



Request for Comments: “ITAR Amendment – Category XII Second Proposed Regulatory Change” - RIN (1400–AD32).

Email to DDTCTPublicComments@state.gov

Airbus Group offers the following comments to the proposed Amendment to USML Category XII:

Cat XII d) (1) (iv) Guidance, navigation, and control systems or end items

Sub-paragraph (iv) controls under the ITAR guidance, navigation and control systems or end items systems “specified to function at linear accelerations levels exceeding 25g”.

We suggest that the language be clarified and the threshold adjusted to higher levels, in order to avoid capturing guidance, navigation and control systems which do not warrant the controls of the USML, but have been designed to survive launch or shock environments.

As an example, Space equipment’s are commonly specified to survive vibration levels of 25g sine, 25g rms random and Shock 2000g 1000Hz to 10 KHz.

Proposed change:

(iv) Specified to function Meeting or exceeding specified performances at continuous linear accelerations levels exceeding 25 35g.

Cat XII e) (11) Gyroscopes or angular rate sensors

The performances stated in XII e) (11) are commonly exceeded for gyroscopes which are used in satellites which are not positively listed in Cat XV a. As a result, the proposed rules would control under the ITAR (and in some cases as MT), non-military gyroscopes which are currently 9A515.x and commonly used in 9A515.a satellites.

The table below shows the characteristics of Fiber Optic Gyroscopes manufactured by Airbus and used in various types of satellites, as it compares to the performances identified in the proposed rules:



Parameters	Proposed rules	Geo Commercial Telecom (Astrix 1090)	Medium Resolution remote sensing and scientific satellites (Astrix 120) / Astrix 1120)	Very High Resolution remote sensing and military applications (Astrix 200)
Drift stability (or bias stability)	MT if less (better) than 0.5 degree rms per hour at 1g and 1σ	0.01 °/h	0.003 °/h	0.0005 °/h
Angle Random Walk	Less (better) than $0.001 \text{ } \circ/\sqrt{h}$	$0.005 \text{ } \circ/\sqrt{h}$	$0.001 \text{ } \circ/\sqrt{h}$	$0.0001 \text{ } \circ/\sqrt{h}$
Bias Repeatability	Less (better) than $0.0015 \text{ } \circ/h$	0.01 °/h	0.01 °/h	0.003 °/h

Drift stability of gyroscopes used in Commercial satellites is better (by a large factor) than 0.5°/h, therefore, if any of the other parameters listed in (i) or (ii) are met, the MT controls would apply.

The threshold for the MT controls should be revised to 0.002 °/h at 1g and 1σ , or the “or” in between the drift stability and the ability to function at acceleration levels greater than 100g, be replaced by “**and**”

Independently of the MT threshold, the proposed parameters would control under the ITAR, gyroscopes which are commonly used on non-USML U.S. and non-U.S. satellites (such as medium resolution optical remote sensing satellite with aperture smaller than 0.35m and scientific satellites), therefore, we suggest adjusting the threshold for the Random Walk to a lower value.

We also suggest that a better criteria to determine controls would be the Scale factor long term stability with a threshold for instance of “less (better) than 10 ppm at 1 sigma over one month”.

Proposed changes:

To include a “specially designed” qualifier

(11) Gyroscopes or angular rate sensors **specially designed for articles in this subchapter** as follows

Alternatively, if “specially designed” is not introduced, change the parameters as follows:

Option 1:

(11) Gyroscopes or angular rate sensors as follows (MT is having a rated drift stability of less than ~~0.5~~ **0.002** degrees (1 sigma or rms) per hour in a 1g environment or specified to function **to specifications** at accelerations levels greater than 100g)

(i) Having an angle random walk of less (better) than ~~0.001~~ **0.0008** degrees per square root hour, or

(ii) ...

(iii) Having a scale factor long term stability of less (better) than 10 ppm at 1 sigma over one month

Option 2:

(11) Gyroscopes or angular rate sensors as follows (MT is having a rated drift stability of less than 0.5 degrees (1 sigma or rms) per hour in a 1g environment **and** specified to function **to specifications** at accelerations levels greater than 100g)

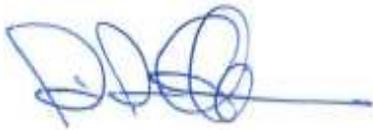
(i) Having an angle random walk of less (better) than ~~0.001~~ **0.0008** degrees per square root hour, or

(ii) ...

(iii) Having a scale factor long term stability of less (better) than 10 ppm at 1 sigma over one month

For further information, please contact Corinne Kaplan at 703 466 5741, or corinne.kaplan@airbusna.com.

Respectfully,



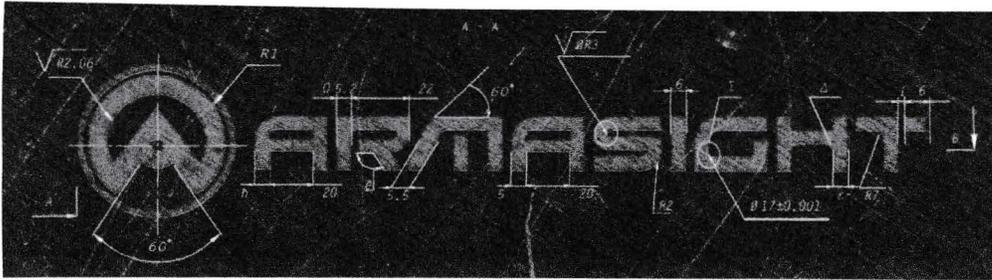
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April 4, 2016

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Directorate of Defense Trade Controls
Department of State

Regulatory Policy Division
Bureau of Industry and Security
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Via e-mail to DDTCTPublicComments@state.gov and publiccomments@bis.doc.gov

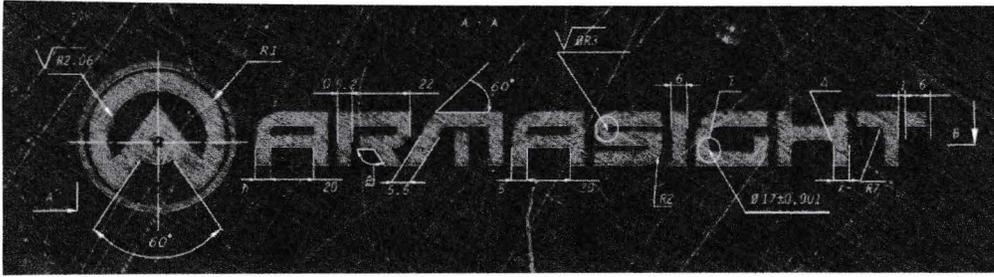
Subject: RIN 1400-AD32, ITAR Amendment - Category XII Second Proposed and RIN 0694-AF75 – EAR Amendments: Control of Fire Control, Laser, Imaging and Guidance and Control Equipment

To Whom It May Concern:

Armasight, Inc. is a U.S. Manufacturer, Supplier and Exporter of Night Vision and Thermal Imaging devices including monoculars, binoculars, goggles, clip-on, and weapon sighting systems that are designed for both military and civilian applications. The majority of our night vision devices utilize image intensifier tubes (IITs), while our thermal imaging devices utilize long wave un-cooled IRFPA based thermal imaging cores. All are sourced from domestic and foreign vendors, because Armasight does not manufacture core technology IITs or IRFPAs.

Armasight has reviewed the proposed changes to Category XII and the EAR, and while we see some additional clarity regarding the “bright line” between ITAR and non-ITAR controlled commodities, there remains a lack of clarity in many areas. We commented on the first proposed rule, and we understand that the second revision substituted a general approach of applying a “specially designed” standard instead of attempting to control items based on performance parameters. While that may be effective in some areas, our review indicates that the application of this approach in certain areas of USML Category XII and the corresponding EAR controls appears to lead to greater uncertainty about jurisdiction and classification of night vision items. We respectfully propose that, in some areas, a hybrid approach of establishing controls on the basis of performance parameters and the “specially designed” concept will result in controls that are easier to understand for exporters, regulators, and enforcement officials.

Further, in some cases, the proposed controls appear to expand the scope of controls to cover items that are currently controlled under 0A987, 6A992, and 6A993, or else blur the already



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difficult to discern line between the types of weapons sights and night vision devices controlled by the ITAR and those controlled by the EAR.

We address below portions of the proposed rules, providing our assessment and suggestions for your review and consideration.

Category XII (a)(2) and 0A987 Controls

- The proposal is to control under Category XII(a)(2):

“Weapon sights, weapon aiming systems, and weapon imaging systems (e.g., clip-on), with or without an integrated viewer, display or reticle, specially designed for an article subject to this subchapter and also incorporating or specially designed to incorporate any of the following:

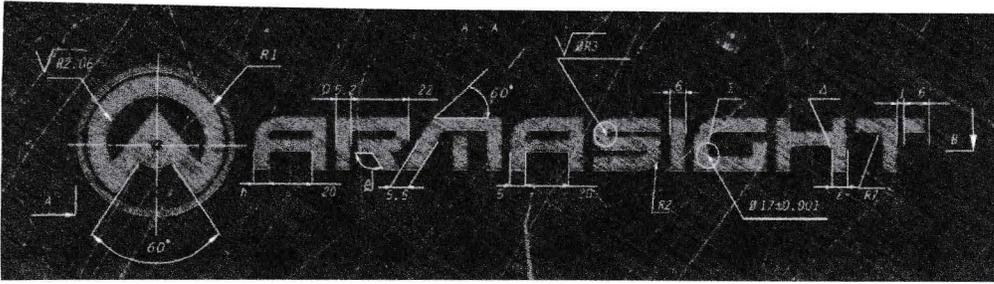
(i) An infrared focal plane array having a peak response at a wavelength exceeding 1,000 nm;

(ii) Second generation or greater image intensifier tubes;

(iii) A ballistic computer for adjusting the aim point display; or

(iv) Infrared laser having a wavelength exceeding 710 nm;

- We feel that it would be helpful to clearly define what constitutes a “weapon sight” as the definitions and specification of these terms remain unclear. Over the last few years, Armasight has received conflicting rulings and opinions from DDTC and BIS as what defines a “weapon sight.” Some rulings and opinions have indicated that, to be a “weapon sight”, the article must have aiming capability (e.g., reticles), while others have indicated that the ability to place the sight on a weapon, regardless of aiming capability, is sufficient to make an item a “weapon sight”. The conflicting views on this definition have led to our receiving unique and unusual rulings, such as a CJ that resulted in EAR jurisdiction, but indicated that the item is to be treated as a 6A992 imaging device if shipped alone, but as a 0A987 “weapon sight” if shipped together with an EAR99 universal weapon mount accessory. The particular item in question also lacks the ruggedness to survive weapon shock, but the mere theoretical ability to attach the imager to a weapon was cited as the basis for control of the item as a weapon sight. This ruling is inconsistent with the plain reading of the regulations and presents unique challenges in classifications of future products and maintenance of appropriate controls. Providing a clear definition in part 772.1 or in an explanatory note, outlining the specifications that would classify an article as a weapon sight, such as, “Unit must possess a fixed weapon mount, have an aiming reticle and user adjustable bore sighting capability, and be able to withstand weapons shock [at an appropriate performance parameter]” would eliminate some confusion within the industry and establish more consistent classifications for existent and future products. We do not feel that the term “weapon sight” is self-evident enough, in light of past agency interpretations, to allow



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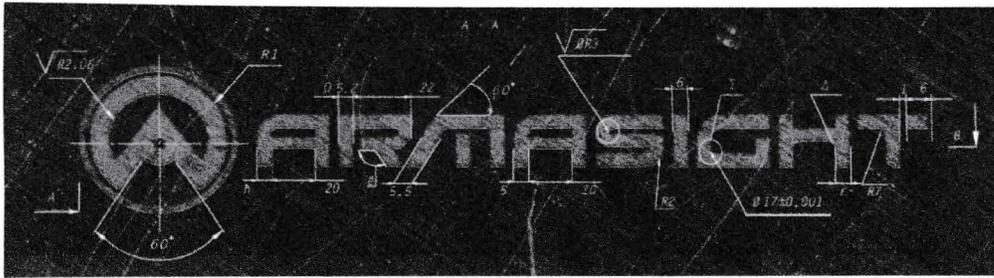
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exporters to self-determine jurisdiction, nor to provide adequate guidance regarding the factors to be considered in a “specially designed” analysis when applied in the CJ process. Rather, we recommend objective parameters to establish the minimum performance requirements to differentiate a military weapon sight from a sporting sight. This lack of specificity is also an issue with regard to day sights, and has led to extensive litigation in the enforcement context. We believe that the exporting community and the export control agencies would both benefit from objective parameters.

- The inclusion of clip-on systems in the same sub-category as weapons sights creates confusion. We recommend that clip-on systems be separated into another sub-category as they are multi-functional devices and are not directly related to designated weapon sights. Clip-on systems are designed for use with a wide variety of units, including but not limited to photographic cameras, spotting scopes, video cameras, weapon sights and the less common option of use as a handheld monocular. Clip-ons do not function independently as a designated weapon sight as they do not have any reticle or boresight adjustment functionality. They do not function as a weapon sight at all unless mounted in co-witness with an existing day scope. Further, only some clip-ons are appropriate for military end-use, and again the lack of any performance parameters, and reliance on the “specially designed” test would, effectively, continue the need to obtain formal CJs on all such items, and risks inconsistent outcomes between manufacturers and even within a manufacturer’s product line, based on parameters known only to the government.

Mixing the two types of items together in this listing, separated only by commas, also makes it unclear whether the phrase “with or without an integrated viewer, display or reticle” refers only to “weapon imaging systems”, or whether it also modifies “weapon sights” and/or “weapon aiming systems”.

- It was noted in this section that the CAT XII (a)(2) controls have captured units incorporating “second generation or higher image intensifier tubes” which would apply ITAR controls to many items that were previously controlled on the CCL. We recognize that there is a “specially designed” hurdle to jump through, but as discussed above, there is no apparent objective. The current controls, keyed to the type of IIT used, that Image Intensified GEN II Weapon Sights and Weapons Imaging Systems with a Luminous Sensitivity of <math><350 \text{ uA/lm}</math> would be subject to CCL Control under ECCN 0A987. This new ruling would potentially pull items previously distributed under this ECCN up to ITAR control, if such items are determined to be “specially designed” for a defense article (or as we suggest is preferable, a “military end-user or end-use.” It is common that the body design for night vision weapon sights is generic, with the level of control dictated by the capabilities of the image tube. Potentially applying ITAR controls



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to any weapons sight that has a Gen II tube seems inappropriate, as there are currently no U.S. suppliers of Gen II Image Intensifier Tubes. Applying ITAR controls will not protect the “crown jewels” in this case, as there are none in the United States. Weapon sights incorporating Gen II tubes are distributed worldwide by the foreign manufacturers, and generally not subject to military export controls, from the Netherlands, France, China, Russia, Serbia, Germany and India, among others. As this is a technology that is no longer manufactured within the United States, the floor for potential ITAR control should be set at controlling articles with image intensifier tubes of Generation III or higher. The primary impact of such a change would be to render the many US companies like Armasight non-competitive in the market for Gen II IIT weapons sights.

- Additionally included in this section is the comment “specially designed for an article subject to this subchapter.” This would mean that any night vision weapon sight “specially designed” for any type of weapon listed in Category I would be controlled under the ITAR. Category I currently applies not just to firearms specially designed for military use, but to any nonautomatic, semiautomatic, or automatic weapon. This appears to be an overly broad definition, that would capture items that were previously controlled on the CCL as 0A987. Indeed, day scopes are currently controlled under ITAR Category I if they are “manufactured to military specifications.”

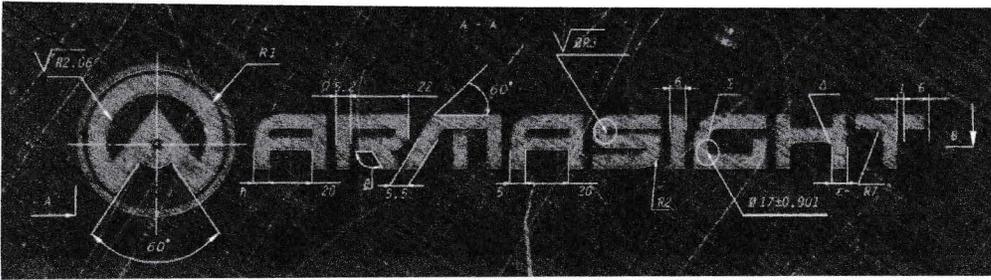
Accordingly, application of a “specially designed” standard would more appropriately reflect the current state of controls if it were to read “specially designed for a military end use/user”. With the addition of 0A987 items to EAR part 744.9 as part of the “bookend rule”, exports and reexports of 0A987 weapon sights military end use/users would require BIS licensing, which should be sufficient to address military end-use concerns regarding low-end sporting/non-military night vision weapons sights. .

