February 7, 2011

Sent via email to: publiccomments@bis.doc.gov

Regulatory Policy Division
ATTN: Notice of Inquiry -- CCL
Bureau of Industry and Security
Room 2705
U.S. Department of Commerce
Washington, DC 20230

RE: Federal Register: December 9, 2010 (Volume 75, Number 236)

Commerce Control List: Revising Descriptions of Items and Foreign Availability

Dear Sir or Madam:

TechAmerica would like to thank the Department of Commerce and the interagency task force for the tremendous amount of work that has been done so far in support of the Administration's Export Control Reform Initiative. TechAmerica fully supports the overarching goals of:

- A three tiered system;
- Creation of a "bright line" between the two current control lists to determine which list an item is controlled on; and
- The two lists are structurally aligned so that they can potentially be combined into a single list of controlled items

We also endorse the development of a "positive list" which describes controlled items using objective criteria (e.g., technical parameters such as horsepower or microns) rather than broad, open-ended, subjective, generic, or design intent-based criteria.

TechAmerica appreciates the opportunity to comment on this and forthcoming proposed regulations. The involvement of industry in the reform effort will ensure the resulting export control system is streamlined in a way that more effectively addresses national security concerns in an era of globalization, while making the system more transparent and efficient for the government and regulated community.

Please accept our comments below which include policy principles, criteria for controlling end items, parts and components and technology and software. In addition, we include specific comments on how the descriptions of items controlled on the Commerce Control List (CCL) of the Export Administration Regulations (EAR) could be more clear and positive, as well as "tiered" in a manner consistent with the control criteria the Administration has developed as part of the reform effort. The notice also requests comments on the degree to which a controlled item provides the United States with a critical, substantial, or significant military or intelligence advantage; and the availability of the item outside certain groups of countries.

Policy Principles

* Consistent with the Administration's goal of avoiding an overly broad and complex export control system, the Administration should adopt positive lists that consist only of sensitive items that are susceptible to effective control. The positive list should apply only to end items, allowing controls on associated sensitive parts/components, software and technology to be applied as specified below.

* To this end, products, equipment, systems, parts, components, software and technology that are or will become widely available or accessible, or are otherwise not susceptible to effective control, should be classified under EAR99 except under very narrow and justifiable circumstances. Similarly, items should not be subject to Tiers 1-3 controls where broad foreign availability or capability exists.

* Restructure the CCL to align with the format of the revised USML. In particular, a CCL category should focus primarily on identification of end items that produce a significant, substantial or critical military or intelligence advantage. Parts, components, technology or software would only be subject to control as a subcategory of a listing for an end item, but only if they are peculiarly responsible for the specific features of the end item that produce a military or intelligence advantage (see specific criteria below).

* Considerations that should inform the Administration's proposed criteria for placing items within the 3-tier control structure should include:

- An application of foreign availability that includes whether equivalent foreign items and capabilities exist, as well as other relevant factors, including but not limited to the degree to which an item is available or accessible through commercial channels outside the U.S.
- Tier 1 and 2 controls should apply to items that have an inherent military or intelligence capability. In particular, the controls should apply to items with functions/capabilities that are peculiarly responsible for critical or substantial military/intelligence applications.
- All other items subject to control under the 3-tiered structure should fall under Tier 3.

- Items where companies hold CCATs or other rulings indicating products are EAR99 should continue to stand since items don't fall under any of the Tiers on the new control list.
- Ensure that positive control list parameters for sensitive end items are predicated upon precise, clear, objective and positive criteria. If control metrics for an item cannot be articulated in objective, unambiguous and positive standards, the items should not be subject to Tier 1-3 controls.

* Technical export control parameters should be continuously reviewed with a view toward swiftly updating those parameters that are overtaken by technological advances, wide availability and foreign availability.

* The new 3-tier list structure should contain descriptions and criteria that avoid subjecting items to export controls that are more stringent than they are today. In addition, the removal of terms like "specifically designed" should not result in the broadening of controls.

