## Timothy Mooney

**From:** Jim Ramsbotham <ramsboth@oei-tech.com>
**Sent:** Friday, September 09, 2011 4:57 PM
**To:** PublicComments
**Subject:** Public comment 11. Individual commenter. A Ramsbotham. 9.9.11 RIN 0694-AF17
**Attachments:** FinalComments20110909.pdf

The attached .pdf document provides detailed comments on the subject proposed rule for BIS consideration. As noted in the attachment, these are personal comments, based on some years of experience in military systems development, technology security, and export control. They do not represent nor should they be construed in any way as representing the views or positions of any organization or group with which I am presently or may have been associated in the past.

As BIS is well-aware, the challenges of generating clear and effective regulatory language are extremely daunting. I appreciate the considerable time and effort that have gone into the development of the propose rule. I have tried to present comments in a balanced manner. The intent is to be constructive

Hope this proves useful in some way.

Alan J. Ramsbotham, Jr.
President, Orion Enterprises, Inc.

9 September 2011

To: publiccomments@bis.doc.gov
From: Alan J. Ramsbotham, Jr. ramsboth@oei-tech.com; 540-775-2033.

Subject: Comments on CCL July 15 Rule RIN 0694-AF17, Proposed Revisions to the Export Administration Regulations (EAR)

**Summary Comment:**

Export control reform is needed and many of the elements of the proposed rule are well-intended. However, the specific language does not achieve its intended purposes of enhancing national security and providing US exporters with relief from onerous licensing procedures. In fact, as noted in the following comments, parts of the proposed rule stand to introduce significantly greater uncertainty, complexity, and potential delay to the licensing processes.

The following comments are divided into four parts: 1. Introduction; 2. General Comments; 3. Specific Comments on the Proposed Text, and 4. Summary Comments and Suggested Interim Steps. Also included as an Addendum is an example and discussion of specially-designed components for military use.

# 1. Introduction

## 1.1. Stated and implied objectives of Export Control Reform

The stated objectives of Export Control Reform are to enhance national security, and to streamline processes that are widely viewed as impediments to US industry's global competitiveness. The highest profile example of the effect of this is arguably the foreign development and sales of "ITAR-free" satellites. [1, 2] What is less evident, but more pervasive, is the chilling effect of ITAR controls on sales of mundane parts and components. These are products that, perhaps originally designed and essential to the operation of military item, are available without restriction from non-US sources across the globe.

Another stated objective of export control reform is to reduce the number of requests for commodity jurisdiction (CJ) determinations. These have increasingly clogged the system, created backlogs, delayed exports, and arguably cost US vendors sales.

## 1.3. Scope of Proposed Rule and Comments:

The proposed rule primarily deals with Ground Vehicles, "Parts" and "Components." However, key provisions apply to the CCL as a whole. The probable effects of the proposed rule can not be fully assessed without considering (and making assumptions regarding) the proposed changes to Category

1 ESA Web Site: ITAR free SPACEBUS 4000B2. http://telecom.esa.int/telecom/www/object/index.cfm?fobjectid=28086 Last updated 23 Jul 2008, Accessed 2011.08.03.

2 Sutherland, B, "Why America is Lost in Space", Newsweek Magazine, 9 February 2009

VII. [3] Examples are cited in **Part 3. Specific Comments**.

As part of the export control reform effort, significant changes have been proposed to the USML. As an initial test case, the proposed rule is not an adequate basis for evaluating the likely impact of implementing comparable controls across other categories of products and technologies.

### 1.4 The Critical Question:

There is no argument that reform is needed. The critical question is, "Does this proposed rule achieve it?" Part 2. of these comments provides some overall opinions on this question. Part 3 documents the basis for these opinions in the form of specific comments on the proposed text.

## 2. Overall Observations:

2.1 The Export Administration Act of 1979, US export controls, as subsequently amended and extended by executive order, restricted the use of export licensing of dual-use items for national security purposes to so called "militarily critical" items-specifically, know-how, keystone equipment, software, and goods accompanied by sophisticated know-how. The criteria for inclusion for inclusion on the control list were that the items

> . . . are not possessed by, or available in fact from sources outside the United States to, controlled countries and which, if exported, would permit a significant advance in a military system of such country.[4]

Subsequent revision added specificity to the criteria "not . . . available in fact,"specifying that:

> The President shall not impose export controls for foreign policy of national security purposes on the export from the United States of goods or technology which he determines are available without restriction from sources outside the United States in sufficient quantities and comparable in quality to those produced in the United States so as to render the controls ineffective in achieving their purposes."