Helmet Mounted Display (HMD)

- The proposed rules for Helmet Mounted Displays (HMD) listed in CAT XII(a)(10), appear to control HMD’s if they merely have the ability to be connected to a Weapon Sight. Due to the string of commas, it is unclear whether the intent is to control only items that incorporate optical sights or slewing devices that have specified capabilities, or whether they would control a secondary display for a weapon sight. After multiple reads on this section, we feel that this was not the intent and that added punctuation, or perhaps sub-categorization, would prevent confusion.

(10) Helmet mounted display (HMD) Systems or end items, incorporating optical sights or slewing devices[,] that.....

Category XII(c) controls and Category XII(e)(6) controls.



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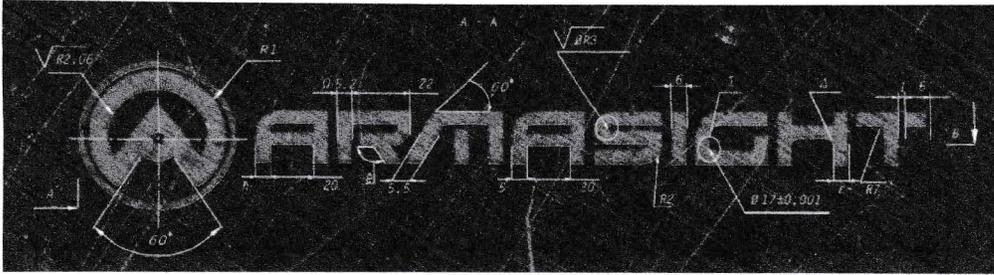
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Sight, Weapon Aiming Systems, and Weapons Imaging Systems, while CAT XII(C)(2)(i) calls out a much higher grade “GEN III Autogated or higher” for ITAR controls to apply for Monoculars and Binoculars. There is a note to CAT XII (e)(6) which makes ALL GEN II and GEN III Image Tubes subject to the ITAR if they are “specially designed” for any USML item. We have no clear sense how to differentiate between an imaging tube that is “specially designed” for a military versus a non-military application, and tubes are generally application agnostic – they are just integrated into an assembly to provide imaging capability to a sight, a monocular, a spotting scope, etc. Applying paragraph (b)(3) or (b)(4) of the “specially designed definition”, one could reasonably argue that such items are not specially designed because they can be used in ITAR and non-ITAR items, but this is very difficult to prove if one is not the manufacturer of the item, and/or does not have the manufacturer’s consent to submit a CJ, and/or the item was designed 40 years ago.

Given these difficulties in determining whether foreign-origin (or even US-origin) tubes are “specially designed”, control over end-items would vary based on the type of item into which the tube is integrated, if one assumes – conservatively – that all such tubes are subject to the ITAR.

The practical ability to implement these controls creates greater uncertainty than the current system, as there is no “bright line” drawn on Image Intensifier Tubes, unlike in the EAR, and there is potential to pull Gen II IITs back under ITAR control if they are determined to be “specially designed” for any defense article (again, with no clear sense of what the criteria would be required to make or disprove such a conclusion on the basis of equivalent form, fit, and function, and without access in most cases to documentation regarding design intent). The current draft creates a potential for all Image Tubes GEN II and above, many previously regulated under ECCN 6A992 and 6A002, to be subject to the ITAR, unless the foreign manufacturers can provide contemporaneous data to prove their design intent. Additionally, GEN II IIT’s began production over 40 years ago and at the time were “specially designed” for use by the Military, but are now an irrelevant technology for Military End Use/Users. We feel that placing the “bright line” for control of Image Intensifier Tubes would be more appropriately placed at Generation III and above for all product within Category XII. 3rd Gen technology is still actively produced within the U.S. and is a relevant standard for Military End Use. This would also avoid confusion as to which Gen II items are 6A002 and which are Category XII. We believe the NS controls applicable to 6A002 items, and the proposed new EAR controls on the military end-use/rs of 0A987 items are sufficient to address the level of sensitivity of this 40 year old technology.

- In the event that this proposed ruling becomes final with regard to GEN II Image Intensifier Tubes, it would cause additional complications with regard to the return on non-conforming materials to the foreign manufacturers of the Image Tubes. With the potential for such Image Tubes to be controlled under CAT XII(e)(6), any non-conforming materials would require a license for return back to the OEM for repair and/or



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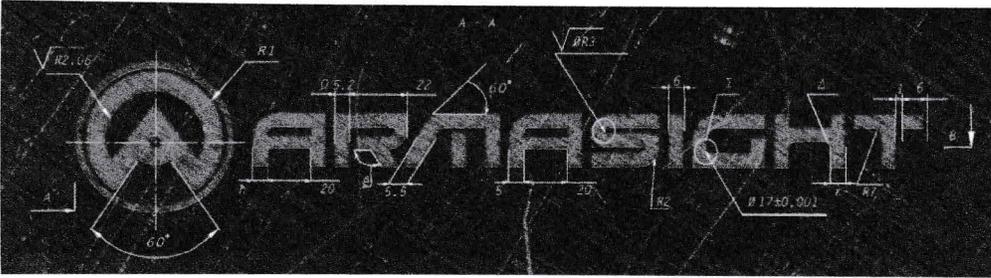
replacement, as there is no ITAR license exception available to cover such circumstances.

Potential ITAR Coverage of Items Using 9Hz IRFPAs

- The reliance on the “specially designed” concept in the proposed rule, without setting performance floors for IRFPAs, opens the door to impose controls on items incorporating 9Hz IRFPA, currently controlled under 6A993. Such items lack military applications when used for weapon sights or other handheld imaging devices, as they provide poor image resolution and their frame rate induces eyestrain. Applying a military end-use/r restriction to such items is sufficient to control exports of such items, which are of little interest to military end-users, and even have limited interest in the commercial market. Simply the potential for ITAR control will reduce or eliminate the market share for US products.

Foreign Availability of Identical and Similar Products

- It is important to note that the technology used to manufacture night vision and thermal imaging systems is available worldwide and there are many countries currently producing systems that are of equivalent to the U.S.-manufactured goods. In the competitive international market, we are regularly informed of foreign manufacturers that have the ability to provide higher grade systems to the end user, but with far less restrictions and that can be delivered within a shorter timeframe. It is becoming increasingly difficult for U.S. companies to compete in the international market as the buyers are quickly discovering that they can purchase articles with the same performance, and have it much sooner and without having to go through the additional processes required for U.S license applications. Introducing further regulatory uncertainty into the market for Gen II capable weapon sights and monoculars will further marginalize US companies and further shield foreign competitors.
- While many of the restrictions in place are needed and justified, there are other restrictions on U.S goods that, to the competitive market, seem too stringent and have begun to push U.S companies out of the market in favor of the foreign manufacturers. This is making us non-competitive in many ways. We feel that an overall assessment of international availability and reasonable adjustments would be justified. It has become clear that foreign-manufactured items are meeting or exceeding the specifications of U.S. made goods, and U.S. companies will quickly be eliminated from competition in the international markets if we cannot offer high grade devices at fair prices without a substantial amount of wait time, paperwork and “red tape”. If the regulations become too tight and the process becomes too complicated, the affected customers will buy from manufacturers outside of the United States which will provide those Foreign suppliers with the capital to continuously improve their products through investment in R&D,



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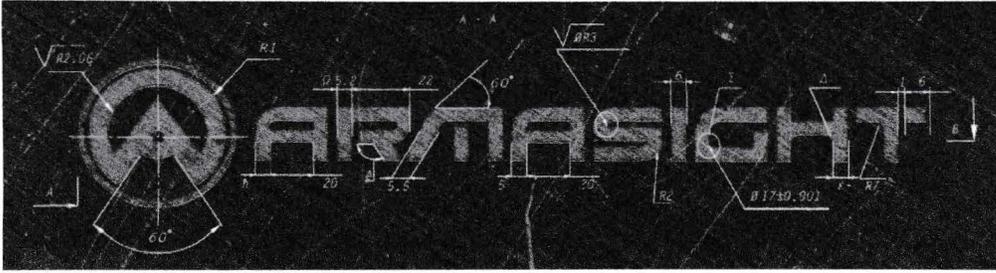
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improve their manufacturing capability along with other industrial infrastructure advancements that have multiple secondary and tertiary effects in the competitive manufacturing world while U.S. technology and manufacturing capabilities atrophy in the absence of access to a robust market for its products. In addition, when a foreign customer is not buying from the USA, then we lose ground/naval/air order of battle intelligence which helps the US Armed Forces develop both tactical and strategic engagement planning. It does not appear that the proposed changes take these factors into account, given that they expand ITAR controls and remove License Exception eligibility from the EAR, further constraining an already stressed U.S. industry.

Overall Assessment of the Proposed Rules

- While there are some improvements made in the proposed rules, we feel there is still much to address to ensure that the rules are clear, concise and fair across the board. The language of the rules is still a bit confusing and allows for varied interpretations. This issue is one that has plagued many of companies in our industry, as some receive more favorable classifications than others for identical products, depending on the interpretation of the officials handling the case. Simplifying the regulations and creating more clarity will eliminate the inconsistent interpretations of the regulations and lead to a more equal and fair competitive market. In reading the proposed regulations, it is clear that a novice reader would have extreme difficulty interpreting these regulations and properly classifying products without having to file for CJs or CCATS. Practically speaking, no US Customs agent will accept self-classifications in this area based on an explanation of the multi-factor "specially designed" test, when there are otherwise no performance parameters involved.
- It would make much more sense to focus ITAR controls on the limited number of IITs, IRFPAs, and thermal imaging cores that are truly at the top of the performance threshold, and which have primarily military applications. For example, it would be much clearer to simply control Gen II IITs as dual-use items, given that the U.S. military has left such technology behind and there is no U.S. manufacturer of such goods, reserving ITAR control for Gen III+ items. ITAR control should also be reserved for only high-performance, large format Vanadium Oxide/Silicon Microbolometer IRFPAs, as well as high-performance, large format compound semiconductor IRFPAs, recognizing that the parameters may differ based on detector composition.

If you have any questions regarding the comments herein, or require any additional information, please do not hesitate to contact me.



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Sincerely,

A handwritten signature in blue ink, appearing to read 'Amy Currie'.

Amy Currie

Export Compliance and International Contracts Manager



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April 4, 2016

Office of Defense Trade Controls Policy
Department of State
Washington, DC
By email to DDTCPublicComments@state.gov

RE: ITAR Amendment—Category XII Second Proposed

Dear Sirs/Madams,

I am writing on behalf of the Association of University Export Control Officers (AUECO), an association of over 155 senior export practitioners with export compliance responsibilities at more than 100 accredited institutions of higher education in the United States. As expressed in its founding charter, AUECO is committed to monitoring changes in the administration of export laws and regulations that could affect transactions and collaborations in academia.

The research enterprise in the United States is critical to the economic advancement of our country, and having export regulations that are not overly broad ensures that innovation is not stifled in performing fundamental research. As export officers at universities conducting academic research, we are keenly aware of the value of some of the technologies described in the proposed Category XII as having dual uses in areas such as astronomy and space science, oceanography, telecommunication, photonics, computer processor-memory interconnects, materials engineering, thermal management, energy storage, energy conversion, photovoltaic devices, groundwater management, computational ophthalmology, and molecular medical diagnostic tools. There should be a clear delineation between items that have military and non-military end uses.

AUECO is providing the following comments in response to the Department of State Proposed Rule for *Amendment to the International Traffic in Arms Regulations: Revision to U.S. Munitions List Category XII*.

General Comments

- 1) The current proposed rule is an improvement over the rule proposed in 2015. However, there are still some areas of concern as noted below.
- 2) The inclusion of the phrase “specially designed for a military end user” helps address concerns regarding off-the-shelf (commercial) items used with controlled articles. However, there are many situations when off-the-shelf items do not meet the specifications required for scientific instrumentation developed at universities. To meet these specifications, custom-made items need to be developed for use with controlled articles for civilian end uses. Therefore, we recommend that the use of “specially designed for a military end user” be extended to ensure that custom-made items used in conjunction with controlled articles for civilian end uses are not ITAR controlled.
- 3) The phrases “specially designed for articles in this subchapter” and “specially designed for articles in this category” are used through the Category. We feel these phrases are overly broad, may be confusing when applied to academic instrumentation, and will “catch” many items designed for civilian use without providing a contingency to “release” items as currently written. Therefore, we recommend that these statements be replaced with “specially designed for a military end user” throughout Category XII.
- 4) Moving parts and components from Category XII(a)-(d) to XII(e) helps eliminate confusion found in the previous version.

- 5) We recommend adding a definition for “military end use” to this category.

Comments on ITAR XII (b)(6)

The inclusion of the phrase “specially designed for a military end user” removes the concern that meteorological LiDARs could be controlled under Category XII.

Comments on ITAR XII (b)(7), (c)(9), (d)(6) and (e)(23)

These four subparagraphs state that any equipment developed under Department of Defense (DOD) funding are controlled under Category XII (except as noted in the applicable Notes).

- 1) This presumes that all items funded by the DOD under this category are for military end use. This seems overly broad and dismisses the possibility that an item funded by the DOD could be dual use or even EAR99.
- 2) These subparagraphs do not address dual funding for projects at universities. There are circumstances when a researcher receives award money from multiple funding sources (such as the DOD, U.S. Geological Survey, National Science Foundation, and Department of Energy) to conduct portions of the same research. Although the notes for (b)(7), (c)(9), (d)(6), and (e)(23) attempt to address this by stating “This paragraph does not control {items}...(c) identified in the relevant Department of Defense contract or other funding authorization as being developed for both civil and military applications,” many awards to universities do not identify whether the items subject to the award are being developed for civilian or military applications or both. This can create confusion in determining whether a particular line of research funded by DOD and a non-military funding source (such as NSF) is controlled under ITAR or not.

If not clarified, the proposed wording of these subparagraphs will negatively impact research conducted at universities. Lasers, electro-optical/infrared systems, navigation systems, optics, imaging electronics and other parts/components not developed for a military end use should not be controlled under ITAR, even if their development was funded by the Department of Defense.

Request for Wording Changes to ITAR XII (b)(7), (c)(9), (d)(6) and (e)(23)

We recommend that the phrase “...funded by the Department of Defense...” be replaced in each of these subparagraphs by “...specially designed for a military end use.”

Comments on ITAR XII (e)(14)

There are circumstances where IRFPAs controlled under Category XII are used for scientific/research purposes, such as in astronomical telescopes. In this case, the dewar and cooling system may be commercial off-the-shelf items or specially designed for use with this IRFPA. Regardless, their end use is non-military and current wording would have the unfortunate and unintended consequence of controlling a dewar and cooling system specifically designed for use with IRFPA within an astronomical telescope. Also, in the case where the dewar and cooling system are specially designed, one could state that they are specially designed for use in a specific telescope rather than specially designed for use with an IRFPA and, therefore, should not be controlled under Category XII.

Request for Wording Changes to ITAR XII (e)(14)

We recommend replacing “specially designed for articles in this subchapter other than Category XV, and specially designed parts and components therefore;” with “specially designed for a military end use” in this subparagraph to clarify this concern.

Comments on ITAR XII (e)(14)

The phrase “...specially designed for articles in this subchapter other than Category XV...” is unclear. Does this mean that IDCAs specially designed for articles under Category XV are not controlled under the USML or that they are controlled under Category XV (or elsewhere)?

Request for note to be added to ITAR XII (e)(14)

We recommend that either:

- A note be added to address whether IDCAs specially designed for articles in Category XV are controlled under Category XV, elsewhere in the USML, or the applicable ECCN under the EAR; or
- The phrase be changed to “specially designed for a military end use” as noted for the previous comment.

Comments on ITAR XII (e)(17)

The phrase “....specially designed for articles controlled in this category” is very useful in removing Category XII control from off-the-shelf optics used in conjunction with an IRFPA. However, in many scientific applications these optics, treatments, and coatings will be specially designed and produced for use with the controlled IRFPA. These can be very specialized components made by only a few vendors worldwide.

For example, an infrared telescope is a very complex instrument that can utilize multiple lenses, mirrors, beamsplitters, filters, gratings, etalons, coatings, and treatments. Each of these items has a specific purpose in the optical chain of the telescope and must be built to very specific requirements. This may require that an academic institution utilize multiple vendors to create the lenses, mirrors, and beamsplitters, different vendors for the gratings and filters, and yet other vendors for the coatings and treatments. In some instances, these components are designed by the academic institution, vendor, or collaboration between the two. Also, these vendors may be domestic or foreign.