* The new export control system should comport with multilateral agreements and disciplines.

Criteria for Controlling End Items

* An end item should only be controlled within the 3-tiered CCL structure if it possesses characteristics that are directly related or essential to the creation of a critical, substantial or significant military- or intelligence-related advantage. Such items are contemplated in the Wassenaar Sensitive and Very Sensitive lists.

* An end item should fall under EAR99 if it is not directly related or essential to the creation of a military/intelligence advantage.

* An end item should also fall under EAR99 if it meets the wide availability, controllability and broad foreign availability guidelines stated in the second policy principle above. For example, scalar computers should fall under EAR99, given the broad foreign availability of such computers and advanced capabilities that exist outside the U.S., including China (see www.top500.org).

Criteria for Controlling Parts and Components

* Parts and components, such as semiconductors, should not be subject to a separate control category, but rather should be controlled in association with the end products, systems or equipment in which they are to be incorporated. In that case, the parts and components should only be controlled when peculiarly responsible for the specific features of an end item that produce a military or intelligence advantage[1].

[1] Inconsequential characteristics such as radiation tolerance, quality screening, packaging, and temperature resistance should not be considered "peculiarly responsible" for the features of a military or intelligence end item and should not trigger control for semiconductors or integrated circuits.

* Parts/components that are not general purpose, or are not generally commercially applied, should fall within Tier 3 if they are: (1) specially designed for (i.e., used exclusively in) a defense article; and (2) peculiarly responsible for enabling military/intelligence applications. In the area of integrated circuits, only those devices considered by the industry as either application specific ICs (JEDEC definition of an “ASIC”) or "custom" ICs (an integrated circuit developed or produced to conform to a single customer's unique requirements) and are peculiarly responsible for enabling military/intelligence applications should be controlled on the CCL and fall within Tier 3 when peculiarly responsible for the specific features of an item that produce a military or intelligence advantage. Parts/components should not fall within Tiers 1 or 2, given their inability to make a military/intelligence contribution without first being incorporated into downstream products, systems or equipment.

* Parts/components that are general purpose or generally commercially applied, including ICs that are not ASICs or "custom" ICs, should be classified as EAR99. General purpose parts/components by themselves have no inherent military or intelligence capability; in addition, parts/components that are generally commercially applied are civilian in character and, hence, cannot by definition be peculiar to military or intelligence applications.

* Parts and components that meet the wide availability, controllability and broad foreign availability guidelines stated in the second policy principle above should fall under EAR99.

Criteria for Controlling Technology and Software

* Software and technology should only be controlled within Tiers 1-3 to the extent they are peculiarly responsible for enabling a feature of an end item that provides a critical, substantial or significant military- or intelligence advantage.

* Software and technology that are general purpose or generally commercially applied should be classified as EAR99. General purpose software and technology by themselves have no inherent military or intelligence capability; in addition, software and technology that are generally commercially applied are civilian in character and, hence, cannot by definition be peculiar to military or intelligence applications.

* Software and technology subject to the EAR that meet the wide availability, controllability and broad foreign availability guidelines stated in the second policy principle above should fall under EAR99.

* Tier 1-3 controls should not apply to “use” technology, including technology that is the minimum necessary for the installation, operation, maintenance (checking) and repair of those items which are not controlled or whose export has been authorized.

Definitions

For purposes of the above architecture, TechAmerica believes that the terms parts, components and end items should be defined as follows:

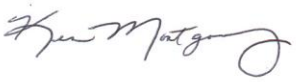
Part/Component – An input, part, piece, subassembly or ingredient of an end item.

End Item – A final combination of components/parts, and/or materials in the form of a product, system or piece of equipment that is ready for its intended use (e.g., ship, aircraft, magnetometer, launch vehicle, marine acoustic system, milling machine).

