University of Colorado
Boulder

Office of the Vice Chancellor for Research

July 3, 2013

To Whom It May Concern:

REF: RINs 1400-AC80 and 1400-AD33 (ITAR Amendment – Category XV Spacecraft Systems and Related Articles and "Defense Services")

The University of Colorado Boulder (UCB), an accredited institution of higher learning in the United States, is specifically interested in contributing to the export reform effort in order to ensure that the resulting regulations do not have an adverse impact on academic pursuits. As a result, UCB is providing the following comments in support of U.S. Senator Michael Bennet's and U.S. Representative Mike Coffman's working group on aerospace export control reforms and to the U.S. Department of State's request for public comments on its proposed revision of U.S. Munitions List (USML) Category XV Spacecraft Systems and Related Articles and the definition of "Defense Services".

UCB is also a member of the Association of University Export Control Officers (AUECO), a group of 28 senior export practitioners with experience at accredited institutions of higher learning in the United States. AUECO members monitor proposed changes in laws and regulations affecting academic activities and advocate for policies and procedures that advance effective university compliance with applicable U.S. export controls and trade sanction regulations. In addition to our comments below, UCB fully endorses the comments and recommendations provided to your office by AUECO.

The development of positive lists with objective parameters to describe controlled items is important for the export community. Clarification whether particular items are subject to the jurisdiction of the International Traffic and Arms Regulations (ITAR) or the Export Administration Regulations (EAR) will improve our ability to comply with the regulations. We strongly support efforts to move some satellites and spacecraft from the USML to the Commerce Control List (CCL). We recommend reconsideration of the appropriate jurisdiction for some of the articles proposed for retention on the USML. We express concern about the inconsistency between parts of the proposed "defense service" rule and the National Security Decision Directive 189 (NSDD189) *National Policy on the Transfer of Scientific, Technical and Engineering Information,* or allied exemptions already present in the regulations which could negatively impact academic collaborations and scientific inquiry

UCB has a strong "hands-on" academic program in the field of space research which involves many of our academic departments such as Aerospace Engineering, Computer Science, Physics, and Astrophysical and Planetary Sciences. In order to train the next generation of science and space

professionals, academic institutions such as UCB must have the freedom to teach specific aspects of space instrumentation without the barriers in the current legislation. We believe the positive changes address some aspects but do not go far enough. The following are a few examples:

- The rules focus on commercial aspects and ignore university space research. The fundamental mission of universities is to be open and not restrict class attendance based on nationality. The proposed rules are still too restrictive for university space research.

- We are working more on hosted payloads. If the DoD funds a hosted payload, even if it's completely unclassified, it is still ITAR controlled. The DoD has been encouraging universities to participate in these unclassified missions, but the ITAR regulations will continue to limit our ability to use foreign students.

- Infrared sensing is still ITAR-controlled. Many earth observation science missions use Short Wave Infrared, Medium Wave Infrared, and Long Wave Infrared which would remain ITAR-controlled. This also includes hyperspectral technologies which are becoming increasingly important for earth observations.

- Spacecraft that "track ground, airborne, missile, or space objects using imaging, infrared, radar, or laser systems" are still ITAR-controlled. Much of the same technology, especially GPS receivers and advanced star trackers, goes into spacecraft that do climate and weather science.

- CubeSats will be an increasingly important scientific and educational tool for university research but with the current restrictions, it is not clear that foreign student involvement is permissible.

The current restrictions also hinder the education of our U.S. students in key aerospace subjects. The examples below highlight these limitations.

- Our inability to openly offer courses which have hands-on space technology makes U.S. students less prepared for the workforce than students educated in other countries.

- The classification of technical information regarding attitude determination and control systems as well as GPS for spacecraft as ITAR seriously limits research and publications, which prevents U.S. students from obtaining advanced degrees in these fields and deters faculty from doing research to advance these fields. Such expertise is critical to the U.S. space industry. Such information is distributed in Europe and Asia without restrictions resulting in students educated there becoming more advanced than our U.S. students, and faculty at such institutions are able to drive the state of the art. If this continues it will cause U.S. aerospace companies and agencies such as DoD and NASA to have to specifically seek out students educated abroad to meet their needs, even though there are U.S. students interested and capable of pursuing work in these fields.

- The research using small satellites such as CubeSats is rapidly growing internationally. The current ITAR restrictions on development of spacecraft and payloads for small satellites put U.S. institutions at a huge disadvantage. International journals and conference proceedings regularly publish papers describing such developments. Since our academic institutions are prevented from freely publishing and distributing such information, the U.S. space capabilities will fall further behind compared to peer institutions around the world.

In conclusion, UCB thanks the President's Export Control Reform efforts as well as the efforts by Senator Michael Bennett and Congressman Mike Coffman to remove some satellites and spacecraft technology from the USML. Although these reform efforts will enable some greater involvement in space-related educational and research activities to be conducted at U.S. universities, we request that further steps be taken to re-evaluate the remaining ITAR defense articles and services in light of the crucial role which universities play in educating the next generation.

Sincerely,

Stein Sture, Ph.D.
Vice Chancellor for Research
Huber and Helen Croft Endowed Professor
College of Engineering and Applied Science

William H. Possel
Director, Mission Operations & Data Systems
Laboratory of Atmospheric and Space Physics

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