The ITAR provides criteria for what constitute "defense items." These are summarized as follows:[5]

> A defense item is defined by regulation as one that is "specifically designed, developed, or configured, adapted, or modified for a military application," has neither "predominant civilian application" <u>nor</u> "performance equivalent to an item used for civilian application . . . <u>and</u> has significant military or intelligence application such that control is necessary."[6]

These criteria unarguably require subjective judgment of a technical nature. They have seldom been rigorously applied in any systematic manner. The complexity and pace of change in technology and its

3 Federal Register/Vol. 75, No. 237/Friday, December 10, 2010, Proposed Rules. Department of State, 22 CRF Part 121, Amendment to the International Traffic in Arms Regulations: Revision of US Munitions List Category VII.

4 EAR Legal Authority Section 5 NATIONAL SECURITY CONTROLS, subpart 5(d)(2)

5 Fergusson, I and Kerr, P, "The U.S. Export Control System and the President's Reform Initiative, Congressional Research Service, July 14 2011.

6 Citation for quoted material, International Traffic in Arms Regulations, 22 C.F.R 120.3

diverse application and rapid global geopolitical and economic changes make any attempt at complete and comprehensive coverage a daunting challenge.

The underlying premises of the existing EAR and ITAR criteria are sound. It is the difficulties of implementing them in practice with available resources that drive the need for export control reform. A key question, then, is "Will the new proposed rules lend themselves to a more effective implementation than the existing regulations?" It is not at all clear that they will.

2.2 Defense items have a vital foreign policy aspect that is distinct from national security. A substantial number of military items produced in the US today are well within the reach of other countries' capabilities. However, export of military equipment to a foreign entity still carries an implication of support for their political and military objectives. This is the historical reason that implements of war are licensed by Department of State. The concept of the "four singles" (with the arguable exception of the "one IT system to bind them all") has merit. But, in the process, the critical foreign policy implications of trade in what are clearly military systems must not be neglected.

The criteria outlined in 2.1, while subjective in character, are reasonably clear in terms of intent. Were they applied conscientiously many of the problems Export Control Reform aims to address would not exist. Moreover the proposed rule is rife with language that is equally, if not more, subjective.

A key question, then is "Will the proposed rule promote more timely and consistent application of subjective criteria?" Again, it is not clear that they will.

2.4 **"Specially Designed."** The proposed text creates a bewildering framework of broad categorical controls by reference to other items on the CCL, exclusions, notes to the basic definition, and numerous notes to Exclusion Paragraphs. The text is too long and complicated for practical use. It does violence to the basic spirit of a single positive control list. It provides no relief for industry in terms of USML licensing requirements for specially-designed parts and components.

The comments offered address several examples of the practical effects of "specially designed", as defined, in the relatively narrow context of the specific proposed rule. This is the tip of the iceberg. The definition of "specially designed applies to the CCL as a whole. Its full impact will, accordingly, be orders of magnitude greater than my specific comments would indicate. Mr. William Root, whose comments I have had the benefit of seeing, has provided an outstanding analysis of the pervasive use of this term throughout the entire CCL. His analysis and recommendations warrant the most serious consideration.

Attachment 1 discusses the general nature of specially designed parts and components as they are used commonly in engineering and production. Whether or not the terms (or for that matter, any other terms) can be effectively interpreted by lawyers and judges in a court of law is another matter entirely, and beyond the scope of these comments. However, it appears apparent from the history of the use of "specially designed" and related terms that something is needed to to provide greater clarity regarding the intent of the rules. But, the proposed rule is too long, convoluted, and difficult to interpret to serve that need. [7] That said, the drafters of the proposed definition have done substantial value-added work.

7 Export control reform cannot resolve the problem of "specially-designed." The root causes of the problems lie in the legal processes of enforcement. This discussion is beyond the scope of this proposed rule. But concisely, the problems have always been problems of interpretation. The more words, the greater opportunity for interpretation.

The proposed definition directly attacks some of the core implementation issues, and should be retained. (See Paragraph 3.3 for amplification.)