This subparagraph would require that academic institutions making non-military, scientific instrumentation (such as an infrared telescope) get export licenses to share the technology (design) of these optics with foreign vendors or potentially domestic vendors using foreign staff. This could add a significant burden to the management of information regarding these optics and potentially limit the institution’s ability to procure optics from a foreign vendor with no derived benefit to national security.

Comments on ITAR XII (e)(18)

In similar fashion to proposed Category XII (e)(17), “....specially designed for articles controlled in this category” is very useful in removing Category XII control from off-the-shelf electronics used in conjunction with an IRFPA, but would maintain control over electronics that were specially designed for use with an ITAR-controlled IRFPA. It is very likely the control, signal and image processing electronics, and software used with an IRFPA in a scientific instrument (such as an infrared telescope) will be specially designed for that application, thus requiring control under Category XII (e).

Comments on ITAR XII (e)(17) and (e)(18)

If one combines the impact of proposed Categories XII (e)(17) and (e)(18) for an infrared telescope using an IRFPA as its detector, the entire image change of the telescope could be controlled under ITAR XII (e), from the first lens through which the infrared radiation passes to the entire signal processing chain used to create the usable IR images. We do not believe that this is the intent of these two subparagraphs, nor do we see any national security benefit from these two subparagraphs when applied to non-military end uses. Also, the licensing requirements for a complex telescope could create a huge burden to the developer of that instrument when one considers that: (a) many of these instruments are located internationally, (b) many of the parts may be sourced from international vendors, (c) development is likely over multiple years, and (d) different subsystems (optics, dewar/cooling, and signal and image processing) would be developed at different times in the project. Therefore, multiple licenses would need to be submitted to address the various controlled subsystems.

It can be difficult to find a company to make custom optical elements for such a scientific device when considering process capabilities (of the company to make a specific element), quality considerations, overall cost, and delivery

schedules. In some instances, the best candidate may be a foreign vendor. An export license would be required to export the design specifications as technical data for the manufacture of these components and would increase Agency and project workload, solely because these elements are to be used with an IRFPA.

Also, domestic vendors that produce such optical elements may need to review their staffing to determine whether a license is required for any foreign persons working within their facility. Alternatively, they may decide that they will not supply optics for equipment that contains ITAR components due to the overhead costs in supporting that activity. Any of these scenarios could compromise a research organization's ability to procure high quality optical elements. This issue would also increase the regulatory burden on the research project, vendor, and Agency with no likely national security impact.

Request for Wording Changes to ITAR XII (e)(17) and (e)(18)

We recommend replacing “specially designed for articles controlled in this category” with “specially designed for a military end use” in these subparagraphs to clarify this concern.

Recommendation for Additional Wording to ITAR XII (e)

Because the concerns in XII (e)(14), (17), and (18) are similar, we recommend changing the first sentence in XII (e) from “Parts, components, accessories, or attachments, as follows:” to “Parts, components, accessories, or attachments, specially designed for a military end use, as follows:”. This would address our concerns regarding “specially designed” items when used for civilian applications throughout XII (e) and allow the authors to remove the redundant text found in a number of these subparagraphs.

Comments on Note to Category XII

The note at the end of the proposed rules makes a strong attempt to define when an item is specially designed for a military end use/user; however:

- 1) The design intent of a potentially controlled item may be unclear to the purchaser, particularly when the item is being used in non-military instrumentation. Therefore in the situation when the supplier is not forthcoming with the design intent of the item, it may be very difficult for the purchaser to determine whether the item was specially designed for a military end use, specially designed for a non-military end use or dual use.
- 2) The phrase “...any person or entity whose actions or functions are intended to support military end uses” is very broad and could lead to significant misinterpretation. This could be read to include contractors and suppliers to military end users as well universities that provide research, analysis, design, and development services. We do not consider persons or entities that support military end users to be military end users themselves (support and end use are mutually exclusive roles). Therefore, we recommend removing this phrase.
- 3) It may be extremely difficult to find “documents contemporaneous with the development” of an item that could be controlled under Category XII. The definition of contemporaneous is “existing or occurring in the same period of time.” This indicates that the documentation needed to determine whether an item was developed for civilian or military end use would need to have been created at the time the item was developed. Although this may be appropriate for items developed within the last few years, universities often need to purchase parts, components and instruments that were developed decades earlier. In these instances, it is unlikely that such contemporaneous documentation exists or that the original developer will provide it to a purchaser. This requirement would place these items (that may have been developed for civilian use) under ITAR control because a purchaser cannot provide documentation contemporaneous with the development of the item.

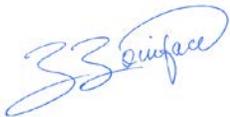
Request for Wording Changes to Note to Category XII

We recommend that the proposed text for Note to Category XII be changed to: “For purposes of determining whether an item (i.e., system, end item, part, component, accessory, attachment, or

software) is specially designed for a military end user, a “military end user” means the national armed services (Army, Navy, Marine, Air Force, Coast Guard), National Guard, national police, or government intelligence or reconnaissance organizations. A system or end item is not specially designed for a military end user if the item was developed with knowledge that it is or will be for use by both military end users and non-military end users, or if the item was or is being developed with no knowledge for use by a particular end user. In such instances, the expectations regarding end use must be documented.”

AUECO appreciates the opportunity to provide the Department of State with the above comments on ITAR Amendment—Category XII.

Sincerely,



Brandi Boniface

Chair
Association of University Export Control Officers
Website: <http://aueco.org>

March 28, 2016

Directorate of Defense Trade Controls
U.S. Department of State
c/o DDTCTPublicComments@state.gov

Subject: ITAR Amendment – Category XII

Bureau of Industry and Security
U.S. Department of Commerce
c/o publiccomments@bis.doc.gov

Subject: RIN 0694-AF75 Friday, February 19, 2016

Ladies and Gentlemen:

On behalf of Autoliv ASP, Inc., the U.S. subsidiary of Autoliv, Inc. (“Autoliv”), I am sending this letter as our public comments to your proposed revisions to the Export Administration Regulations (“EAR”) and International Traffic in Arms Regulations (“ITAR”), requested in your February 19, 2016 Federal Register notices.

I. Autoliv’s Safety Products for the Civil Automotive Industry

Autoliv is the worldwide leader in civil automotive safety systems, and develops and manufactures civil automotive safety systems for all major civil automotive manufacturers in the world, including airbags, seatbelt devices, night vision, and other passive and active safety systems. Together with its joint ventures, Autoliv has more than 80 facilities with more than 64,000 employees in 27 countries. In addition, the Company has twenty technical centers around the world, with 20 test tracks, more than any other automotive safety supplier. Sales in 2015 amounted to US \$9.2 billion. Autoliv estimates that its civil automotive safety products save over 30,000 lives every year, and prevent 10 times as many severe injuries.

Autoliv's electronics facility in Goleta, California, designs, develops, and produces civil automotive night vision systems that likewise saves lives across the globe. The use of infrared cameras in the civil automotive market has grown throughout the past 10 years. From the first systems which provided an image to drivers allowing them to see 3 to 5 times further than their headlamps, to the current systems providing the driver with warning of pedestrians, cyclist, and animals in the path of vehicle, Autoliv's far infrared night vision systems have made civil automobiles safer.

There are over 100,000 pedestrian fatalities and more than 1.5 million vehicle-deer accidents globally each year. Nearly 70 percent of these fatalities happen at night. Our night vision camera systems are instrumental in reducing accidents and saving lives of pedestrians, vehicle occupants and animals.

The use of our infrared cameras in civilian passenger land vehicles continues to grow as the civil automotive market continues its path to providing safer vehicles. The U.S. Tech Choice Study published by JD Power in April 2015 identified night vision as the second most preferred civil automotive technology (behind only "blind spot detection and prevention").

MarketsandMarkets recently reported that by 2019 the automotive night vision system market will reach \$2.5 billion and the automotive driver monitoring system market will reach \$4.9 billion. Infrared cameras will also assist in achieving autonomous driving vehicles in the future.

II. General Comments Regarding Proposed Rules

Because of the increased usage of far infrared night vision systems to improve safety and save lives in the civil automotive market, we respectfully request that both the Department of State and the Department of Commerce consider relaxing the current export requirements for civil automotive far infrared components, technology, software, and systems. The February 19, 2016 proposed rules, although much improved from the May 5, 2015 proposal, still limit the advancements of far infrared systems in the civil automotive market in particular by removing the use of License Exception STA for ECCN 6E001 and ECCN 6E002.

Autoliv makes far infrared cameras specially designed for installation in civilian passenger land vehicles, and those cameras are classified in the Commerce Control List (“CCL”) under ECCN 6A993.a. because our cameras meet the criteria of Note 3 to ECCN 6A003.b.4. and related Wassenaar Arrangement provisions, including an anti-tamper mechanism. Our cameras include infrared focal plane arrays (IRFPA’s) that, if exported separately, are controlled under the current U.S. Munitions List (“USML”) Category XII(c), but are subject to EAR controls when exported as part of our civil automotive cameras, in accordance with the current USML Category XII(c). These ITAR and EAR provisions have worked well to ensure export compliance, in addition to providing a “bright line” between the USML and the CCL for the control of our products. In addition, Autoliv designs and develops software for the manufacture, testing, and operation of our ECCN 6A993.a. cameras. We likewise have used License Exception STA in a successful and compliant manner to meet related needs with our affiliate companies in Sweden, Germany, and Canada, and our Canadian national employees. License Exception STA should remain available for this purpose as well.

III. Specific Comments Regarding Proposed Rules

The proposed rule would restrict the use of License Exception STA in a way that would have a direct and unnecessarily negative effect on our current business and future business activities as well as increase the burden of BIS in approving export licenses and renewals to support the total lifetime of the product. Civil automotive vehicle developments typically require a time period greater than three years, models are produced over a time period of 5 to 10 years, and service lasts for an additional time period of 20 to 25 years. For these reasons, civil automotive vehicle OEM’s require audits of our products and manufacturing to ensure the highest quality levels, and they must have the ability to review and understand the design, manufacturing and quality of our far infrared night vision systems. Autoliv must also share the design, manufacturing and quality with some of our non-US citizen employees, contractors, and consultants.

Autoliv has successfully ensured related export compliance through the proper use of License Exception STA with our eligible customers, our affiliate companies in Sweden, Germany, and Canada, and our Canadian national employees. License Exception STA also should remain available for our eligible customers in order to permit the parties to verify the quality of the products' design and manufacturing for end use in civilian passenger land vehicles. Our customers must have the ability to tour our facility and verify quality requirements for our cameras, optics, electronics, and integration of the IRFPA, all of which is limited to ECCN 6E001 and ECCN 6E002 technology for cameras (we do not share with our customers sensor technology controlled under ECCN 6E001 or ECCN 6E002, or ROIC technology controlled under ECCN 6E990). That need has been met – and can continue to be met - in a successful and compliant manner through the use of License Exception STA.

IV. Conclusion

The current Category XII(c) and related EAR provisions have worked in an effective manner to ensure export compliance with our customers, employees, and affiliate companies. Autoliv's products include strong and effective anti-tamper features to disable our cameras when removed from the civilian passenger land vehicles for which they have been designed and are used. We hope that DDTC and BIS will continue to allow the use of License Exception STA for our products and related technology and software, and continue to reduce the current controls for our civil automotive cameras.

Thank you for your attention to these comments and suggestions. Please contact Richard Seoane at (805) 562-5930 or richard.seoane@autoliv.com if you have any questions concerning this letter.

Sincerely,

Richard Seoane
General Manager
Autoliv Electronics Night Vision

4 April 2016

Mr. C. Edward Peartree, Director
Office of Defense Trade Controls Policy
U.S. Department of State
PM/DDTC, SA-1
2401 E Street, NW, Room H-1205
Washington, DC 20522-0112

Via Email: DDTCTPublicComments@state.gov

ATTN: COMMENTS TO ITAR AMENDMENT – CATEGORY XII SECOND PROPOSED

Dear Mr. Peartree:

BAE Systems plc offers the following comments in response to the request from the Directorate of Defense Trade Controls (DDTC) on January 6, 2016 via web notice. BAE Systems plc appreciates this outreach from DDTC to industry and would like to take this opportunity to provide its comments to the proposed revision for your consideration.

Summary:

BAE Systems greatly appreciates DDTC's efforts to respond to industry comments to provide additional clarity to the USML under Export Control Reform and establish "bright lines" between the USML and the Commerce Control List (CCL).

"Specially Designed for a Military End User"

We believe the addition of the new control basis "specially designed for a military end user" does not achieve the DDTC's intent to establish a bright line. The current definition of the term in the Note to Category XII has the potential to capture items that were not designed for a military end user but will be categorized as ITAR by default, merely on the basis that there is lack of contemporaneous documentation to prove otherwise.

As we interpret the proposed rule, a company is required to produce documentation as evidence that a specific item was designed for both military and non-military end users or no specific end user for it to fall out of the control of the USML under Category XII(b)(6) and XII(c)(2)(iii). However, if a company does not have records or is unable to produce records and the item is sold to a military end user, the item is presumed to be Category XII. This default ITAR jurisdiction would control items not because of any special properties, but because records are not available to substantiate the design intent of the item.

As a non-US company, we often rely on the US exporter or Original Equipment Manufacturer (OEM) to supply jurisdiction and classification information. In cases where US-origin material

is purchased through a foreign supplier or is legacy material held within a business, the new rule as currently written would greatly limit non-US companies from being able to submit Commodity Jurisdiction requests or self-classify the jurisdiction of Category XII items when records or certification from the OEM of the original design intent is not available. In both cases, the item would appear to default to Category XII, as the required documentation would not be available to include in a CJ request or to provide a basis for self-classifying the item as anything other than Category XII.

We ask that DDTC provide clarification around the retrospective application of “specially designed for a military end user” to legacy items and clarify the impact of the current definition on future Commodity Jurisdiction requests for Category XII items.

We hope that you will consider these comments and recommendations in the final revision to USML Category XII.

Thank you for your consideration.

Sincerely yours



Joyce Remington
Group Deputy Head of Export Control – Licensing & Policy

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From: [Zimmer, Justin \(US\)](#)
To: [DDTCPublicComments](#)
Subject: ITAR Amendment - Category XII Second Proposed
Date: Monday, April 04, 2016 3:48:16 PM

BAE Systems respectfully submits the following comments to the proposed rule: Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII:

1. USML XII(c)(1) states that “Night vision, infrared, or terahertz imaging systems or end items, as follows: (1) Night Vision or infrared cameras specially designed for articles in this subchapter”
 - a. As an “end item” or “systems” as referenced in XII(c)(1), these cameras must use paragraph (a) of specially designed in section 120.41.
 - b. However, in the preamble summary of the changes in the proposed rule for XII(c)(1), the government states, “As a specially designed component of another defense article, a camera...is eligible for paragraph (b) of specially designed in section 120.41. This is clearly an ambiguity between the intent of the proposed changes, from the preamble, and the proposed language.
 - c. Since the intent of the language in XII(c)(1), as described in the preamble, is to treat these as “a specially designed component of a defense article”, we recommend that (c)(1) be moved to XII(e), “Parts, components, accessories”. Articles will then be captured as components as intended and subject to paragraph (b) of section 120.41.
2. USML XII(e)(4) states “Infrared focal plane arrays (IRFPAs) specially designed for articles in this subchapter”.
 - a. This is a clear definition and will remove much of the current ambiguity in the current USML.
 - b. Combined with the changes, or equivalent, recommended in (1) above from these comments, infrared sensors, cores, and cameras will have a much brighter line to distinguish between the USML and the EAR.
3. ECCN 6D991 “Software specially designed for the ‘development’, ‘production’, and ‘use’” now adds 6A002 and 6A003 to its list of commodities controlled.
 - a. Software “specially designed” for the “use” of 6A002 and 6A003 commodities is now captured and requires a license.
 - b. Software field upgrades will now logistically be much more challenging, costly and put US suppliers at a disadvantage relative to our foreign competitors.
 - c. We recommend that the “use” portion of this criteria be exempted for 6A002 and 6A003 commodities.

Justin Zimmer
Manager, International Trade Licensing
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Trench, Rossi e Watanabe
Advogados

April 04, 2016

Mr. C. Edward Peartree
Director, Office of Defense Trade Controls Policy
Directorate of Defense Trade Controls
U.S. Department of State
PM/DDTC SA-1, 12th Floor
2401 E. Street, N.W.
Washington, DC 20037**ITAR Amendments: USML Category XII: Second Proposal**

Dear Mr. Peartree:

We represent various United States-based corporations (the "Clients") that are engaged in the design, development and manufacture of various electronic products and systems intended exclusively for commercial applications, in connection with certain export control and compliance matters. In that capacity, on behalf of the Clients, we respectfully submit the following comments on the second set of proposed amendments to Category XII of the United States Munitions List (the "USML"), which were published in the *Federal Register* on February 19, 2016, 81 *Fed. Reg.* 8438-8446.

