **I**nternational **T**raffic in **A**rms **R**egulations and are the rules governing the export of military-related materials, technology and services. It is officially identified as 22CFR121.
15) **LSST** stands for **L**arge **S**ynoptic **S**urvey **T**elescope, and is a proposed ground-based 8.4-meter, 10 square-degree-field telescope that will provide digital imaging of faint astronomical objects across the entire sky. The effort to build the LSST is overseen by the LSST Corporation, founded by Research Corporation, the University of Arizona, the University of Washington, and the National Optical Astronomy Observatory. For more information on the LSST project, see http://www.lsst.org/lsst_home.shtml.
16) **NOAO** stands for the **N**ational **O**ptical **A**stronomy **O**bservatory, a division of AURA, located in Tucson, Arizona. NOAO consists of the Kitt Peak National Observatory in Tucson and the Cerro Tololo Inter-American Observatory near La Serena, Chile. For more information on NOAO, see http://www.noao.edu/.

17) **OFAC** stands for the Department of the Treasury's **O**ffice of **F**oreign **A**ssets **C**ontrol. This organization administers and enforces economic and trade sanctions based on U.S. foreign policy and national security goals against targeted foreign countries, terrorists, international narcotics traffickers, and those engaged in activities related to the proliferation of weapons of mass destruction. For more information, see http://www.treas.gov/offices/enforcement/ofac/.
18) **NSO** stands for the **N**ational **S**olar **O**bservatory, a division of AURA. NSO currently operates under the same AURA-NSF cooperative agreement as NOAO, and is located at the Sacramento Peak Observatory in Sunspot, NM and on the Kitt Peak National Observatory in Tucson, AZ. For more information on NSO, see http://www.nso.edu/.
19) **PROMPT** stands for **P**anchromatic **R**obotic **O**ptical **M**onitoring and **P**olarimetry **T**elescopes, and consists of six special purpose telescopes located on Cerro Tololo that have been specifically designed to identify and study the most distant objects in the universe. The University of North Carolina administers the PROMPT program.
20) **SMARTS** stands for **S**mall and **M**oderate **A**perture **R**esearch Telescope **S**ystem and consists of the four smaller telescopes on Cerro Tololo that are now being operated by the SMARTS Consortium, a group of several universities and other organizations that operate the 1.5-meter telescope, the 1.0-meter telescope, the 1.3-meter telescope and the 0.9-meter telescope.
21) **SOAR** stands for the **SO**uthern **A**strophysical **R**esearch Telescope located on Cerro Pachon near La Serena, Chile. The country of Brazil, the University of North Carolina, the University of Michigan, and NOAO sponsor the project. For more information on the SOAR telescope, see http://www.soartelescope.org.
22) **STScI** stands for the **S**pace **T**elescope **Sc**ience **I**nstitute, a division of AURA and funded by NASA, located in Baltimore, MD. For more information on the Institute, see http://www.stsci.edu/institute/.
23) **TMT** stands for the **T**hirty **M**eter **T**elescope Project, a collaboration of Caltech, University of California (UC), the Association of Universities for Research in Astronomy (AURA), and the Association of Canadian Universities for Research in Astronomy (ACURA). The TMT design and development activity is currently funded by a grant to Caltech and UC from the Gordon and Betty Moore Foundation. The TMT project office is in Pasadena, California. For further information on the TMT Project, see http://www.astro.caltech.edu/observatories/tmt/.