**2.5 The 600 Series.** One of the overarching problems of the proposed rule is the creation of a new "600 series" which includes national security control of items for "having little or no military significance." To conform to the terms of the Wassenaar Arrangement, we need a transition mechanism for such products. However, inclusion of the items "of little or no military significance" for national security purposes on the dual-use CCL, would appear to violate the most fundamental principles of the EAA and common sense—particularly in light of the unavailability of reasonable License Exceptions for Category y. subitems.

The EAR is already seen as inordinately complicated and difficult to interpret. The "List", which has been the focus of export control reform, comprises a relatively small part of the overall EAR. The net result of the current language is to make a potentially large number of items "of little or no military significance" subject to the full administrative burden of the EAR.

**2.6 Commodity Jurisdiction.** The proposed rule (in fact, a single positive control list as such) does not create the desired "bright line" needed to reduce the number and complexity of commodity jurisdiction. The discussion simply moves to which item of the list applies. Further, the terms "of little or no military significance" pose the classic problem of "proving the negative."

**2.8 Other related observations.** A substantial number the key problems facing US exporters fall outside of the scope of this proposed rule. Example include the administrative burdens imposed by EAR 99, and "deemed export," a crucial issue for international operations in a global economy.

## 3.0 Specific Comments:

(Unless otherwise noted, page numbers and paragraph citations refer to the text as rendered in the Federal Register, Vol. 76, No. 136/Friday July 15, 2011

**3.1 Supplement No 3.SUPPLEMENT NO. 3 TO PART 732—BIS'S "KNOW YOUR CUSTOMER" GUIDANCE AND RED FLAGS"** Inclusion of the 600.y sub-items in the coverage of the new paragraph 13 and places a unreasonable requirement on the exporter. <u>As a minimum, these should be excluded.</u>

**3.2 C) License Exceptions for "600 Series" Items.** The language of the proposed rule imposes draconian limitations on the exceptions available for 600 series items, including those specified in .y as of "little or no military value." (See related comment 3.8)

**3.3. Section 772. Definitions of terms as used in the Export Administration Regulations. "Specially-designed."**

3.3.1 The complexities and problems of specially-designed will most certainly be addressed at length by numbers of comments. I have included an informal white paper on the subject as an an appendix to these comments. My formal comments are restricted to structural problems with the logic of the controls as written. For brevity, the following discussion is restricted to one instance of what is a more

pervasive problem:

Sub-items (b) of the definition defines "specially designed" parts and components as being those of an item 'enumerated' in a category of the CCL. This would, therefore, be caught by virtue of being listed in the .y sub-items.

The exemptions of (c) do not apply; .y items are defined as "specially-designed" and enumerated. Thus the only criteria for control is that they fall into one of a number of broad categories listed (e.g., batteries, latches and hinges, filters, etc,) and have "little or no military significance." It is not at all clear how such a proposed rule will either enhance security or streamline procedures to provide industry with relief.

3.3.2. Note 1 to the definition of "specially designed" articulates an important principle. However, additional specificity and cross-referencing is needed. The terms "in theory" are likely to prove problematic with regard to items controlled on the USML. The life cycle of a military system covers a wide range of activities, from earliest proof of principle demonstrations to full production and operational deployment and use. A complication is that fundamental research, which is generally exempt from restriction includes "applied." The key question: At what point does an emerging technology move from "in theory" to "in practice?"

<u>Suggestion: From a regulatory stand-point subjective judgment regarding "in theory" should be avoided if possible. Clarity and the key provision of having an 0Y521 series might be reinforced with something along the following lines:</u>

> <u>"Note 1 to Definition: The definition of "specially-designed" does not extend to items simply because they could in theory be used with the listed item on the USML or CCL. Items deemed to have practical application should be those listed in an 0Y521 series item.</u>

This is a conceptual approach only. Unless and until the more overriding structural and logical problems of the proposed rule are addressed, any definition will pose problems. See Paragraph 4. of these comments for related discussion.

**3.4 0A919.d.2.** The language controls "military commodities" "produced outside the United States" that meet certain broad criteria <u>and</u> incorporate more than 10% "600 series content." The intent of this control and its practical effect are unclear in several respects:

(a) sub-items a. and c. appear contradictory. [NOTE: This is existing language.] Because the chapeau specifies "all of the following characteristics," the listed item must be simultaneously "described on the USML" and "not subject to the ITAR for reason other than presence in the United States." It is not clear by what mechanism an item not specified on the ITAR would become controlled by the ITAR simply by virtue of being in the United States.