As a threshold matter, we would like to express our sincere appreciation to the Directorate of Defense Trade Controls ("DDTC") for its responsiveness to comments from interested members of the public on the first set of proposed amendments to Category XII. We believe that, with the second set of proposed amendments, DDTC has largely succeeded in achieving its stated objectives of (i) distinguishing between defense articles and items that are in commercial and civil applications; and (ii) establishing a "bright line" between items on the USML that are controlled under the International Traffic in Arms Regulations (the "ITAR"), and items on the Commerce Control List (the "CCL") that are controlled under the Export Administration Regulations (the "EAR"). We greatly appreciate the efforts made by DDTC to provide a level of detail and clarity in the second set of proposed amendments to Category XII that should substantially facilitate the commodity jurisdiction element of the export compliance efforts of the trade community.

We believe, however, that there remain several provisions of the second set of proposed amendments to Category XII that require further clarification or correction, in order to ensure that they do not, inadvertently, bring within the scope of the USML items that are, or will be, used widely in commercial and civil applications. In the *Federal Register* notice of the second set of proposed amendments to Category XII, DDTC stated that: "the U.S. government does not want to inadvertently control items on the ITAR that are in normal commercial use", and invited interested members of industry to provide public

comments on how such commercial items might be affected by the proposed amendments. To that end, we respectfully submit the following comments on behalf of the Clients.

1. Category XII(b)(2):

This Category XII(b)(2) would cover certain “target illumination systems”, and it is our understanding that DDTC’s intent is to impose controls only on those target illumination systems that are specifically designed for, or intended for use in, military applications. By its terms, however, Category XII(b)(2) is not so limited, because of a disconnect between (i) the common meaning of the term “target”; and (ii) the understanding among members of the armed forces and defense contractors as to the meaning of that term in a military context. As currently drafted in the second set of proposed amendments, Category XII(b)(2) could apply to any variable beam divergent infrared laser system designed to illuminate any object, even where that illumination system is designed and intended solely for commercial applications. We respectfully request, therefore, that DDTC provide a definition of the term “target,” to be used consistently throughout the ITAR, in order to make it clear that Category XII(b)(2) applies only to laser-based illumination systems that are designed and intended for use with weapons systems or other military applications.

2. Category XII(b)(5):

This Category XII(b)(5) would cover certain laser-based systems to detect personnel or optical or electro-optical equipment. It is our understanding that DDTC intends to limit this Category XII(b)(5) to systems designed or intended for military applications (*e.g.*, detection of military personnel). By its terms, however, Category XII(b)(5) is not so limited. To the contrary, as the second set of proposed amendments to Category XII(b)(5) is currently drafted, Category XII(b)(5) would also cover systems and sensors designed for, and intended for use solely in, commercial applications, including especially: (i) the automotive industry, for example, to detect pedestrians, road hazards and highway warnings (*i.e.*, retro-reflective road signs, road markers, vehicle reflectors, etc.); and (ii) gaze tracking and iris biometric systems that detect “glint” from the human cornea and “bright pupil” retroreflections from the retina of the human eye. For the avoidance of doubt, therefore, we respectfully request that DDTC amend Category XII(b)(5) to make it clear that that provision applies only to laser-based systems that are designed and intended to detect military personnel and military optical or electro-optical requirements.

In the alternative, DDTC should at least consider adding an exclusionary note to Category XII(b)(5), explaining that that provision of the USML does *not* apply to systems specially designed for automotive applications or commercial biometric applications.

3. Category XII(c)(4):

Category XII(c)(4) would cover certain infrared search and tracks (“IRST”) systems that (i) incorporate a long wave focal plane array; and (ii) maintain the positional state of a

target through time. It is our understanding that DDTC intended to limit that Category XII(c)(4) to systems designed or intended for military applications.

In that context, we note that the *Federal Register* notice in which the second set of proposed amendments to Category XII was published includes an introduction explaining the rationale for various revisions made by DDTC to the first set of proposed amendments. In explaining the revision to Category XII(c)(4), DDTC stated that it has revised that provision “in response to public comments regarding non-military IRST systems”. For the avoidance of doubt, we recommend that Category XII(c)(4) should be further revised to provide that it controls “infrared search and track (IRST) systems, for military applications, that: ...” In the absence of such a limitation, Category XII(c)(4) may have the inadvertent effect of controlling under the ITAR systems for long wave infrared imaging used in commercial automotive applications, such as the system currently used by BMW for searching and tracking pedestrians and other vehicles.

4. Category XII(c)(6):

The explanation of the second set of proposed amendments to Category XII, as published in the *Federal Register* notice, indicates that a key objective of DDTC is to ensure alignment between the USML and the CCL, and a “bright line” between items controlled under the ITAR and items controlled under the EAR. We believe, however, that Category XII(c)(6) and its companion provision on the CCL, ECCN 2A984, are not fully aligned. Thus, ECCN 2A984 covers:

Concealed object detection equipment operating in the frequency range from 30 GHz to 3000 GHz and having a spatial resolution of 0.5 milliradian up to and including 1 milliradian at a standoff distance of 100 meters.

We infer that the intent of Category XII(c)(6) is to control equipment with the same functionality (*i.e.*, “concealed object detection equipment”) operating at a higher level of resolution (*i.e.*, a resolution of less (better) than 0.1 milliradians). That inference appears to be confirmed by the “related controls” note to ECCN 2A984, which provides that concealed object detection equipment operating in the frequency range from 30 GHz to 3000 GHz and having a resolution better than that covered by ECCN 2A984 is subject to the ITAR (*i.e.*, controlled by Category XII of the USML).

Category XII(c)(6) in the second set of proposed amendments, however, does not refer to “concealed object detection equipment”, and, as such, may cover equipment that is in commercial use and may otherwise be classified for export control purposes under EAR99. In order to meet DDTC’s stated objective of alignment between the USML and the CCL, we believe that Category XII(c)(6) should be revised to refer to “terahertz concealed object detection imaging systems”. In addition, as discussed in the following paragraph, to ensure that Category XII(c)(6) is properly limited to equipment for military applications, Category XII(c)(6) should be focused on objects that are “purposely concealed.”

We note that the key change in the second set of proposed amendments to Category XII(c)(6) from the first set of proposed amendments is the change in the level of resolution from 0.3 milliradians to 0.1 milliradians. We understand that the intent of that change is to limit the items controlled under Category XII(c)(6) to terahertz imaging systems for military applications. The reduction in the resolution level threshold, by itself, may not achieve that objective, however. Thus, we understand that the combination of an automotive grade radar system and a database of stored, repeated images of an object may achieve or exceed that 0.1 milliradian resolution level. As a result, Category XII(c)(6), as drafted, could have the effect of controlling automotive radar systems designed to detect obscured road hazards or pedestrians. To address this concern, we respectfully recommend that Category XII(c)(6) should be further limited to apply to systems for detection of objects that are “purposely concealed”.

5. Category XII(d)(1)(ii):

In the *Federal Register* explanation of the second set of proposed amendments to Category XII, DDTC noted that the technical parameters of Category XII(d)(1) have been revised to levels that more clearly describe the military critical technology. We understand that the qualifier “without the use of positional aiding references” has been added to sub-paragraphs (i) and (iii) to that end. No comparable qualifier, however, was added to sub-paragraph (ii).

Such a qualifier does, however, appear in the companion provision of the CCL, ECCN 7A003.c, where the accuracy standards for inertial measurement equipment and systems are subject to the qualification “without the use of positional aiding references.” To ensure consistency between the USML and the CCL (in this case Category XII(d)(1) and ECCN 7A003), therefore, we respectfully request amendment to Category XII(d)(1)(ii) to read as follows:

Having a heading error or true north determination of less (better) than 0.28 mrad secant (latitude) (0.016043 degrees secant (latitude)), *without the use of positional aiding references*.

We also believe that DDTC's objectives of consistency between the USML (in this case, Category XII(d)(1) and the CCL (in this case, ECCN 7A003), and establishing a “bright line” between the USML and the CCL would be fostered by clear guidance as to the definition of the inertial measurement equipment and systems that are controlled by Category XII(d)(1). To that end, we suggest that DDTC should consider adopting the definition of such inertial measurement equipment and systems set forth in the Note to ECCN 7A003, as follows:

[Such equipment and systems] incorporate accelerometers or gyroscopes to measure velocity and orientation in order to determine or maintain heading or position without requiring an external reference once aligned.

The equipment and systems to which that Note to ECCN 7A003 refers include Altitude and Heading Reference Systems, Gyrocompasses, Inertial Measurement Units, Inertial Navigation Systems, Inertial Reference Systems and Inertial Reference Units.

6. Category XII(d)(2)(iii):

Category XII(d)(2)(iii) as set forth in the second set of proposed amendments would cover GPS receiving equipment specially designed for use with an antenna described in Category XI(c)(10) of the USML. We note that that Category XII(d)(2)(iii), unlike Category XII(d)(2)(i), by its terms is not limited to GPS receiving equipment specially designed for military applications, which was one of DDTC's stated goals in undertaking the revision to Category XII. In order to ensure that Category XII(d)(2) in general applies to GNSS receiving equipment intended for military applications, we respectfully recommend that that provision be revised to apply to GNSS receiving equipment (including GPS receiving equipment covered by Category XII(d)(2)(iii) that is designed to operate on military-restricted frequency bands.

We believe that the reference in Category XII(d)(2)(iii) to GPS receiving equipment specially designed for use with an antenna controlled under Category XI(c)(10) is not a sufficient limitation, because with the modernization of GNSS equipment, we understand that antennae with the degree of accuracy specified in that Category XI(c)(10) may soon be in use in commercial applications (operating on the L1, L2 and L5 frequency bands). For example, and by way of illustration of commercial antenna with the requisite degree of accuracy, we attach to this letter as **Exhibit 1** a copy of the product brochure for a commercial radar antenna, sold by Bosch primarily to the automotive industry, capable of determining angular positioning with a degree of accuracy better than 2 degrees (2°) (*i.e.*, $\pm 0.1 - \pm 0.3$ degrees).

7. Category XII(d)(3):

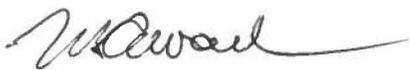
Category XII(d)(3) would control GNSS anti-jam systems specially designed for use with an antenna described in Category XI(c)(10). As noted above, we understand that there are various antennae currently used in, or soon to be released for use in, commercial applications with the degree of accuracy specified in that Category XI(c)(10), and such highly accurate antennae, as part of GNSS systems, would be extremely important as anti-spoofing detection devices. In that context, attached to this letter as **Exhibit 2** is a list of technical publications discussing the use of anti-jam and anti-spoofing technologies in various civil applications. To ensure that Category XII(d)(3) does not inadvertently cover GNSS systems with anti-spoofing functionality for automotive or other commercial applications, we respectfully suggest that DDTC should provide a definition of "anti-jam" systems which clarifies the regulatory distinction between anti-jam systems for military applications and anti-spoofing systems for civilian safety applications.

Alternatively, in order to ensure that Category XII(d)(3) is properly limited to GNSS systems intended for military applications, DDTC should consider revising that provision to cover only GNSS equipment that is designed to operate on military-restricted frequency bands, as recommended with respect to Category XII(d)(2)(iii), *supra*.

* * *

Thank you very much for your consideration of these comments on the second set of proposed amendments to Category XII of the USML. If you should have any questions regarding any of the points set forth in these comments, or if you require further information in order to facilitate your consideration of further revisions to the proposed amendments, as contemplated herein, please do not hesitate to contact me (Tel. No. 1-202-452-7021; e-mail address: nicholas.coward@bakermckenzie.com).

Sincerely,



Nicholas F. Coward

EXHIBIT 1

Chassis Systems Control

Fourth generation long-range radar sensor (LRR4)



BOSCH
Invented for life



Customer benefits

- ▶ Independent mode for height measurement using an elevation antenna, enabling the system to reliably classify obstacles and brake safely, even when the object is stationary
- ▶ Can be used in high-speed environments
- ▶ Self-calibration function (horizontally) for ease of installation
- ▶ Compact size for easy integration into the vehicle
- ▶ Scalable system performance with multiple sensor configurations including sensor data fusion (optional)
- ▶ Sensor performance unaffected by harsh weather conditions (snow and ice) due to optional lens and radome heating
- ▶ Can be concealed behind the bumper/radome
- ▶ No moving parts, ensuring a high degree of robustness against vibrations
- ▶ High-speed CAN and FlexRay interfaces enable easy integration into the vehicle

The fourth generation long-range radar sensor (LRR4) builds upon all of the expertise and experience gathered during the development and manufacturing of the previous three radar generations. Together with mid-range radar sensors, MRR and MRR rear, Bosch offers tailored solutions designed to enable standard use of radar sensors across all vehicle segments.

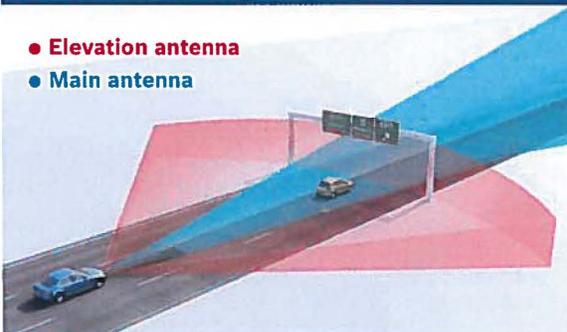
The LRR4 allows vehicle manufacturers to implement a range of safety and driver assistance functions in their vehicles in order to fulfill the ever-increasing safety standards set by legislators and consumer protection organizations. From 2014, manufacturers striving to obtain the highest rating (five stars) under the Euro NCAP assessment scheme (European New Car Assessment Program) must equip their new models with at least one driver assistance system, and automatic emergency braking systems are high on the list of priorities.

Features and mechanical design

The LRR4 is a monostatic multimodal radar that has six fixed radar antennae. The central four antennae feature optimum properties for recording the vehicle's surroundings at higher speeds. They create a focused beam pattern with an opening angle of ± 6 degrees, providing excellent long range detection with minimal interference from traffic in adjacent lanes. In the near range, the LRR4's outer two antennae expand the field of view to ± 20 degrees at a distance of up to five meters, making it possible to quickly detect vehicles entering or leaving the vehicle's lane.

Technical features	
Frequency range	76...77 GHz
Detection range	0.5...250 m
Field of view Antenna (single beam) Horizontal (typ.)	$\pm 6^\circ$ (200 m) $\pm 10^\circ$ (100 m) $\pm 15^\circ$ (30 m) $\pm 20^\circ$ (5 m)
Vertical (typ.)	$\pm 4.5^\circ$ (200 m)
Measuring accuracy Distance Speed Angle	± 0.1 m 0.01 m/s $\pm 0.1... \pm 0.3^\circ$
Object separation capability Distance Speed Angle	0.7 m 0.6 m/s 4°
Max. number of detected objects	24
Cycle time	60 ms
Modulation	Frequency modulation (FMCW)
Dimensions (H x W x D) in mm	81 x 78 x 62 (without connectors) 101 x 78 x 62 (with connectors)
Weight	~240 g
Power consumption	Typ. 4,5 W

Elevation antenna for height measurement



In order to intervene early on and reduce higher speeds in critical, dynamic situations, such as if the vehicle ahead brakes sharply and unexpectedly, the LRR4 features an additional upward elevation beam. This beam enables the LRR4 to measure the height of all objects in order to reliably classify relevant objects and determine whether the vehicle can drive under or over them. In conjunction with its innovative signal processing algorithms, this feature enables the system to cope with complex traffic situations and brake reliably, even in the case of stationary objects.

The LRR4 is very compact thanks to the high degree of electronic component integration. The compact design allows open integration in the front grill area or concealed installation behind the front fascia or radome with minimal impact on the design of the vehicle. In addition, the LRR4 enables more packaging flexibility compared to the previous generation by offering a horizontal mounting tolerance of ± 2 degrees.

The LRR4 is equipped with a horizontal self-calibration function. Once the sensor has been mounted in the vehicle, it automatically searches for reference points during the first journey, and then uses these reference points to calculate the misalignment from the vehicle drive axis. The system software then compensates for this misalignment. While the system is „learning“ this reference information, certain functions may be deactivated or restricted. In order to achieve maximum performance on delivery, the system must be calibrated during the final stages of series production using a defined reference point. Time-consuming and expensive mechanical sensor calibration processes are not required.