TechAmerica strongly believes that the U.S. government must take bold steps to achieve its goal of comprehensive and fundamental reform of the export control system. This goal includes creating a more effective system that focuses controls on fewer, more critical items. The government can accomplish this objective in large measure by adopting the above policy principles and control criteria as it adapts the Commodity Control List to a tiered export control structure. TechAmerica hopes that fundamental reform grounded in our principles and criteria is realizable in the near term. In the event a protracted period for achieving fundamental reform becomes necessary, our members believe it is essential to ensure that the incremental reforms in the attached appendix are implemented on an interim basis in the short term.

TechAmerica would like to thank the Department of Commerce for the opportunity to provide comments on Export Control Modernization and this specific Federal Register Notice regarding the Commerce Control List: Revising Descriptions of Items and Foreign Availability. It is important to note that these comments are not comprehensive, and we fully expect to provide the Commerce Department with further recommendations in response to future proposal rulemakings and through other channels.

Sincerely,



Ken Montgomery
Vice President, International Trade Regulation

APPENDIX

As stated in our response to the December 9, 2010 Federal Register Notice requesting comments on the Commerce Control List, TechAmerica strongly urges the Administration to pursue fundamental reform of CCL-related controls by adopting a series of principles and criteria aimed at creating a narrower, more effective system. Until such fundamental reform can be accomplished, TechAmerica believes the following specific CCL-related recommendations should be adopted as an interim step toward comprehensive and fundamental reform.

Category 3

Proposal for Tier 3:
Eliminate Category **3A225** and replace with below:

1. Frequency changers or generators having all of the following characteristics:

    a. Multiphase Low Voltage (1000V a.c. / 1500V d.c.)
    output capable of providing a power in the range between 40VA and 50 kVA, and

    b. Capable of operating at an output frequency over 800 Hz

    Remove the following criteria for control from the text:
    - Harmonic distortion as a criteria for control
    - Frequency control better than 0.1[0.2] %

2. Components and software able to circumvent the above condition 1, are controlled.

The following would not be included in any Tier:

1. Frequency changers or generators having all of the following characteristics:

    a. Multiphase Low Voltage (1000V a.c. / 1500V d.c.) output capable of providing a power in the range below 40VA, and

    b. Capable of operating at an output frequency at 800 Hz and under during a sliding slot of 24 hours are not controlled.

    Remove the following criteria for control from the text:
    - Harmonic distortion as a criteria for control

- Frequency control better than 0.1[0.2] % - Absolute frequency limits are hard coded into the frequency changer firmware and are not regarded as user defeatable.
- Duty cycle limitation should not be used as control criteria since some existing applications could be negatively impacted as they require longer than 24 hour duty. "Operational time at/above a defined target frequency" (similar wording to duty cycle limitation) should also not be used as control criteria.

2. Components and software related to condition 1 are not controlled.

ECCN 3D003: 'Physics-based' simulation "software" specially designed for the "development" of lithographic, etching or deposition processes for translating masking patterns into specific topographical patterns in conductors, dielectrics or semiconductor materials.

This ECCN is unnecessary as the application of this software resides solely in process-specific manufacturing equipment used to produce photolithographic masks that are already effectively controlled in category 3B. The cost of this equipment, coupled with the costs of supporting the infrastructure, is in the multi-millions of dollars, effectively limiting its availability. Furthermore, 3D003 technology is being taught in universities worldwide, providing a basis for foreign availability.

ECCN 3D991: "Software" specially designed for the "development", "production", or "use" of electronic devices or components controlled by 3A991, general purpose electronic equipment controlled by 3A992, or manufacturing and test equipment controlled by 3B991 and 3B992; or "software" specially designed for the "use" of equipment controlled by 3B001.g and .h.

Electronic Design Automation (EDA) is the formal name for a suite of software and related technology used by designers and engineers for the layout of electronic circuits. The EDA design process incorporates multiple steps from idea generation through "tape out" of a design that is then translated by software/firmware within fab equipment to produce a chip or board.