(b) 0A919d.2 does not specify that the "600 series" items need to be of US manufacture.

(c) The definition of "military commodity" and the chapeau exclude any item in the "600 series." Thus a commodity listed in 0A600.a, b, or c. of 100% foreign manufacture might be decontrolled by the chapeau, and recontrolled by virtue of having more than 10% 600 series

parts and components.

As a minimum the language needs to be rewritten eliminate the conflict and to clarify the intent.

**3.5 0A521 Any Item Subject to the EAR That is not Listed Elsewhere in the CCL but Which is Controlled for Export Because it Provides at Least a Significant Military or Intelligence Advantage to the United States or for Foreign Policy Reasons.**

The addition of a 0Y521 series to deal with emerging technologies and dual-use products with significant military capabilities implements long neglected provisions of the EAA requiring timely identification and disposition of items of concern that are not presently subject to multilateral controls. The specific proposed language, however, may have some unintended effects, when the specific provisions of 742,6(a)(7) are considered.

With regard to drawing a "bright line" the terms "at least a significant military or intelligence advantage" are as subjective as any existing EAA wording. The use of the term, "advantage" sets a higher bar than "advance." A nation may advance its capability without threatening US military superiority. However, a county does not need to threaten a US advantage to pose a threat to Regional Stability.

The language of proposed 742.6(a)(7) diverge significantly from the intent of the foreign availability provisions in EAA Section 4(c) regarding imposition of unilateral controls.

(a) The effect of the language appears to be to impose RS Column1 licensing requirements on 0Y521 series items. RS Column 1 includes all countries.

(b) The time span for developing and negotiating agreement on a new control item in the Wassenaar is typically two-three year. Difficult issues can take even longer to resolve.

(c) As specified in (a)(7)(iii), absent specific action, 0Y521 items expire at the end one year, and are designated EAR99, unless the CCL is amended to extend the 0Y521 for a year, not to exceed two years.

(d) The language does not, however, impose a time limit on the EAR99 designation.

(e) The treatment of such new EAR items is unclear. However, the implication is that they will remain subject to the provisions of (a)(7), and thus will be subject to case-by-case review for regional stability to all countries except Canada.

(f) This effectively circumvents the intent of the EAA regarding unilateral controls of items with foreign availability.

As a minimum, if the intent of the 0Y521 series is that only those items listed in Supplement 5 to Part 774 that it should be explicitly stated. For example: The list of items determined to be classified under ECCN 0Y521 is limited to those enumerated in Supplement 5.

As a minimum, the language should be expanded to ensure that the intent of the foreign availability

provisions of the law are respected.

### 3.6 0A606, Reasons for Control: (Comment also applies to 0B606)

As written, the tables are illogical. The control columns explicitly states that "NS" and "RS" apply to entire entry, which is inclusive of the .y sub-items. The second column indicates only that Column 1 does not apply. It appears that what is intended is that NS and RS apply to all sub-items except .y, for which only AT and UN controls should apply. If that is what is meant, that is what the regulations should say.

Recommend that the Control Column in the table be changed to reflect this intent.

### 3.7 0A606 Ground Vehicles, Parts, and Components

3.7.1 It is difficult to evaluate the effect of the proposed language in isolation from the proposed new language for Category VII. (Ref: Federal Register 10 December 2010 Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category VII.)

In it's current form, the proposed revised Category VII comprises a poorly organized shopping list of any and all systems, parts, and components that might be remotely associated with military ground vehicles. It does not adequately address modern combat vehicle design. I appreciate that this is beyond the scope of the current proposed control. However, it will prove particularly problematic in the context of sub-items .x and .y. (see below).

3.7.2 The following example illustrates the problem.

The language of sub-item (a)(1)(vii)(C) of the proposed USML Category VII categorically specifies that ALL unmanned ground vehicles that are capable of off-road or amphibious operation will be licensed as munitions. By including systems that allow for on-board human control, Technical Note 1 thus categorically catches virtually all agricultural equipment, and a wide range of other systems designed for purely civil applications such as construction, mining, environmental survey and remediation, etc.