The electrical interface, the pin configuration of the vehicle connector and the location of the optional mirror for optical sensor alignment can all be adapted to meet customer-specific requirements. Thanks to the robust sensor design with no moving parts, the LRR4 can be used across all vehicle segments.

Optionally, two LRR4 sensors can be designed into the vehicle. An optional heated lens or radome ensures full sensor availability, even in poor weather conditions, such as snow and ice.

Operating principle

The radar sensor's main task is to detect objects and measure their speed and position relative to the movement of the vehicle in which it is mounted. To do this, the LRR4 sends frequency-modulated radar waves in a frequency range of 76 to 77 GHz via its transmitting antenna. These waves are reflected by objects in front of the vehicle. The relative speed and distance between the vehicle and other objects are determined on the basis of the Doppler effect and the delay. Both generate frequency shifts between the sent and received signal. By comparing the amplitudes and phases of the radar signals measured at the receiving antennae, it is possible to determine the position of the object.

Areas of application

The LRR4 is the foundation on which a range of safety and driver assistance functions can be implemented. The LRR4 can be used for the following functions:

Predictive emergency braking system

With the LRR4, vehicle manufacturers can meet the requirements for the automatic emergency braking systems „AEB City“ and „AEB Inter-Urban“ as outlined in the Euro NCAP assessment scheme. With its predictive emergency braking system, Bosch is helping to prevent rear-end collisions and reduce the severity of crashes. The system becomes active as soon as the vehicle is started, and supports the driver at all speeds – both day and night.

If the predictive emergency braking system detects that the distance to the preceding vehicle is becoming critically short at a vehicle speed above 30 km/h (18 mph), it prepares the braking system for potential emergency braking. If the driver does not react to the hazardous situation, the system warns the driver via an audible and/or visual signal, followed by a short but noticeable brake jerk.

The system then initiates partial braking to reduce the speed and give the driver valuable time to react. As soon as the driver presses the brake pedal, the system provides braking support. To do this, the system continuously calculates the degree of vehicle deceleration required to avoid the collision. If the system detects that the driver has failed to apply sufficient brake force, it increases the braking pressure to the required level so that the driver can attempt to bring the vehicle to a standstill before a collision occurs.

If the driver fails to react to the immediate risk of collision, and the predictive emergency braking system determines that a rear-end collision is unavoidable, it can – working in conjunction with a video camera – automatically initiate full braking. As a result, the vehicle is traveling at a significantly reduced speed when the collision occurs, reducing the severity of the crash for the passengers of both vehicles.

If the predictive emergency braking system detects that the distance to a moving or stationary vehicle in front is becoming critically short at a vehicle speed below 30 km/h (18 mph), it prepares the braking system for potential emergency braking. If the driver fails to react to the critical situation, the system can automatically initiate full braking in an attempt to prevent the collision. If the rear-end collision is unavoidable,

this action can at least minimize the severity of the collision, reducing the risk of injury to the passengers of both vehicles.

Adaptive cruise control (ACC)

With a range of up to 250 meters and a variable field of view, the LRR4 makes it possible to detect vehicles in front and vehicles merging at an early stage – making it the ideal basis for ACC systems. At speeds of up to 200 km/h (124 mph) and a maximum relative speed of up to 100 km/h (62 mph), the system automatically maintains a set distance from the vehicle ahead by automatically reducing the power to the engine, braking or accelerating. The ACC stop & go variant can also automatically apply the brakes until the vehicle comes to a standstill and will resume when instructed by the driver.

Traffic jam assist

Traffic jam assist helps drivers to reach their destinations as comfortable as possible, even when traffic is congested. In combination with a video camera, the partially-automated driver comfort function controls the longitudinal and lateral movements of the vehicle. If the driver assistance system detects congested or slow-moving traffic at speeds below 60 km/h (37 mph), the driver can activate the function at the push of a button. The vehicle then automatically follows the vehicle in front, and takes over starting, accelerating, braking and steering in its own lane. The system detects the way in which the vehicle in front is driving and adapts accordingly. If it is necessary to change lanes or if irregular obstacles are detected in the lane, the system returns control to the driver.

The driving corridor in which the traffic jam assist controls the vehicle permits a certain offset to the vehicle ahead. The radar sensors detect not only the vehicle ahead but also surrounding vehicles, enabling the system to calculate a driving corridor, even in the absence of lane markings. The driver retains full responsibility for controlling the vehicle and must monitor the system in order to take over control of the vehicle at any time.

In the future, this assistance system will cover higher speeds and more complex driving situations, including automatic lane changes.

Left turn assist

This assistance system continuously monitors the traffic situation ahead of the vehicle. If the vehicle is at a standstill in anticipation of a left turn, and the system detects the risk of a collision with oncoming traffic, the driver is automatically prevented from pulling out until the vehicle posing the risk has passed. If the vehicle is already moving, a warning is issued to the driver at the point at which the system detects the dangerous turning situation.

Integrated cruise assist

This partially-automated function supports the driver in highway driving situations by combining ACC-based longitudinal guidance with the lateral guidance provided by the video-based lane keeping support. Integrated cruise assist can be supplemented with an automatic lane change function, which requires the driver only to indicate a desire to change lanes using the turn signal. Then the system performs the maneuver as soon as it is safe to move into the adjacent lane. This technology requires additional radar sensors to monitor the traffic to the rear and side of the vehicle. Integrated cruise assist provides the driver with extended, partially-automated system support, even at higher speeds, allowing the driver to perform secondary activities that are unrelated to actual driving. However, the driver retains full responsibility for the vehicle and must be able to take over control of the vehicle at any time.

Evasive steering support

Emergency braking is not always sufficient, or may not be the best option to prevent a collision. For example, the laws of physics dictate that rear-end collisions at high approach speeds can only be prevented through evasive maneuvers once the vehicles have passed a certain distance threshold. In this case, the system provides information about a suitable evasion path, and, if necessary, automatically initiates an evasive maneuver. In urban traffic, the evasive steering support can automatically initiate an evasive maneuver, for example, if a car door opens suddenly in the path of the vehicle or if a pedestrian steps out into the road from behind an obstacle. The vehicle does not move beyond the boundaries of its own lane to perform the evasive maneuver. In later stages of development, evasive steering support will be combined with a stereo video sensor in the front of the vehicle to detect fast-moving oncoming traffic, as well as radar sensors in the rear of the vehicle to detect approaching or passing vehicles, thereby allowing the system to steer the vehicle into the opposite lane to prevent an impending rear-end collision.

Sensor data fusion

Sensor data fusion in the LRR4 is possible without the need for additional hardware. When compared to its predecessor, the LRR4 features higher computing power for sensor data fusion involving multiple sensors.

Sensor data fusion combines the benefits of different sensors and measuring principles in the most effective way possible, thus providing data that individual sensors working independently are unable to generate. Data fusion of multiple sensors increases the measurement reliability, range and accuracy.

Video sensors, such as the multi purpose camera or the stereo video camera from Bosch, are the ideal supplement to radar technology. Using sophisticated software algorithms, the fusion of sensor data generates an extremely detailed „image,“ which forms the basis for a powerful interpretation of the vehicle's surroundings.

Sensor data fusion enables the implementation of additional assistance and safety functions, such as pedestrian protection („AEB Pedestrian“). The function for predictive pedestrian protection meets the safety requirements as specified by Euro NCAP. It continually monitors, in combination with a video camera, the area in front of the vehicle in order to detect impending collisions with pedestrians who are in the path of the vehicle or moving toward it in a way that is likely to present a risk. If the function detects that pedestrians are at risk, it can actively trigger application of the brakes in order to considerably reduce the risk and the consequences of the collision, or to prevent the accident altogether.

Sensor data fusion can also be used to significantly improve the performance of comfort functions. Thanks to the high degree of lateral measuring accuracy of a video camera, the ACC function is able, for example, to detect vehicles merging at an earlier stage, and, therefore, respond in a more dynamic manner. The system also ensures that vehicles in front are assigned to the correct lanes, which further enhances ACC functionality, especially when cornering.

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Printed in Germany
292000P0ZH-C/CCA-201407-En

EXHIBIT 2

List of Technical Publications on Civilian GPS Spoofing

1. Requirements for GPS spoofing:
<https://www.cs.ox.ac.uk/files/6489/gps.pdf>
2. High level article on anti-spoofing:
http://radionavlab.ae.utexas.edu/images/stories/files/papers/antiSpoofStraightTalk_Wesson.pdf
3. "Vulnerability Assessment of the Transportation Infrastructure Relying on the Global Positioning System," Tech. rep., John A. Volpe National Transportation Systems Center, 2001.
4. Algorithmic depiction of a smart (adaptive) antenna to mitigate anti-jam:
<http://jpier.org/PIER/pier67/10.06090504.Mukhopadhyay.SC.pdf>
5. Website dedicated to relaying anti-jam news articles:
<http://gpsworld.com/tag/anti-jam/>
6. "Assessing the Spoofing Threat: Development of a Portable GPS Civilian Spoofer," Humphreys, T. E., Ledvina, B. M., Psiaki, M. L., O' Hanlon, B. W, and Kintner, Jr., P. M.
7. Nice spoofing overview HW/SW research available in the area:
http://www1.sogei.it/doc/workshop-gnss/23aprile2013/GNSS_Vulnerabilities_Anti-Jam_Anti-Spoof.pdf
8. Single antenna null steering for GPS anti-jam:
http://gps.stanford.edu/papers/Mcmilin_IONPNT_2015_Anti-Jam.pdf
9. "GPS Vulnerability to Spoofing Threats and a Review of Anti-spoofing Techniques" 2012
<http://www.hindawi.com/journals/ijno/2012/127072/>
10. Algorithmic based approach to localization antenna GNSS signals:
Title: "Precise Calibration of a GNSS Antenna Array for Adaptive Beamforming Applications"
11. GPS Jamming Mitigation system overview:
<http://malaysiageospatialforum.org/2012/proceeding/ppt/ooi%20wei%20han%20angkasa.pdf>
<[http://malaysiageospatialforum.org/2012/proceeding/ppt/ooi wei han angkasa.pdf](http://malaysiageospatialforum.org/2012/proceeding/ppt/ooi%20wei%20han%20angkasa.pdf)>



March 28, 2016

Mr. C. Edward Peartree, Director
Office of Defense Trade Controls Policy
Directorate of Defense Trade Controls
Department of State
SA-1, 12th Floor
Washington, DC 20522-0112

Subject: Review of USML Category XII

Reference: Federal Register/ Vol. 81, No. 33/ Friday, February 19, 2016/ Proposed Rule: Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII

Dear Mr. Peartree:

Thank you for the opportunity to provide comments on the *Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII*, published February 19, 2016. The Boeing Company (“Boeing”) strongly supports the Export Control Reform effort and DDTC’s work to more precisely describe the articles warranting control on the USML.

Overall, this Proposed Rule has resolved many of the concerns we had with the May 5, 2015 Proposed Rule¹, particularly with respect to infrared sensors and cameras, Global Navigation Satellite System security, and guidance and navigation systems used on commercial satellites. We also find the formatting and clarity of control text greatly improved in this Proposed Rule. Our only comments are regarding certain definitions.

Specific Comments:

1. XII(c)(2): Night vision systems

USML Category XII(c)(2) controls “binoculars, bioculars, monoculars, goggles, or head or helmet-mounted imaging systems (including video-based articles having a separate near-to-eye display)” with certain technical parameters. “Near-to-eye” is an undefined term, and different types of displays are designed to operate at different distances. For the purpose of establishing bright lines between those items described on the USML and those on the CCL, Boeing believes this listing should be clarified.

¹ RIN 1400-AD; Amendment to the International Traffic in Arms Regulations: Revisions of U.S. Munitions List Category XII, Federal Register/Vol. 80, No. 86/Tuesday, May 5, 2015/Proposed Rules



- **Recommendation:** Revise text of XII(c)(2), as follows:

(2) Binoculars, bioculars, monoculars, goggles, or other head or helmet-mounted imaging systems (including video-based **head- or helmet-mounted systems having a display separate from the sensing device** ~~articles having a separate near-to-eye display~~), as follows...

2. **Definitions**

We are reiterating our comment made in response to the May 2015 Proposed Rule regarding inclusion of definitions of key terms used in the revised controls. Page 8441 of the Federal Register Notice provides definitions to “explain and amplify terms used in this Category.” They include “charge multiplication,” “focal plane array,” “image intensifier tube,” and “multispectral.” However, the definitions provided are not included in the proposed control text.

- **Recommendation:** Include definitions of these key terms in the appropriate sections of Category XII.

* * * * *

Thank you for the opportunity to provide comments. Please do not hesitate to contact me if you have any questions or need additional information. I can be reached at 703-465-3505 or via email at bryon.l.angvall@boeing.com.

Sincerely,

Bryon Angvall
Director, Global Trade Controls

From: [Maarten Sengers](#)
To: [DDTCPublicComments](#)
Subject: Regulatory Change, USML Category XII
Date: Sunday, April 03, 2016 5:49:41 PM

Dear Mr. Peartree:

Please consider the following comment regarding the proposed revision to Category XII of the United States Munitions List (USML) dated February 19, 2016 as it pertains to Remote Weapons Stations (RWS) and Remote Controlled Weapons Stations (RCWS). In particular, neither the proposed Category XII nor the companion EAR proposed rule of the same date specifically address or enumerate these systems, and thus leave some potential doubt as to how the US Government intended to control them as explained further below.

RWS (see: http://redirect.state.sbu/?url=https://en.wikipedia.org/wiki/Remote_weapon_station) allow a weapon operator to operate and fire a weapon from inside the protection of a building or a wide variety of vehicle, vessel and aircraft platforms. A RCWS is essentially the same as a RWS except that it allows the operator to control the weapon from a distant or remote location. The RWS/RCWS sometimes are specially designed for a particular weapon or platform, but often they are not. Even if specially designed for a platform, those platforms can be both on and off the USML. A RWS/RCWS can include systems which are specifically enumerated in the proposed rule XII(b) and (c), e.g. laser target systems (b)(1); target illumination systems (b)(2); Laser ranger finders (b)(3); night vision or infrared cameras (c)(1); targeting systems (c)(3) and sometimes others. Given that RWS and RCWS can contain systems or components enumerated on the USML in the proposed rule (and potentially other USML Categories like I, II, IV, VI and VII), but the higher level assembly RWS and RCWS are not enumerated, it leaves some question as to whether the US Government actually intended them for ITAR control or not.

Under the current the USML Category XII, RWS and RCWS would appear to fall in the existing XII(a). However, under the proposed XII and companion EAR proposed rule, the closest approximate classification to the old XII(a) appears to be the EAR Export Control Classification Number (ECCN): 7A611(a). Thus, a reasonable reader could also conclude that a RWS or RCWS not specially designed for a particular weapon or platform would fall under EAR “600 Series.”

We are therefore writing to request that the final rule clarify where RWS/RCWS are in fact controlled (ITAR or EAR) or, more preferably, request that the US Government go further and specifically enumerate these items either on the USML or the EAR “600 Series” so as to remove any ambiguity on control. We have made a similar comment to the Bureau of Industry and Security in regards to the companion EAR proposed rule.

Best regards,

Maarten

--

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BSG Consulting: A Partnership of John Black & Associates, Albemeer, Inc. and the
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**Ad Hoc Coalition for Effective Export Control Reform
1717 Pennsylvania Avenue, N.W. – Suite 1025
Washington, DC 20006**

April 4, 2016

VIA E-MAIL (publiccomments@bis.doc.gov AND DDTCTPublicComments@state.gov)

Mr. Steven Emme
Regulatory Policy Division
Bureau of Industry and Security
U.S. Department of Commerce – Room 2099B
14th Street and Pennsylvania Avenue, N.W.
Washington, DC 20230

Mr. C. Edward Peartree
Director, Office of Defense Trade Controls Policy
Directorate of Defense Trade Controls
U.S. Department of State
PM/DDTC, SA-1, 12th Floor
Washington, DC 20522

REF: RIN 0694–AF75 (BIS) AND RIN 1400-AD32 (DDTC)

RE: Comments on Second Round of Proposed Rules Relating to USML Category XII

Dear Mr. Emme and Mr. Peartree:

The Ad Hoc Coalition for Effective Export Control Reform (“CEECR”) appreciates the opportunity to comment on the second round of proposed rules published by the U.S. Department of Commerce, Bureau of Industry and Security (“BIS”) and the U.S. Department of State, Directorate of Defense Controls (“DDTC”) on February 19, 2016 (81 Fed. Reg. 8421 and 81 Fed. Reg. 8438, respectively) concerning proposed revisions to certain aspects of the Export Administration Regulations (“EAR”) and the International Traffic in Arms Regulations (“ITAR”) relating to certain fire control, laser, imaging, and guidance and control equipment controlled under Category XII of the U.S. Munitions List (“USML”) and various Categories of the Commerce Control List (“CCL), as applicable (individually, the “BIS Proposed Rule” and the “DDTC Proposed Rule,” and collectively, the “February 19 Proposed Rules”).