Core EDA products were decontrolled in the early 1990's. Companies within the industry received multiple CCATS listing these products under ECCNs 3D96G and EAR99. Beginning in 2004, in conjunction with a clarification to ECCN 3D003, The Bureau of Industry and Security (BIS) began classifying EDA tools under ECCN 3D991. Taking a conservative approach, EDA companies have self-classified their suites of software tools under 3D991, even though if exported individually, many of the subset components would be EAR99 (database managers, GUI translators, design library files for EAR99 components such as DRAM and BUS interconnects, etc.).

We take this broader approach in classifying software as 3D991/ 3E991, as fundamentally these classifications and EAR99 are both equally subject to the level of restrictions described in the *General Prohibitions* outlined in Part 736 of the EAR. To

break the components out individually creates a bureaucratic structure that has zero effect on compliance practice or national security.

We request a modified ECCN 3D991/3E991, identified in Tier 3 of the new category structure. These ECCNs would be modified to include a statement that 3D991 does not control Electronic Design Automation software, and 3E991 does not control Electronic Design Automation technology. This would clarify what today is a confusing mix of 3D991, 3E991 and legitimate EAR99 classifications that exist within the EDA spectrum. By reclassifying EDA as EAR99 (as it had been prior to 2004), this also acknowledges the broad availability of this software that is being taught in universities and used in commercial settings worldwide.

The resultant 3D991/ 3E991 would continue to control the design features of specific electronics controlled under 3A991. However, consistent with TechAmerica's overarching policy principles, parts/components that today fall under 3A991 are by their nature general purpose and generally used in commercial applications, and should be classified as EAR99. 3D991 and 3E991 would be limited to software and technology as it applies to the remaining 3A992, 3B991 & 3B992 entries.

ECCN 3E001: "Technology" according to the General Technology Note for the "development" or "production" of equipment or materials controlled by 3A (except 3A292, 3A980, 3A981, 3A991 3A992, or 3A999), 3B (except 3B991 or 3B992) or 3C (except 3C992).

Intellectual Property (IP) sold for reuse in chip designs by EDA software companies is currently restricted under ECCN 3E001 when the technical attributes exceed certain limits. This IP includes commercially used building blocks such as Analog to Digital Converters, and Digital to Analog Converters. TechAmerica recommends that the parameters that trigger control under 3E001 be increased to higher thresholds so that US and European companies that produce the IP are not put at a competitive disadvantage with the foreign competition that exists outside the Wassenaar countries. Here is an example of a commercially available source for such IP from India: http://www.cosmiccircuits.com/adc-listing

The Cosmic Circuits IP catalog contains several IPs which are 12-bit, 125MSPS ADCs, currently controlled under EU/US export regulations, section 3A001, 5.a.:

> 3. a resolution of 12 bit with an output rate greater than 105 million words per second;

In the list of products for sale from Cosmic Circuits, there are multiple converters in deep submicron nodes (65nm CMOS, for example) that go beyond the export restriction limits and are widely available in the market without being subject to US & EU export restrictions.

As further evidence that the technical capabilities for these products exist worldwide, TechAmerica offers this example of a paper written in China: http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05667791

TechAmerica believes that the current technical limits are outdated and recommends the following limits be implemented:

Type of Converter	Minimum # of bits	Maximum # of bits	Current Limit	Proposed Limit	Category 3 designator
ADC	≥ 8	< 10	500MHz	2GHz	3A001.a.5.a.1
ADC	≥ 10	< 12	200MHz	1GHz	3A001.a.5.a.2
ADC	= 12		105MHz	500MHz	3A001.a.5.a.3
ADC	> 12	≤ 14	10MHz	100MHz	3A001.a.5.a.4
ADC	> 14		2.5MHz	25MHz	3A001.a.5.a.5
DAC	≥ 12		10 ns	5 ns	3A001.a.5.b

ECCN: 3E002: Given the increasing capability of widely available commercial devices and the means to produce them around the world, we recommend that the language of the 3E002 header reading "access width of 32 bits or more" be changed to read "access width of more than 64 bits."