This is significant because the x. sub-item explicitly includes "parts", "components", and "accessories and attachments" "specially designed" for any defense article specified in USML Category VII. If the proposed language of Category VII is implemented, this could control any item that is specially-designed for use on any vehicle that is capable of off-road operation. The exact effect, however, is not clear. Subpara (c) of the definition does not consider an item as "specially designed" if it is 'enumerated' in another item that does not have "specially designed" as a control criterion. USML CAT VII (a)(1)(vii) specifies unmanned vehicles, but does not explicitly 'enumerate' parts and components. Parts and components do appear in the chapeau (a), but without any reference to "specially designed."

The discussion of 'enumerated' implies that the items 'enumerated' should have technical features or performance parameters. But that is by no means absolutely clear.

3.7.3 Again, while the CAT VII proposed rule is outside the scope of this review, note should be made that the language of the proposed EAR rule introducing the problem of determining the status of parts

and components "specially designed" to be "capable of"--an interpretational nightmare.

**3.8 0A606.y—Items of little or no military significance.** There are a number of problems with this construct.

3.8.1. The introduction of a subjective criteria of "little or no military significance" will only exacerbate the problems of export control. Technologically, ground vehicles as such comprise mature, well-defined and bounded capabilities. Subjective judgments are relatively easy to make. However, this construct may not transfer well to other categories, particularly those involving military electronics and sensors.

3.8.2 From a national security standpoint, the list "y." is inadequate. The intent—to release items that are essentially commercial-off-the-shelf items that are caught purely by virtue of having been tailored for and used in a military system—is good. But in the process, it categorically releases products that will have been specially-designed and unique to critical military functions and that, by virtue of their design and cost, have no viable commercial markets. (See attached informal paper "Items specially-designed for Military Use.")

Again, to understand the issues associated with this proposed rule we need to refer to the proposed rule for USML Category VII. The proposed Category VII controls make specific reference to two features of advanced combat vehicles—hybrid electric drive and electromagnetic armor. Because of the severe space and weight constraints imposed on modern combat vehicles, secondary storage (battery systems) will be required to meet the most stringent electrical requirements, within form factors that will be unique to the specific combat vehicle. This will also apply to the pulsed power distribution systems associated with electromagnetic armor.

<u>Recommendation: Categorical coverage of items that may or may not be critical components unique to a military system, particularly with the qualifying phrase "of little or no military significance," is diametrically at odds with the spirit of a positive control list. Section 4. of these comments suggests a a procedural approach that would allow the elimination of y. subitems within the bounds of the existing Wassenaar Arrangement agreements.</u>

**3.9. 0B606 Test, inspection and production equipment, "equipment"**. . .

3.9.1. Earlier comment on Reasons for Control Table applies.

3.9.2 As worded, explicitly captures "parts and components for . . . a defense article in USML Category VII."

<u>Recommendation: Strike the reference to Category VII in sub-items .x and y.</u>

**3.10 0D606 Software, specially designed . . .**

As written, this will potentially categorically capture a wide spectrum of software products. For example, the fact that 0A606 is included categorically makes this item applicable to software for any digital controls that have been specially-designed for subsystems of items controlled under USML Category VII.

Again, Category VII is not within the scope of the requested comments for this proposed rule. However, if the proposed language for Category VII stands, this language may pose significant problems for evaluation of software for unmanned systems.

**3.11 0E606 Technology.**

The new "600 Series" includes a technology control (0E606) that specifies categorical control of all "technology" "required" for "development", "production", or "use" of equipment, "parts" and "components" in 0A606." 0A606, in turn, includes sub-items x. and y. as follows:

> x. "Parts," "components," "accessories and attachments" that are "specially designed" for a commodity subject to control in this ECCN or a defense article in USML Category VII.
>
> y. Specific "parts," "components," "accessories and attachments" "specially designed" for a commodity subject to control in this ECCN or a defense article in USML Category VII but which have little or no military significance (see list of items controlled).

Again, Mr. William Root's analysis and comments on the issues associated with "specially-designed" cannot be improved on. The critical point that I would make is that because the technology item is inclusive of all 0A606, it categorically catches all technology for civil ground vehicles specified in A606 a., b., and c. as well as all parts and components including a wide array of products having "little or no military significance."

Further, the language of sub-items .x and y. categorically includes items "specially designed" for a defense article in USML Category VII. Since this is a positive list, sub .x and .y stand on their own merit without further limitation or qualification. Thus, the coverage of the USML and the CCL would appear to overlap. This is clearly not the intent. Given the notes to the definition of "specially-designed" as it relates to the status of items 'enumerated' elsewhere, this may not be the effect—depending on the exact final wording of the USML items. However, language will likely prove difficult to interpret on a case-by-case basis.