The CEECR applauds the U.S. Government’s efforts to amend the EAR and the ITAR as part of the Obama Administration’s ongoing Export Control Reform (“ECR”) initiative. It is quite apparent from the text of the February 19 Proposed Rules, from comments that agency officials have made regarding on the February 19 Proposed Rules, and from the experience of our members in analyzing the February 19 Proposed Rules that much thought went into the proposed definitions that are referenced in the February 19 Proposed Rules.

In our view, many aspects of the February 19 Proposed Rules represent significant improvements over the previous round of proposed rules issued by BIS and DDTC relating to fire control, laser, imaging, and guidance and control equipment. However, it is the CEECR’s view that the proposed definitions for certain terms under the EAR and ITAR could be further improved by making the changes or clarifications that are recommended below.

I. General Comment Regarding USML Category XII

In the DDTC Proposed Rule, it was stated with respect to comments received relating to the first round of proposed rules relating to USML Category XII issued by DDTC and BIS that:

A commenting party expressed concern that policy objectives may override the revised control criteria and specially designed definition. The commenting party noted that Category XII's focus on not moving items from the USML could result in the government questioning whether an article is nevertheless controlled even if it does not meet the new regulatory requirements. The commenter requested confirmation that the regulations will control whether an article is still on the USML. It also requested that the Department establish an expedited procedure to handle disputes when a government official believes an item is still on the USML.

A key concern relating to the DDTC Proposed Rule is its reliance on the "specially designed" definition to determine whether an item is on the USML. As the preamble notes, this reliance is based on design intent. This will almost certainly lead to situations where the government may disagree with a self-determination by a private entity that an item is not "specially designed." This is particularly the case if the (a)(1) catch of "specially designed" will essentially incorporate the (b) releases, as is proposed by the harmonization rule. It is already documented that this has proven to be an issue with other revised USML categories. In particular, the Defense Trade Advisory Group ("DTAG") addressed this issues in its most recent meeting.¹ This has created a great deal of uncertainty as to the reliability of the revised categories for self-determinations.

The concerns that were expressed at DTAG are the same that we have experienced as well. Moreover, we note a number of occurrences where a Department of Commerce license request was returned without action because an official from the Department of Defense objected by stating that the item is still (or should be) controlled on the USML. At public forums, DDTC has approved this practice by advising exporters and manufacturers in this position to submit a commodity jurisdiction (CJ) request to settle the dispute. But this is not very practical – since submitting a CJ request at least temporarily re-controls it on the USML until it is resolved. It is also the government in this case who has doubt, and not the private party. This practice is also contrary to the purpose of Export Control Reform, which is to establish a positive list with clearly defined definitions that the public (including foreign parties) can rely on.

Thus, the concern is that policy objectives may control what items are on the USML rather than the control criteria itself. One way that this could materialize is based on the underlying policy that the revised Category XII is intended to not move most items from the USML. For items already in existence, it could then be relevant how the item was controlled under the still current "specifically designed or modified for military applications" standard. Stated differently, if an item is USML today, then it appears

¹ See "Export Control Reform: White Paper," Oct. 29, 2015, *available at*: https://www.pmdtc.state.gov/DTAG/documents/Plenary_whitepaperSC_Comments.pdf.

there is a heavy presumption it will be USML tomorrow. But, as noted before, this concept may not prove correct in all situations when the new control criteria is applied.

Can DDTC confirm that application of the new control criteria will determine whether an item is on the USML? Also, what procedures can DDTC establish to resolve disputes that some in the government may have over a self-determination? The submission of a CJ request is a lengthy process and is inconsistent with the objectives of Export Control Reform. If the regulations are the controlling factor and an applicant does not have doubt as to jurisdiction, then the CJ process is also not appropriate. By providing control criteria and the “specially designed” definition through the revised Category XII, the controlling facts relevant to design intent are readily identifiable and the manufacturer is in the best position to establish this point. The issue then is purely factual rather than a policy or technical issue.

As such, to the extent that DDTC continues to allow other government agencies to question self-determinations, and thereby hold up exports, an expedited process should be established that reviews the self-determination for adherence to the regulatory criteria.

II. Comment on USML Category XII(e)(1) – Application of “Specially Designed” (b)(3) Release

In the DDTC Proposed Rule, it also was stated with respect to comments received relating to the first round of proposed rules relating to USML Category XII issued by DDTC and BIS that:

One commenting party requested clarification on the application of the “specially designed” (b)(3) release for parts and components of the two enumerated entries. The commenting party noted that many types of components for the enumerated items are commercially available. As such, the commenting party requested clarification as to the scope of the “performance capabilities” standard within the (b)(3) release given that proposed Category XII(e)(1) does not provide any identified performance capabilities.

Proposed Category XII(e)(1) identifies “parts and components specially designed for articles described in paragraph (a)(1) or (a)(8) of this section.” It is our understanding that – in at least as it relates to paragraph (a)(8) – there are a number of components that could be used in or with such electro-optical systems that do not have the functionality to “automatically detect and locate weapons launch or fire.”

As there are no performance capabilities identified within paragraph (a)(8), it is requested that DDTC clarify how the (b)(3) release operates to ensure a component would have the same functionality and performance capabilities. In other words, if a component for a civilian article (not on the USML) has the same functionality but different performance capabilities, then would the component for the defense article be “specially designed” even though paragraph (a)(8) does not list any performance capabilities?

We note that this situation tends to arise where the performance capabilities exist in other civilian articles but it is difficult or not possible to identify one civilian article with the same function and performance capabilities. The differing performance capabilities also tend to be immaterial, *e.g.*, the use of different commercially available environmental coatings that are otherwise widely used in other civilian articles. It is requested that DDTC clarify the extent of the performance capabilities requirement.

* * * * *

Your consideration of our comments is greatly appreciated. If you have any questions regarding this submission, please contact Christopher Stagg by telephone at (212) 518-4854 or by e-mail at chris@staggpc.com or Geoffrey Goodale by telephone at (703) 618-6640 or by e-mail at ggoodale@tradelawadvisors.com.

Respectfully submitted,



Geoffrey M. Goodale

The Ad Hoc Coalition for Effective Export Control Reform

cc: Christopher Stagg, Esq.



Comment on DOS_FRDOC_0001-3561

This is a Comment on the **U.S. Department of State (DOS)**
Proposed Rule: **International Traffic in Arms Regulations: U.S. Munitions List Category XII**

For related information, [Open Docket Folder](#) 

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Submitter Information

Submitter Name:

Jarrett Johnson

Organization Name:

Cosysop Defense, Inc.

Government Agency Type:

U.S. Senate

Government Agency:

National Security Agency

Comment

Richard Burr plans bill to punish encryption resistance by tech firms - Senator North Carolina. Keeping this in mind that many Agencies, Corporations and Export and Importers as I encrypt everything up to the guidelines of North Carolina Senator Richard burr of North Carolina which will satisfy many Agencies and Private Sectors, Under Cosysop Defense, Inc. Private Policies and Private Terms of Service.

Thank you for your time;

Jarrett Justin Johnson
Held Under Encrypted Legislation Defined in Our International and Private Cartel Agreement.



April 4, 2016

Department of State

Submitted online via Federal Rulemaking Portal

Re: RIN 1400-AD32 Amendment to the International Traffic in Arms Regulations: Revision of US Munitions List Category XII (Public Notice: 9445)

Dear Mr. Edward Peartree and others this may concern,

Delphi Automotive (“Delphi”) is a leading global supplier of automotive mobile electronics and transportation systems, including powertrain, safety, electrical/electronic architecture, controls and security systems.

Delphi’s Electronics and Safety Division, is a leader and innovator in the design and manufacturing of vehicular sensing systems (including LiDAR) for Advanced Driver Assistance Systems (ADAS) and other automated civilian vehicular applications.

Delphi has the following comments regarding the proposed rule changes:

Delphi appreciates the recognition of the significant civilian application of certain LiDAR systems as evidenced by the transition from controls based on performance capabilities to ones based on design intent.

Delphi is concerned however that the proposal ties the application of design intent to specific type of end-users and not to end-use, as outlined in Note to Category XII:

For purposes of determining whether an item (i.e., system, end item, part, component, accessory, attachment, or software) is specially designed for a military end user, a “military end user” means the national armed services (army, navy, marine, air force, or coast guard), national guard, national police, government intelligence or reconnaissance organizations, or any person or entity whose actions or functions are intended to support military end uses.

A system or end item is not specially designed for a military end user if the item was developed with knowledge that it is or would be for use by both military end users and non-military end users, or if the item was or is being developed with no knowledge for use by a particular end user. In such instances, documents contemporaneous with the development must establish such knowledge.

The broad inclusion of items designed for use by “any person or entity whose actions or functions are intended to support military end uses” without further limitation of intent opens the possibility of items designed for companies who are considered military end-users coming under the jurisdiction of the International Traffic in Arms Regulations (ITAR), even if those items are intended to be used for purely non-military end-uses. This expansion of the ITAR scope is contrary to the stated goals of the Export Control Reform effort.

Considering the above assessment, Delphi recommends that the definition of specially designed be further narrowed to incorporate a primarily military end-use intent. This will tailor the controls

DELPHI

to items that are the most sensitive in nature, while allowing the development and advancement of civilian industry.

Please feel free to contact me with any questions. We would also be open to meeting to discuss if appropriate.

Sincerely,

A handwritten signature in black ink, appearing to read "Puneet Saxena", written over a horizontal line.

Puneet Saxena
Director, Product Regulatory Affairs
Delphi Automotive Systems, LLC
5725 Delphi Drive, Troy MI 48098

Phone: 248-813-1156
E-mail: puneet.saxena@delphi.com



DRS Technologies, Inc.
Trade Compliance Office
2345 Crystal City Drive
10th Floor
Arlington, VA 22202

April 4, 2016

Mr. C. Edward Peartree
Director, Office of Defense Trade Controls Policy
Directorate of Defense Trade Controls
U.S. Department of State
Washington, DC 20522-0112

**Subject: Response to the Amendment to the International Traffic in Arms Regulations:
Revision of U.S. Munitions List Category XII - 81FR8438**

Dear Mr. Peartree,

DRS Technologies, Inc. appreciates the opportunity to comment on the proposed revisions to the ITAR related to USML Category XII, Fire Control, Range Finder, Optical and Guidance and Control Equipment. We applaud the Department in its response to the public comments regarding the original proposed rule, 80FR25821, as exhibited by this new proposal. This fundamental rewrite of that original proposed rule is a significant improvement. It more clearly defines the military-only items to be controlled here and it does not propose to control commercial/dual-use items as military.

Although this proposal is a significant improvement, in our review of it we did identify the following two items that we recommend for revision/clarification.

1. Category XII(c)(1), night vision or infrared cameras specially designed for articles in this subchapter.

Category XII(c) reads "Night vision, infrared, or terahertz imaging systems or end items." Because XII(c) does not state "parts and components" the only specially designed positive criteria used to determine if an infrared camera is captured here is if the infrared camera is "peculiarly responsible for" the camera being an infrared camera. The result is that all infrared cameras would appear to be captured by this entry. The preamble to this proposed rule (page 8339, 3rd column, last sentence in the very last paragraph) states "As a specially designed component of a defense article, a camera, as defined in the note to paragraph (c)(1)...." The note to (c)(1) describes a camera that is a component. All system level cameras requiring control under the ITAR are described elsewhere in XII(c), making this entry at the system level to be unnecessary. We recommend this entry be relocated to XII(e), where it will be correctly controlled as a part/component along with all the other parts/components for Category XII already listed there.

2. USML XII(b)(6), LIDAR/LADAR specially designed for a military end user and XII(c)(2)(iii), binoculars, etc. having an IRFPA or imaging camera specially designed for a military end user and the Note to Category XII.

In both of the above entries the phrase "specially designed for a military end user" lacks sufficient clarity as to what is considered a change with regard to military end use such that control under this subchapter is warranted. For example, using the above entries coupled with the Note to Category XII, modifying such items to ensure they meet Mil-Spec 810, the US Army specification for dust, humidity, temperature, shock (basic commercial environmental requirements) or making such commercial changes as improving the external rubber casing on an infrared binocular to have raised ridges to make the item easier to grip would meet the criteria for control here. Dali Technology (Dali-Tech.com), located in Hangzhou, China manufactures a commercial 640x480 17 micron uncooled infrared focal plane array that they advertise as meeting mil-specs 810 and 833. Despite meeting these mil-specs, this item can be purchased on-line at Alibaba.com as a commercial product. We recommend the Note to Category XII be revised to read that the changes in question must relate to the LIDAR/LADAR or IRFPA/imaging camera function/capability. This would limit these entries to military items and exclude commercial items with commercial specifications/modifications made to them to meet commercial requirements of military customers.

As stated above, we applaud the Department for their effort in this proposed rule. It is a monumental improvement over the previous proposed version. For the most part this rule proposes to control as military only those items that are military. We believe the above two comments will help to better constrain this rule to doing just that. We hope the Department will incorporate them into the final version of this rule.

Should you have any questions in this matter or require additional information, please contact me at (703) 412-0288 or at ghill@drs.com.

Sincerely,

Gregory C. Hill
Vice President
Global Trade Compliance
DRS Technologies, Inc.



April 4, 2016

Via Email – DDTCPublicComments@state.gov

Mr. Edward Peartree
Director, Office of Defense Trade Control Policy
Directorate of Defense Trade Controls
U.S. Department of State
2401 E. St, NW, 12th Floor, SA-1
Washington, DC 25022

Subject: **Comments on Proposed Revisions to USML Category XII**
81 *Fed. Reg.* 8,438 (Feb. 19, 2016); RIN 01400-AD32

Dear Mr. Peartree:

Elbit Systems of America, LLC (“ESA”) welcomes the opportunity to provide comments on the proposed revisions to USML Category XII (“Fire Control, Laser, Imaging and Guidance and Control Equipment”) of the International Traffic in Arms Regulations (ITAR).

Overall, we believe that this proposed rule is more clear and logical than the original version that DDTC published on May 5, 2015 (*See* 80 *Fed. Reg.* 25,821). We wish to thank the agency personnel who spent countless hours reviewing the comments submitted on the May 5, 2015 proposed rule and preparing this new and substantially better version.

I. COMMENTS ON PROPOSED RULE

A. The helmet mounted display systems controlled in proposed Category XII(a)(10) should not be designated as “significant military equipment”

Proposed Category XII(a)(10) would control the following:

Helmet mounted display (HMD) systems or end items, incorporating optical sights or slewing devices that aim, launch, track, or manage munitions, or control infrared imaging systems or end items described in this category, other than such items controlled in Category VIII (e.g., Combat Vehicle Crew HMD, Mounted Warrior HMD, Integrated Helmet Assembly Subsystem, Drivers Head Tracked Vision System).

Similar helmet mounted display systems are controlled in Category VIII(h)(15). The only difference between the two categories is that Category VIII(h)(15) is for items that are designed or configured for use with Category VIII airborne platforms, whereas proposed Category XII(a)(10) would control displays for other types of platforms (e.g., vehicles). The carve-out language in proposed Category XII(a)(10) clarifies that it does not include items that are controlled in Category VIII(h)(15).

However, there is a substantial inconsistency between the two categories. Items controlled in Category VIII(h)(15) are not designated as “significant military equipment” (SME) but items in proposed Category XII(a)(10) would be designated as SME. (The entire Category XII(a) is designated as SME.) The same type of item (*i.e.*, helmet mounted display that incorporates optical sights/slewing devices that aim, launch, track or manage munitions, or control infrared systems) should not be designated as SME based on the platform for which it is configured. No evidence has been presented, nor has the suggestion been made, that helmet mounted displays for non-aircraft platforms have special or unique capabilities that would warrant their designation as SME, particularly when the same type of display for use in an aircraft is not designated as SME.

Accordingly, we recommend that DDTC modify the proposed rule to remove the designation of items in Category XII(a)(10) as SME. This could be accomplished by moving proposed Category XII(a)(10) to a subparagraph within Category XII(e) (*i.e.*, the section for parts, components, accessories or attachments), which is similar to how the displays are treated in Category VIII. It could also be accomplished by including the SME designation for each subparagraph under Category XII(a) except for subparagraph (a)(10).