ECCN: 3A991.a.1: If the entry for 3A991 is not eliminated as proposed above, given the increasing capability of widely available commercial devices we recommend that two elements of this entry be updated. 5 GFLOPS should be increased to 200 GFLOPS. The "arithmetic logic unit of 32 bits or more" is also too restrictive since many commercial products already have a 64-bit arithmetic logic unit. Hence, the 32-bit level should be increased to > 64 bits. Refer to Part 744.17 below.

Part 744.17

RESTRICTIONS ON CERTAIN EXPORTS AND REEXPORTS OF GENERAL PURPOSE MICROPROCESSORS FOR "MILITARY END-USES" AND TO "MILITARY END-USERS"

(a) General prohibition

In addition to the license requirements for antiterrorism reasons set forth in part 742 of the EAR, you may not export or reexport commodities described in ECCN 3A991.a.1 on the CCL("microprocessor microcircuits", "microcomputer microcircuits", and microcontroller microcircuits having a processing speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more), without a license if, at the time of the export or reexport, you know, have reason to know, or are informed by BIS that the item will be or is intended to be used for a 'military end use,' as defined in paragraph (d) of this section, in Country Group D:1 (see Supplement No. 1 to part740 of

the EAR); or by a 'military end-user,' as defined in paragraph (e) of this section, in Country Group D:1. This license requirement does not apply to exports or reexports of items for the official use by personnel and agencies of the U.S. Government or agencies of a cooperating government. See §740.11(b)(3) of the EAR for definitions of "agency of the U.S. Government" and "agency of a cooperating government".

As a more general matter, it is essential that removal of "specifically designed" or other terms deemed to be too subjective not result in additional or more restrictive Category 3 controls, whether related to radiation-hardened IC's, temperature resistant devices or other Category 3 items.

Category 5

Encryption products that are customized for military end use should be controlled in Tier 2. Encryption products that are custom-designed and/or that are unilaterally available in the U.S. should be controlled in Tier 2.

Products containing encryption as a primary function that use non-standard encryption should be controlled at Tier 3. Products with encryption that have encryption as a primary function that use standard algorithms such as SSL should be controlled at Tier 3.

To show that encryption products have foreign availability a company may submit data that can be validated such as a white paper, a published study or a reference to publicly available information on the Internet. BIS should be required to follow up with the company in a specific time frame to either agree that the data meets foreign availability definition, to request further clarifying information, or to disagree that there is a case for foreign availability.

As an example of foreign availability of encryption, we point to the fact that many countries have a practice of requiring use of proprietary indigenous encryption algorithms in order to qualify for public procurement. China's practice of requiring use of unique national encryption algorithms to be eligible for sale to government agencies – the CCC requirements -are outlined in the following article- http://news.techworld.com/security/3222207/china-encryption-rule-could-block-computer-makers-from-market/?olo=rss.

Another example is China's Wired Authentication and Privacy Infrastructure (WAPI) case of 2004 where the government of China required Wi-Fi equipment to include a Chinese proprietary security standard only available for inclusion by Chinese companies.

In addition, the government of China is engaged in an "Indigenous Innovation" campaign to encourage the growth and development of Information and Communications Technology (ICT) including its own software and operating systems sector. China is promoting not only its own encryption but its own operating systems for personal computers and mobile phones that are not subject to US reviews or controls. As China drives to expand its market for IT products outside of China, such as Chinese mobile phones sold in India and elsewhere, the US visibility to encryption code will diminish.

Refer to the following article for additional details:
http://www.tradingmarkets.com/news/stock-alert/msft_china-s-2-homegrown-os-got-integrated-rivaling-microsoft-1374891.html

In addition TechAmerica recommends changes to **5E001 b.3 and b.4:**

5E001 technology

b.3. "Technology" for the "development" of digital cellular radio base station receiving equipment whose reception capabilities that allow multi-band, multi-channel, multi-mode, multi-coding algorithm or multi-protocol operation can be modified by changes in "software";

b.4. "Technology" for the "development" of "spread spectrum" techniques, including "frequency hopping" techniques.