## 4.0 Summary Comments and Suggested Interim Steps.

The following is a suggested near-term alternative to the "Proposed Revisions to the Export Administration Regulations" published in the Federal Register, July 15, 2011. It does not obviate the need for comprehensive export control reform. However, it does address the most pressing difficulties of export control. It provides a mechanism for transfer of general-purpose products and technologies from the USML to Commerce. It has the added advantage of decontrolling the majority of items of little or no military significance, which the current proposed rule does not.

The suggested approach incorporates key concepts from the Administration's current export control initiative, most notably the structured approach for new items implicit in the 0Y521 series proposed and an initial step toward a single oversight agency, in the form of an interagency technical task group. These suggestions can be implemented entirely within the framework of existing laws and international agreements, as follows:

STEP 1. Submission of a Proposed Statement of Understanding to the Wassenaar Arrangement, as follows:

> Wassenaar Arrangement member states agree that items specified on the Munitions List that are predominately used in civil applications or whose form, fit, and functional performance characteristics are equivalent to items predominately used in civil applications shall be evaluated as dual-use products against the specification of the Dual Use List.

STEP 2. In anticipation of acceptance of this proposal, the U. S. Government should undertake to draft regulatory language for incorporation into the EAR and ITAR to implement this change.

STEP 3. In parallel, the USG will assess the impact of this change on the licensing status dual-use products whose form, fit, and functional performance provide a significant military advantage. These, then, will be candidates for proposals to the Wassenaar Arrangement, and for inclusion in the proposed 0Y521 series, Supplement 5 to Part 574.

**DISCUSSION:**

The language of the proposed SOU is derived from the ITAR criteria for "defense items" as summarized a recent Congressional Research Paper. [8] The basic technical analysis required in STEPS 2 and 3, is already part of the ongoing export control activity. Implicit in this approach is that products meeting the criteria for evaluation against the CCL that are not specified on the CCL (including items in the new 0Y521 series) will be categorically decontrolled.

Sound technical judgment is still required. However, such an approach greatly simplifies the process and provides a more distinct demarcation between military and dual-use items. Most important, the suggested approach will obviate the need for a cumbersome "600 series,"

That said, significant reform initiatives must be taken, if we are to adequately protect national security: these include:

1. The government should establish a procedure to ensure that items that have, or develop, significant civil uses will be transferred to the CCL in a timely manner, and priority is given to submission of proposals to the appropriate cooperating multinational control regimes to harmonize controls.
2. The use of the term, "specially-designed" must be addressed. In that regard, my personal view is that the common English understanding, as defined in the Oxford English Dictionary (the normative standard used by the Wassenaar Arrangement, serves the need best. (See attached paper. [9])
3. The current inter-agency processes and mechanisms whereby multinational export controls are proposed, negotiated, and administered must be reformed. These have become largely adversarial and ineffective in recent years. As part of the move toward a single agency, the government should form appropriate technical task groups, whose responsibility would be to

8 Fergusson, I and Kerr, P, "The U.S. Export Control System and the President's Reform Initiative, Congressional Research Service, July 14 2011.

9 Ramsbotham, A. J. White Paper, Items Specially-Designed for Military Use, Discussion and Example, August 2011.

reach consensus on control recommendations for consideration by the Secretary of Defense and the Secretary of Commerce pursuant to the provisions of the EAA.[10]

4. This technical group should also advise the inter-agency leadership on contentious issues of commodity jurisdiction. The group should seek consensus on the relative need for control based on technical evaluation of the form, fit, and functional performance of the items in question.
5. Finally, in light of the administration's commitment to honor multinational agreements, this consensus should be integral to and weigh heavily in the prioritization of US proposals to multinational control regimes.

**SUMMARY:**

Current problems with export control are primarily the result of misapplication and poor administration of existing regulations. Changes in regulatory language and organizational structure will be futile unless and until an effective and technically sound inter-agency process is implemented. However, this aspect of reform can be done within the existing legal and regulatory framework.

NOTICE: The foregoing comments, and the opinions expressed in the attached paper on "Items Specially-designed for Military Use" are personal comments, based on some years of experience in military systems development, technology security, and export control. They do not represent nor should they be construed in any way as representing the views or positions of any organization or group with which I am presently or may have been associated in the past.