B. Include in Category XII(c)(1) the language from the preamble clarifying that a camera controlled in that subparagraph is eligible for the releases in paragraph (b) of “specially designed” if the camera is a component of another defense article

Proposed Category XII(c) controls “Night vision, infrared, or terahertz imaging *systems or end items*” (emphasis added) that are enumerated in its subparagraphs. Specifically, Category XII(c)(1) would control “Night vision or infrared cameras specially designed for articles in this subchapter [*i.e.*, defense articles].

The proposed Category XII(c)(1) correctly utilizes the term “specially designed” (as defined in ITAR §120.41) to distinguish cameras that have specific or unique military configurations or capabilities warranting control under the ITAR from those that are in normal commercial use and more appropriately controlled under the EAR.

Cameras are unique in that they can be an end item, or they can be a component of a larger system. Category XII(c), however, identifies only “systems or end items,” which implies that all infrared cameras are considered either systems or end items for purposes of Category XII. This is a problem when the infrared camera at issue is a component of a larger system. When conducting the “specially designed” analysis for such cameras, the so-called “releases” in ITAR §120.41(b) would not be available because only parts, components, accessories, attachments or software are eligible for the “releases” – not systems or end items. Thus, the current structure of Category XII(c) would control as defense articles infrared cameras that would otherwise qualify for release from “specially designed” – and, thus, release from ITAR controls – under ITAR §120.41(b).

DDTC appears to have recognized this issue, and included the following clarifying language in the preamble to the proposed rule:

Paragraph (c)(1) is added for night vision or infrared cameras specially designed for defense articles. The Department revised this entry in response to comments regarding nonmilitary uses of cameras and imaging systems described in the first proposed rule. As a specially designed component of another defense article, a camera, as defined in the Note to paragraph (c)(1), is eligible for paragraph (b) of specially designed in § 120.41.

See 81 Fed. Reg. 8,438 at 8,439.

This language in the preamble confirms that night vision or infrared cameras that are specially designed components of another defense article would be eligible for the “releases” in ITAR §120.41(b). This is logical, as the numerous comments to the May 5, 2015 rule clearly demonstrated that there is a large and diverse civilian market for night vision and infrared cameras. *See Attachment A* for an excerpt from our comments to the May 5, 2015 proposed rule that discusses the wide variety of infrared cameras that are in normal commercial use worldwide.

Proposed Category XII(c)(1), as drafted, could cause confusion because there is nothing in the actual regulatory language to indicate that cameras in Category XII(c)(1) are eligible for the “releases” in ITAR §120.41(b) if they are specially designed components of another defense article. Accordingly, we recommend that DDTC re-label the existing note to Category X(c)(1) as “Note 1 to (c)(1)” and include the language from the preamble as a new “Note 2 to (c)(1)” as follows:

Note 2 to (c)(1): As a specially designed component of another defense article, a camera, as defined in Note 1 to (c)(1) above, is eligible for paragraph (b) of specially designed in § 120.41.

C. Modify the Note to Category XII that defines “military end user” for purposes of determining if an item is specially designed for a military end user

- 1. Narrow the definition so that it includes only entities engaged in activities of a military nature and does not include entities engaged in traditionally civilian law enforcement activities**

The definition of “military end user” in the Note to Category XII currently includes national police (presumably of any country). Within the United States “national police” could be interpreted to include several non-military agencies engaged in law enforcement and public safety activities.

For example, agencies within the Department of Justice such as the Federal Bureau of Investigation (FBI), the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), the Drug

Enforcement Agency (DEA), the Federal Bureau of Prisons and the U.S. Marshals Service are all commonly considered *civil* police or law enforcement agencies. Similarly, within the Department of Homeland Security, the U.S. Customs and Border Protection Agency, as well as the Federal Emergency Management Agency, U.S. Secret Service and the Transportation Security Administration (TSA) are also all commonly considered *civil* agencies. However, all of these civilian agencies of the U.S. Government engage in policing activities (*e.g.*, law enforcement or public safety) that could qualify them as a “military end user” under the proposed definition.

Under the proposed definition, items that are specifically designed for civilian agencies and that were never intended for any military applications could be captured as defense articles. For example:

- TSA utilizes infrared camera-based scanning systems for several types of applications, including security screening and screening the temperature of passengers to identify individuals with fevers to prevent the spread of a deadly disease (as was done in Asia during the SARS outbreak several years ago). If such cameras were designed or modified for TSA, they could be captured as defense articles under proposed Category XII(a)(1) if the TSA is considered a “national police” agency – despite the unambiguously non-military nature of the TSA application.
- FEMA utilizes infrared cameras in its natural disaster recovery efforts to search for people still alive but trapped in collapsed buildings. Again, the definition of “national police” could potentially capture such cameras intended for use by FEMA or other search and rescue teams as defense articles.

In addition to the issues related to “national police,” the inclusion of “any person or entity whose actions or functions are intended to support military end uses” results in a definition that is overly broad and that could capture as defense articles a large number of infrared or night vision products that were designed for and intended to be used for non-military applications. Moreover, there is no definition for “military end uses” in the proposed rule. It is not clear whether the scope of “military end uses” is tied to “military end users” (*i.e.*, all activities of a “military end user” are considered “military end uses”). Nor it is clear that there must be a nexus between the “military end use” and the specific activity for which the product is being designed. For example, one reading of the proposed rule is that an infrared camera designed for a commercial division of a foreign company would be captured as a Category XII defense article because a separate division of that company is a defense contractor that “supports” the foreign military.

The proposed definition of “military end user” for Category XII is very similar to the definition of “military end user” in EAR §744.9. This section of the EAR imposes a licensing requirement on the export of certain infrared cameras if the exporter knows or has reason to know that the cameras will be used by a “military end user.” Notwithstanding the objective to harmonize definitions between the ITAR and the EAR, it does not make sense to adopt the EAR

definition of “military end user” for Category XII because the definitions serve different purposes in each set of regulations. In proposed Category XII, the definition is being used to determine jurisdiction (*i.e.*, whether a product should be controlled as a defense article). For the reasons set forth above, this definition will capture as defense articles numerous infrared cameras that were intended for non-military applications and subject such cameras to ITAR controls. Under the EAR, however, the definition is used for licensing purposes to determine the types of end users for which a licensing review is warranted prior to the export of infrared cameras. The proposed definition of “military end user” may be warranted for licensing purposes under the EAR, but it is overly broad for purposes of determining jurisdiction under the ITAR. (We also note that infrared cameras that are released from control under Category XII using the narrower definition of “military end user” would be subject to licensing requirements to the broader set of end users under EAR §744.9.)

Accordingly, DDTC should narrow the Note to Category XII so that it reads as follows:

Note to Category XII: For purposes of determining whether an item (*i.e.*, system, end item, part, component, accessory, attachment, or software) is specially designed for a military end user, a “military end user” means the national armed services (army, navy, marine, air force, or coast guard), national guard, ~~national police, or~~ government intelligence or reconnaissance organizations. ~~or any person or entity whose actions or functions are intended to support military end uses.~~ A system or end item is not specially designed for a military end user if the item was developed with knowledge that it is or would be for use by both military end users and non-military end users, or if the item was or is being developed with no knowledge for use by a particular end user. In such instances, documents contemporaneous with the development must establish such knowledge.

- 2. Replace the term “military end user” with a new defined term “military purpose” that would control items designed for applications of a military nature rather than based on the identity of the end user**

If narrowing the definition of “military end user” discussed above is not acceptable, then we suggest eliminating the term entirely and replacing it with a new term – “military purpose.” The intent of this change would be to ensure that the USML makes jurisdiction determinations for Category XII items based on the nature of their intended use rather than the identity of the end user.

A proposed definition for “military purpose” that is based on work of the DTAG from 2009¹ is as follows:

¹ See DTAG ITAR Definitions Working Group Report Submitted to the DDTC for Consideration on April 24, 2009, available on the DDTC website at http://pmdtcc.state.gov/DTAG/documents/ITARDefinitions_26Jun09.pdf.

Mr. C. Edward Peartree
Director, Office of Defense Trade Control Policy
April 4, 2016
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“Military Purpose” means that the item is intended to have a unique property that, in and of itself, distinguishes it for the purpose of projecting military force, defending against military force or gathering of intelligence directly related to projecting military force or defending against military force.

The relevant portions of Category XII – such as Category XII(a)(1) – would then be revised to control items “specially designed” for a “military purpose.”

This new definition would focus the jurisdiction determination on the nature of the use for which the Category XII item was designed, rather than on the identity of the end user. In this respect, it would not capture as defense articles items that were designed for applications that are non-military in nature, such as infrared cameras designed for search and rescue activities or monitoring human temperature – even when such items are intended for use by the military. Conversely, it also would control as defense articles items that have uniquely military properties even if such items are being designed and sold to civilian agency or a private entity.

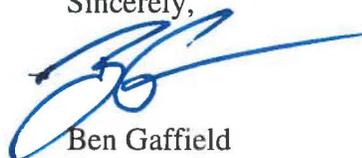
The proposed Note to Category XII would read as follows:

Note to Category XII: For purposes of determining whether an item (*i.e.*, system, end item, part, component, accessory, attachment, or software) is specially designed for a military purpose, a “military purpose” means the that the item is intended to have a unique property that, in and of itself, distinguishes it for the purpose of projecting military force, defending against military force or gathering of intelligence directly related to projecting military force or defending against military force. A system or end item is not specially designed for a military end user if the item was developed with knowledge that it is or would be for use by both military end users and non-military end users, or if the item was or is being developed with no knowledge for use by a particular end user. In such instances, documents contemporaneous with the development must establish such knowledge.

* * *

If you have any questions concerning these comments, please do not hesitate to contact the undersigned at 817.234.6767 or Karen Wyman, Senior Manager, Trade Compliance, at 603.886.2206 or karen.wyman@elbitsystems-us.com.

Sincerely,



Ben Gaffield
Corporate Technology Control Officer &
Director, Trade Compliance
Elbit Systems of America, LLC

Mr. C. Edward Peartree
Director, Office of Defense Trade Control Policy
April 4, 2016
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cc: Regulatory Policy Division
Bureau of Industry and Security
U.S. Department of Commerce
14th Street & Pennsylvania Ave., NW
Washington, DC 20230
Ref: RIN 0694-AF75

ATTACHMENT A

Excerpts from ESA's Comments on the May 5, 2015 Proposed Revision to USML Category XII Discussing Commercial Availability of Infrared Imaging Systems

In support of ESA's recommendation to use the definition of "specially designed" to distinguish infrared systems that should be controlled in Category XII from those that should be controlled under the EAR...

U.S. industry is not the predominant designer or manufacturer of infrared imaging technology worldwide. Although there is design and production activity in the United States, a substantial amount of research, development and production of IRFPAs, infrared imaging systems and related items currently occurs outside of the United States, namely in:

- Israel (Semiconductor Devices Ltd.)
- France (ULIS, SOFRADIR)
- Japan (Hamamatsu Photonics K.K.)
- United Kingdom and Italy (Selex ES)
- Germany (AIM Infrarot Module GmbH, Optris)
- Belgium (Xenics NV)

We understand that these foreign companies have conducted extensive research and development and have worked to advance the use of high-end infrared imaging systems in a wide variety of commercial and civil applications. For example, we understand that cooled IRFPAs manufactured by Semiconductor Devices Ltd. in Israel are sold worldwide for use in a wide variety of commercial applications, such as:

- Scientific research and development applications, such as geology and earth mapping, mineralogy studies, surface and emissivity studies, gaseous cloud studies and art inspection;
- Public health and safety applications, such as security systems, pollution monitoring, firefighting and forest fire monitoring;
- Industrial applications, such as predictive maintenance, leak detection in electrical utilities and manufacturing plants, non-destructive testing, process and quality control applications, mapping, high temperature thermography, semiconductor inspection, non-contact temperature measurements; and
- Navigation systems, such as EVS systems and automobile enhanced vision systems

In addition to SCD, we understand the following foreign companies also develop, manufacture and sell photon detector IRFPAs and detector modules for use in commercial infrared systems include:

- SOFRADIR (France), *see* <http://www.sofradir.com/products/>
- Selex ES (United Kingdom and Italy), *see* <http://www.selex-es.com/product-portfolio/optronics-system/thermal-detectors>
- Hamamatsu Photonics K.K. (Japan), *see* <http://www.hamamatsu.com/us/en/product/category/3100/4007/4165/index.html>
- Xenics NV (Belgium), *see* [http://www.xenics.com/en/products/cameras?f\[0\]=field_cooled_term%3A632](http://www.xenics.com/en/products/cameras?f[0]=field_cooled_term%3A632)

* * *

With respect to the proposal to control as defense articles IRFPAs with greater than 256 detector elements ...

Even if the intent was to control IRFPAs with greater than 256 detector elements “in any dimension,” we believe that this parameter is still be far below the resolution of photon detector IRFPAs that are used in established commercial infrared imaging systems. For example, according to publicly available marketing information:

- Thales (France) manufactures an Enhanced Vision System for use on civilian transport and business jet aircraft with a 1024 x 768 resolution IRFPA, which equates to 787,000 total detector elements. *See* https://www.thalesgroup.com/sites/default/files/asset/document/thales_evs_sheet_canada.pdf.
- CMC Electronics (Canada) manufactures the CMA-2700 Enhanced Flight Vision Systems for use on civilian transport and business jet aircraft with a 640 x 512 pixel InSb IRFPA, which equates to 327,680 total detector elements. *See* http://www.cmcelectronics.ca/pdf/SureSight_4pager.pdf.
- DCG Systems, Inc. sells a semiconductor inspection system that includes a cooled infrared camera with a 1024 x 1025 pixel MCT IRFPA, which equates to 1,049,600 total detector elements. *See, e.g.,* <http://dcgsystems.com/products/electrical-fault-analysis/meridian-line/meridian-iv/> (This camera was determined to be subject to the EAR and classified in ECCN 6A002.b.4 via a December 2014 Commodity Jurisdiction.)
- Telops, Inc. (Canada) sells the TS-IR Thermal Scientific IR Camera, with a cooled InSb or MCT IRFPA of 640 x 512 pixels, which equates to 327,680 detector

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elements. See <http://www.telops.com/en/infrared-cameras/ts-ir-thermal-scientific-ir-camera>

Finally, as noted in Section III(A) above, two dimensional photon-detector IRPFAs (or detector modules incorporating such IRPFAs) with total detector elements greatly exceeding 256 are available from multiple suppliers worldwide – including SCD Ltd, SOFRADIR (France), Xenics (Belgium), Hammamatsu (Japan) and Selex (U.K. & Italy).



eMagin Corporation
2070 Route 52
Building 334
Hopewell Junction, NY 12533

April 4, 2016

BY FEDERAL EXPRESS & EMAIL TO: DDTCPublicComments@state.gov

Mr. Edward Peartree
Director, Office of Defense Trade Controls Policy
Directorate of Defense Trade Controls
U.S. Department of State
2401 E Street, NW
Washington, DC 20037

Re: Regulatory Change Comments for USML Category XII (Military Electronics)

Dear Mr. Peartree:

I am the Vice President for Government Relations of eMagin Corporation (“eMagin”), an electronics company with offices in New York and Washington state that produces organic light emitting diode (“OLED”) microdisplays that can be applied to a wide range of modern industrial, video gaming and military applications, as is explained further below.

eMagin submits this comment letter in full and enthusiastic support of the proposed rule published by the Directorate of Defense Trade Controls (“DDTC”) in its announcement in 81 Fed. Reg. 8438 (February 19, 2016) with respect to the proposed U.S. Munitions List (“USML”) Category XII regarding fire control, laser, imaging and guidance and control equipment (the “Proposed Cat. XII Rule”). The Proposed Cat. XII Rule, building upon an earlier proposal that was first released in 80 Fed. Reg. 25821 (May 5, 2015), would establish very clear “bright-line” standards within the International Traffic in Arms Regulations (“ITAR”) for what will remain as ITAR-controlled military electronic parts and components and thus what will no longer be deemed ITAR-controlled even if applied on some occasions to military end uses. In particular, based upon the “positive list” model that has been implicit throughout the long Export Control Reform (“ECR”) effort undertaken by DDTC and officials at the Bureau of Industry and Security (“BIS”), the Proposed Cat. XII Rule is exemplary in its concise and clear delineation of the exact items that the U.S. Government desires to remain under the stricter controls of the ITAR.

The Proposed Cat. XII Rule allows manufacturers such as eMagin easily to understand their export control obligations under the ITAR, if any, and conveniently and quickly to self-classify whether their electronic devices are to be controlled under USML Cat. XII or not. In the case of eMagin, because of the crisp and definitive wording used in the Proposed Cat. XII Rule, eMagin can readily know that its OLED displays are not going to be controlled under the Proposed Cat. XII Rule, even if individual variations of those commercial off-the-shelf (“COTS”) devices might actually be produced for limited military applications.