Digital cellular radio is defined in international standards bodies. US companies serving global commercial markets must implement those standards. Standards-based technology should be excluded from this control. Any other country or foreign company can implement these standards themselves since they are in the public domain.

Category 6

Charge coupled devices (CCDs) have been used for over 40 years to detect low light in a variety of end equipment applications. A variant of CCDs, electron-multiplying CCDs (EMCCDs), were developed over ten years ago. Both CCDs and EMCCDs should be treated as a part or component that is general purpose or generally commercially applied in low-light end applications, such as scientific, medical and commercial end applications, as well as certain dual-use end applications. These multiple end applications include endoscopy, in vivo cancer analysis, spectroscopy, microscopy, material analysis, SC QC analysis, pharmaceutical drug testing, and low light surveillance and security cameras.

Consistent with TechAmerica's overarching policy principles, parts/components that are general purpose or generally commercially applied should be classified as EAR99. General purpose parts/components by themselves have no inherent military or intelligence capability; in addition, parts/components that are generally commercially applied are civilian in character and, hence, cannot by definition be peculiar to military or intelligence applications. This is true with respect to EMCCD sensors.

Certain items potentially controlled under Category 6 of the CCL should not be controlled under any Tier of either the USML or CCL because they are general purpose, are generally commercially applied and are not: (1) specially designed for (i.e. used exclusively) a defense article; and (2) peculiarly responsible for enabling military/intelligence applications.

Alternatively, if any such general purpose or commercially applied items are to be controlled under any Tier, clear performance based control parameters should be utilized to control these items, including those that are specifically designed to achieve charge multiplication, such as EMCCDs.

The following entry, which is based upon certain control parameters mutually agreed to by the U.S. and other Wassenaar members during the 2007 Wassenaar Plenary, is taken from the current Wassenaar Control List. However, to date, the US Government has yet to implement in the CCL this specific change to the Wassenaar Control List, which was mutually agreed upon at the behest of the US Government in 2007. Therefore, at a minimum, the specific entry below should be added immediately to the existing CCL. Importantly, the addition of this specific entry to the CCL would result in an export control status that would be consistent with the control status of these items already put in place by other Wassenaar members, such as the UK and Japan.

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6. A. 2. a. 3. g. Non-"space-qualified" "focal plane arrays" having all of the following:

1. Individual detector elements with a peak response in the wavelength range exceeding 400 nm but not exceeding 900 nm;

2. Specially designed or modified to achieve 'charge multiplication' and having a maximum "radiant sensitivity" exceeding 10 mA/W for wavelengths exceeding 760 nm; and

3. Greater than 32 elements.

In addition, based upon advancement in technologies, this above CCL entry should be broken down into two specific CCL entries, one of which should cover only those focal plane arrays "having a maximum "radiant sensitivity" exceeding 35 mA/W for wavelengths exceeding 760 nm" and are back thinned or based upon a back-illuminated sensor architecture. The second entry should cover those focal plane arrays "having a maximum "radiant sensitivity" exceeding 10 mA/W but less than 35 mA/W for wavelengths exceeding 760 nm" and are not back thinned or not based upon a back-illuminated sensor architecture.

These separate entries should be created based upon the fact that sensors based upon back-illuminated architectures are better suited for end applications that require higher sensitivity and greater quantum efficiency values. Back-illuminated versions of EMCCDs exhibit substantially broader and higher quantum efficiency values than front-illuminated EMCCDs. See the following sources for additional technical background.

http://www.e2v.com/news/breakthrough-back-illuminated-ccd-and-emccd-detector-technology-sets-a-new-standard-for-sensitivity-/

http://learn.hamamatsu.com/articles/emccds.html

http://www.stanfordcomputeroptics.com/t-iccd-and-emccd.html

Tier 2 controls should only apply to those items that are based upon back-illuminated architectures and have a maximum "radiant sensitivity" exceeding 35 mA/W for wavelengths exceeding 760 nm. All other items in this category should be either EAR99 or only subject to Tier 3 controls.