10 Key provisions include the qualitative criteria for militarily critical items as it bears on national security rationale for control, and foreign availability, as it bears on feasibility of effective control and potential economic competitiveness.

# Items specially-designed for Military Use

## Discussion and Example

**Introduction:** The following paper discusses provides a concrete example of an item that is specially-designed for military use. The hope is having a concrete example. this will lend some much-needed clarity to the ongoing export control reform discussions. The views expressed are my own. They do not represent the opinion of any other individual, organization, or activity. The biases I have acquired over a lifetime in military systems development and technology security will hopefully be apparent to the reader. But in the interest of complete disclosure, the more important of these biases are as follows:

- Common English usage of the terms specially-designed has technical meaning to any individual involved in research, development, or production of goods and services.
- Semantically these terms are reasonably clear and unambiguous in the context of specific products. However, additional specific guidance and criteria prescribing where and how the terms can be applied in the context of export control will be essential.
- In any cases, sound technical engineering judgment is required to determine whether a given product or technology conforms to the common English understanding of the terms.
- Attempts to define "specially-designed" to eliminate the need for technical judgment have proven only to exacerbate the problem. Longer and more convoluted definitions simply introduce more ambiguity and opportunity for conflicting interpretation.
- Ultimately, the discussion devolves to the courts, where the arguments are quintessentially semantic. Technical information, if considered, takes the form competing and contradictory testimony from expert witnesses, presented to judges or juries who lack the technical capability to evaluate it.

The big winners in this are the government bureaucrats, whose power and funding base increase in direct proportion to the confusion to be dealt with. And, of course, it goes without saying, the Lawyers. The big losers are industry and the taxpayers. The following brief discussion illustrates the complexities involved in the use of the term "specially-designed" using the simplest English definitions. I believe that is also points out the inherent difficulty of trying to solve the problem by introducing yet more terms subject to interpretation.

This is followed by an example, and amplifying discussion of the implications of the example in the context of export control.

**In Plain English:**

The Oxford English Dictionary (the normative standard for the Wassenaar Arrangement) defines the verb "to design" as:

> to do or plan (something) with a specific purpose or intention in mind

The word "specific" adds an important bit of clarity as follows

> clearly defined or identified: belonging or relating uniquely to a particular subject.

The the term “special”

> designed or organized for a particular person, purpose, or occasion.

is arguably to some extent redundant. However, as commonly used, this redundancy can be seen as reinforcing the requirement that items specially designed be identifiable as relating uniquely to a specific purpose.

**Discussion:**

The problem is, of course, that these definitions do not preclude the possibility that an item that is specially designed for and unique to a military system initially will with time find civil application. And vice versa. Further, licensing and customs officials may not be able to determine the purpose for which a given item was originally-designed. However, as the following discussion will show, that does not alter the specially-designed nature of a given product. The terms simply need to be understood in the context of export control, and specifically, <u>as applied to uniquely military items</u>.

**A Specific Example:--Secondary Batteries for Vehicle Drive.**

Secondary storage batteries are an example of how a generic technology in wide commercial use may be specially-designed for military use.

The US, the UK, and Sweden all have had long-standing programs to develop electrically-driven ground vehicles. Such vehicles are projected to have significant advantages in terms of mobility (high torque at full stop), survivability (silent watch, electrically powered active protection), and lethality (electric armament, with electro-thermochemical (ETC) being the most mature option.)

Secondary storage will be a key enabling technology for such advanced combat vehicles.

The design constraints on the integrated vehicle system are such that the vehicle secondary battery storage will be specially-designed to support these multiple functions. The power requirement for these diverse functions are very different, ranging from continuous high current for electric drive, to pulsed power for ETC guns and electric armor, with other requirements for powering mission equipment falling in between. The secondary storage must be able to provide an appropriate output to feed the power conditioning and distribution subsystems for all of these.

The power requirements for these functions will have to be met within very stringent packaging constraints. This has several design implications. Performance at the state of the art in terms of combined energy and peak power density will be required. But the requirement to support both long and short-term power requirement will demand that trade-offs be made. This will include design for thermal management and, in some cases, or electromagnetically induced mechanical shock effects.

These requirements will be clearly identifiable as specific to the vehicle design. The numbers of end-items produced will be small, and unit costs will be prohibitive for general-purpose use. The resulting battery will be specially designed to meet these requirements. It will not have significant civil uses.

That said, at the technology and electrochemical cell level, the products and technologies are

quintessentially dual use. They are controlled as such on the dual-use list at performance levels that have been assessed to provide significant military advantage.

As technology evolves and proliferates in the civil sector, the effectiveness of export controls for national security purposes degrades, and dual-use thresholds must be adjusted accordingly in response to foreign availability. However, this does not change the unique, specially-designed military component.

It is important to retain this distinction for the following reasons:

1. Geopolitical conditions change. When they do, having the ability to deny a country the use of significant military capabilities, by restricting replacement components is important.

2. Material support to another country's military capabilities inherently implies support for the military objectives for which that capability is used. It may be important for foreign policy and geopolitical considerations to maintain control of items that are clearly identifiable as of US military origin.

3. There are cases where the form, fit, and functional performance of an item uniquely enable a game-changing, military capability. These will continue to need to be licensed as defense items.

**Managing Change:**

The fundamental problem is that whether or not an item is specially-designed is determined by and at the time of its development and application. The character of the vehicle storage battery as specially designed for military use does not change. However, circumstances can change both the need for, and the government's ability to protect the goods and technologies.

Let us hypothesize for the moment a future industrial application that requires a battery whose requirements for form, fit, and functional performance will be identical to those of our military battery. In that case, the manufacturer will have the option of buying the existing military battery or independently designing a battery from scratch for its civil application. In the case of the latter option, the second battery will be specially-designed for civil use.

From an export control standpoint, having two products of identical form, fit, and functional performance subject to different controls is unacceptable. At the same time, as a practical matter, one cannot anticipate and craft a positive list covering all conceivable design options of concern. These are but two examples of a potentially large number of specially-designed storage batteries.

Moreover, the landscape is constantly changing. Once in civil use, as economies of scale are realized, our hypothetical battery may find other applications—both civil and military. How do we resolve the dilemma?

At this point it is useful to step back and look at the situation pragmatically. The hypothetical example is just that, hypothetical. Development and production of a specially designed item is costly. Special design is, as a practical matter, the path of last resort. Occurrences of specially-designed products of identical form, fit, and functional performance will be few and far between. (This is, of course,

assuming everyone plays by the rules.) In practice, there are numerous examples of past DoD investments being exploited to develop products subsequently marketed as purely civil. But I will argue that, to the extent that such situations arise, the plain English usage of specially-designed, as it is applied in engineering design and production and in the context of export control, works.

Again, the "context of export control" must be formally codified. A recent Congressional Research Paper provides the following useful summary, based on analysis of the ITAR. :[11]

> A defense item is defined by regulation as one that is "specifically designed, developed, or configured, adapted, or modified for a military application," has neither "predominant civilian application" nor "performance equivalent to an item used for civilian application . . . and has significant military or intelligence application such that control is necessary."[12]

This points us in a right direction, with one key expansion. As the battery example illustrated, performance, alone, does not define a special design. To be specially designed the product must attain the required functional performance within given fit and form constraints. The following is a suggested modification to the definition of "defense item."

> A defense item is one that is specifically designed, developed, or configured, adapted, or modified for to meet the form, fit, and functional requirements of military use, and that has neither predominant civilian application nor form, fit, and functional performance equivalent to an item developed and produced for civilian application and has significant military or intelligence application such that control is necessary.

These changes are intended to address attempts to circumvent the intent of munitions controls by use of an item in a civil product for which is not optimally designed. Given these changes, I believe that the common English definition of specially designed, in the context of the revised definition of defense items creates a more useful line of demarcation between military and civil items. [13]

The key changes are the inclusion of form, fit and function as considerations and replacement of the term "used" with "developed and produced." (N.B. This discussion only addresses the question of "specially-designed" in the context of specially designed for military use. For dual-use products, something the basic criteria of unique form, fit, and function may be helpful, perhaps in conjunction with a provision that the part or component be "required" for one or more items on the dual-use list.)

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11 Fergusson, I and Kerr, P, "The U.S. Export Control System and the President's Reform Initiative, Congressional Research Service, July 14 2011.

12 Citation for quoted material, International Traffic in Arms Regulations, 22 C.F.R 120.3

13 I considered adding the words "and practical" at the end of the definition. They were not included, because we are dealing here with clearly military items. The government may need to prohibit export of given export for foreign policy considerations, even though such restrictions may not prevent the end user from acquiring the equivalent item elsewhere.