Technical Background for eMagin Comments

eMagin offers these preliminary background notes to help DDTC understand the industrial niche occupied by its OLED products. Each OLED can produce nearly the entire spectrum of visible light. Red, green, and blue subpixels can be selectively combined to produce virtually any color. There are millions of elements per display which can combine to produce over 16.7 million colors, rendering exceptionally accurate and clear color images.

Data for each OLED element is buffered right at the pixel location so the duration between changes for each element is as fast as possible. The result is a very fast response time and thus no image “jitter.” An OLED’s image is crisp and sharp, and user eye fatigue is thereby greatly reduced.

Onboard 3D image processing can also be performed on the same OLED silicon chip when a frame sequential signal is sent concurrently to two displays, such as in a binocular headset with two eyepieces. This provides a true 3D continuous display (not alternating left / right shuttering). Again, eye fatigue is greatly reduced and user comfort is greatly enhanced.

eMagin’s current OLED microdisplays also offer significant gains and improvements in efficiency, luminance, operational lifetime, and reliability over earlier generations of such OLED devices. These new OLED XL™, XLS, XLT and ULT devices typically feature significantly longer (>2x) half-life or exhibit at least twice the nominal luminance under the same drive condition. The new technology also improves on eMagin’s OLED microdisplays’ industry-leading power efficiency, depending on the specific OLED product and operating parameters. For the OLED microdisplays, eMagin scientists developed a more efficient OLED structure while maintaining pixel-level efficiency. The results are brighter microdisplays that require no additional power consumption.

In general, OLED devices offer a number of key advantages for users of microdisplays:

- *Lower Power Consumption:* Lower power consumption usually translates into fewer batteries for portable applications. Users can then use such displays for longer periods of time and increase their range and mobility while reducing fatigue from carrying the added weight of replacement batteries. For instance, compared to conventional liquid crystal displays (“LCDs”), OLED displays use up to 80% less power.
- *Wider Operating Temperature:* LCDs are a liquid-based display technology and cannot operate at extreme temperatures. For temperatures below 0°C, LCDs usually require additional heating elements, and, conversely, at higher temperatures, some sort of device cooling is required when using LCDs. Each such “solution” for LCDs needed to perform beyond a conventional “room temperature” environment typically adds more weight, more bulk, and requires more power. In contrast, eMagin’s OLED microdisplays, with all solid-state hardware, operate from -46°C to +70°C without any need for separate heaters or coolers.
- *Wider Viewing Angle:* OLED microdisplays have a nominal viewing angle of 160°; approximately 265% larger than LCD displays.
- *Greater Contrast Ratio:* LCD displays, with their inherent back-light requirement, have a nominal contrast ratio (pure black to pure white) of 60:1. In contrast, with no need for a back light and the ability to turn a pixel absolutely off to show “true black” at that pixel, OLED microdisplays have a nominal contrast ratio of 10,000:1.

- *Faster Response Time:* The nominal refresh rate (changing color and/or intensity) for LCDs is in the range of 10 – 15 milliseconds. In contrast, OLED pixels are “instant-on” and can refresh in less than one micro-second, which is 1,000 to 1,500 times faster. The net result is that OLED microdisplays will show a much smoother moving image, which tends to reduce eye fatigue and eliminate user headaches when using such devices for extended periods.

Range of Applications for eMagin OLED Microdisplays and Export Controls

When eMagin began to introduce its COTS OLED displays to the electronics industry, eMagin always intended they should serve multiple functions and uses and thus should have commercial and industrial uses such as personal entertainment systems, augmented and virtual reality, mobile computing systems, industrial instrumentation and test equipment, field maintenance and repair, and law enforcement or search and rescue night vision/thermal imaging; and also military uses such as command and control, situation awareness, and night vision/thermal imaging. Based on all the above-listed advantages of OLED over conventional LCD devices, users across this entire spectrum have welcomed the advent of OLED technology and its application to a wide range of display devices to replace conventional LCD technology, and that welcome included potential customers in the U.S. military community.

It is a common rule of thumb in the electronics industry that, the smaller number of devices made, the higher their unit costs will be, because there will be less sales revenue from which to amortize all the research and development (“R&D”), tooling and manufacturing costs associated with bringing an advanced electronic device to market. On that basis alone, if the Armed Forces have a choice, they would much prefer, on balance, to buy conventional COTS products rather than “single user” items that are only dedicated to the military market.

That said, in the past, some military applications of OLED devices might involve only quite minor adjustments in the placement or alignment of input/output circuitry, voltage regulation or the like. These are not substantive changes to the intrinsic functionality or technical range of an OLED device and, from an engineering standpoint, are relatively minor changes. Yet, those kinds of modest technical “tweaks” would have brought those modified devices within the range of pre-ECR version of USML Cat. XII, which has the notorious “catch-all” paragraph (e) that controls “[c]omponents, parts, accessories, attachments and associated equipment specially designed or modified for the articles in paragraphs (a) through (d) of this category, except for such items as are in normal commercial use.”

eMagin respectfully submits to DDTTC that the Proposed Cat. XII Rule is a vast improvement for eMagin’s OLED devices because the new rule would eliminate that “catch-all” paragraph (e) and because such display devices – which in and of themselves have no intrinsic military functionality at all – are not listed in the “positive list” format of the new rule. These two positive changes would therefore eliminate any ITAR jurisdiction over eMagin’s OLED devices, allowing them to be regulated solely under the Export Administration Regulations (“EAR”) as administered by BIS. That, in turn, allows eMagin, as a future exporter of these devices, to follow all the identified advantages of ECR, including easier and faster export trade with U.S. allies such as the NATO member nations, Japan, Australia and New Zealand through EAR features such as license exception *STA* under EAR Section 740.20.

Explicit Recognition of Federal Contract Provisions

eMagin also applauds the authors of the Proposed Cat. XII Rule because they took the extra effort to add an additional technical note to the new rule (see p. 8444), namely:

Note 1 to paragraph (c)(9): This paragraph does not control electro-optical, infrared, or terahertz imaging systems: (a) In production, (b) determined to be subject to the EAR via a commodity jurisdiction determination (see § 120.4 of this subchapter, or (c) ***identified in the relevant Department of Defense contract or other funding authorization as being developed for both civil and military applications.*** [emphasis supplied]

Throughout the microelectronics industry, there are many “electro-optical” companies such as eMagin which have received rather modest and yet ultimately critical R&D funding from various Department of Defense (“DoD”) agencies (e.g., the U.S. Air Force, the U.S. Army, the U.S. Navy or other entities) to migrate their core COTS technology into specialized and vitally important applications in support of the Armed Forces. In many cases, that R&D funding was sufficiently necessary that, but for such funding, the Armed Forces would not have gained the support of a given manufacturer because the costs of such a migration from a COTS product to a specialized item useful only for the military, even if relatively modest technically, might still have been too expensive for a small company to undertake on its own, given the relatively fewer units that would eventually be sold into such limited military uses.

The above-quoted Note 1 to paragraph (c)(9) thus allows the DoD agencies to specify upfront and without ambiguity what will be the desired export control status of DoD-funded R&D efforts in private industry. In particular, eMagin is extremely grateful that, under this proposed rule, if the DoD R&D contract explicitly specifies that the intended results of such an R&D program are to enable “*both civil and military applications,*” that specificity will, by itself, be sufficient to settle whether the “military” version is to be treated as an ITAR-controlled item. The clear and eminently fair principle set out in Note 1 is that, once the DoD has so stated, then the resulting “military” part is to be considered outside the purview of USML Cat. XII and to be controlled only under the EAR. That removes both ambiguity and cost to private industry, directly in understanding what will happen to the item even before it is ever developed and then, afterwards, when that item has been developed and goes to actual commercial production and distribution, including elimination of an unnecessary “commodity jurisdiction” (“CJ”) request that would otherwise have to be filed with DDTC under ITAR Section 120.4. eMagin believes that avoiding that separate CJ request spares not only the involved company but also multiple agencies within the government who would have to be involved in reviewing that CJ request, including the original sponsoring DoD agency.

Accordingly, for all of the above reasons, eMagin would like to go on record as in full and unreserved support of the Proposed Cat. XII Rule (and of the companion changes to the EAR as announced at the same time by BIS). I will send a copy of my letter of support to BIS as well.

On behalf of all the employees at our small American company, we thank everyone at DDTC and BIS (and at the other federal agencies) who have worked so long and so hard on this ECR effort since 2009. Please know that we in private industry do notice these regulatory changes and clearly will benefit from them, so accept our appreciation for your diligence and perseverance to make this recent proposal a solid addition to the other positive ECR changes already in effect. We look forward eagerly to adoption of the final rule soon.

Yours truly,

R. Douglas Hughes
Vice President, Government Relations



The World's Sixth Sense®

April 1, 2016

Office of Defense Trade Controls
Department of State
Washington, DC
Email: DDTCPublicComments@state.gov

Subject: Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII
(Public Notice: 9445, RIN 1400-AD32)

Dear Sir/Madam,

FLIR Systems, Inc. (FLIR) hereby submits the following comments in response to the proposed revision of the International Traffic in Arms Regulations (ITAR) U.S. Munitions List Category XII to control certain fire control, laser, imaging, and guidance and control equipment as published in the Federal Register on February 19, 2016. These comments are timely submitted by the April 4, 2016, due date published in the Federal Register notice.

FLIR is a world leader in the design, manufacture, and marketing of sensor systems that enhance perception and awareness. FLIR's advanced thermal imaging and threat detection systems are used for a wide variety of imaging, thermography, and security applications, including airborne and ground-based surveillance, condition monitoring, research and development, manufacturing process control, search and rescue, drug interdiction, navigation, transportation safety, border and maritime patrol, and environmental monitoring. FLIR has annual revenues of approximately \$1.6B, with over half of that revenue generated by sales outside of the United States. Many of FLIR's products, software and technology are currently controlled for export under Category XII of the ITAR and under Control List entries 6A002, 6A003 and 6A993 of the EAR. The exportability of products and technology is a major factor in FLIR's ability to compete successfully and to sell in the global marketplace. Any revision of Category XII of the ITAR and corresponding changes to the EAR therefore have the potential to significantly impact FLIR's product sales.

GENERAL COMMENTS

As a general comment, we believe that the February 2016 proposal is significantly improved from the May 2015 draft and is in much better alignment with the guiding principles of Export Control Reform (ECR). We were pleased that the interagency reviewers appear to have seriously considered the input from industry, academia, and government research institutes and took a fresh approach to drafting new language for Category XII. The February 2016 proposed rule better balances national security concerns while providing a much-needed updating of the ITAR and EAR to reflect the advancement of technology, the continued expansion of foreign manufacturing of this technology, and the significant and rapid growth of commercial markets.

Bright Line. This proposed rule addresses one of FLIR's prior concerns, by appropriately placing the bright line controls on military end-items rather than on the parts, components, and sub-systems that are used for commercial, industrial, and military systems. FLIR provided data in its July 2015 comments to the May 2015 proposal that demonstrated that commercial markets dominate the demand for infrared focal plane arrays (IRFPAs). The commercial demand to incorporate sensors into consumer products is driving many companies to invest their own research and development funds to advance sensor technology. Additionally, FLIR's prior comments incorporated specific data demonstrating foreign availability of IRFPAs, as validated by multiple independent market research organizations. FLIR provided similar foreign availability data for other components such as lasers, optics, ROICs, cameras and many other sub-assemblies.

The new proposed rule now clearly delineates that only IRFPAs specially designed for articles controlled by the ITAR should be controlled under CAT XII. FLIR supports this critical change that will allow U.S. companies to compete with the growing number of non-U.S. IRFPA manufacturers.

Definitions. The current proposed rule successfully aligns key definitions set forth in the EAR and will reduce confusion and complexity that would have been introduced by the May 2015 proposal. For example, both the EAR and the Wassenaar Dual-Use List use the same language to describe a “camera.” However, the May 2015 proposal introduced a slightly different definition that would have resulted in disparate interpretations and treatment. There were several other definitions such as “core” and “permanently encapsulated sensor assembly” that were introduced in the May proposal and subsequently removed from the current proposal which reduces the probability of significant inconsistent treatment by various manufacturers and U.S. Government personnel required to rule on export licensing requests.

World-Wide Competition. The February 2016 proposal for CAT XII recognizes that commercial demand, foreign availability, and the ability of U.S. companies to compete in the global market are essential to U.S. industry maintaining and growing its market share and leadership in technology development.

The May 2015 proposal would have led to a severe competitive disadvantage for U.S. companies. Many systems and components that were retained under ITAR jurisdiction in the May proposal are in normal commercial use and widely available from non-US manufacturers. The current and future commercial market demand for such products far exceeds military demand (see, for example, Figure 1 for forecast of demand for uncooled focal plane (UFPA) cameras). As it is not possible to satisfy commercial markets with ITAR controlled products, non-U.S. companies would have been able to reap advantages of being able to develop, produce, and sell commercial items treated as dual-use items by every country in the world except the U.S. That would have driven sales, R&D, and high-technology jobs to companies and research institutions outside of the U.S. Additionally, controlling dual-use products under the ITAR would discourage non-U.S. companies from investing in production and research activities in the U.S.

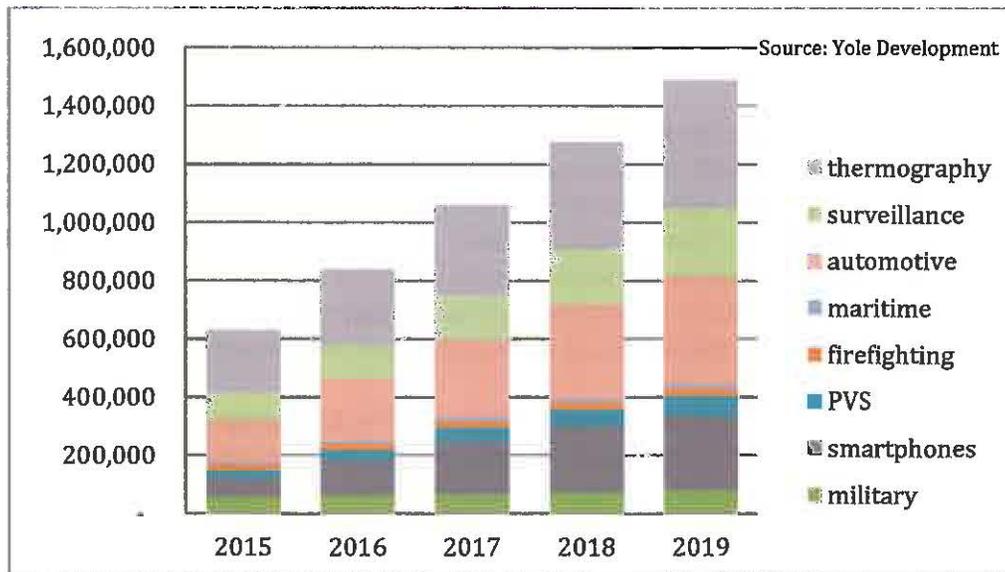


Figure 1 UFPA Camera Forecast by Market

SPECIFIC COMMENTS

Following are a few specific comments on the February 2016 proposal that require additional review.

****(b) Laser systems and end items, as follows:***

(3)(ii)(A) Single shot ranging capability of 3 km or greater against a standard 2.3 m x2.3 m NATO target having 10% reflectivity and 23km visibility;

ISSUE: The 3Km limit will restrict a number of potential non-Military uses. For example, aerial photography is often performed at 20,000 feet or twice the 3 Km limit, and enhanced vision systems (EVS) or similar commercial landing aids where an LRF may help in image blending or analytics. EVS will require ranges in the 6-10 Km to support instrument landing systems (ILS) approach distances.

RECOMMENDATION: add language to provide greater clarity of the military concern such as; "A system which is capable of calculating a certified Category I or II target location solution, using navigation data embedded in the system or externally supplied, and laser rangefinder data."

(5) Systems specially designed to use laser energy with an output wavelength exceeding 710 nm to exploit differential target-background retro reflectance in order to detect personnel or optical / electro-optical equipment (e.g., optical augmentation systems);

ISSUE: Commercial products and components developed for 3D imaging could function as described in this paragraph (a Microsoft "xBox" console uses a similar process by using a projected near-IR light to detect the player).

RECOMMENDATION: remove "personnel or" and replace with "Military"

****(c) Night vision, infrared, or terahertz imaging systems or end items, as follows:***

(5)(i) Mobile reconnaissance, scout, or surveillance systems providing real-time target location at ranges greater than 5 km (e.g., LRAS, CIV, HTI, SeeSpot, MMS);

ISSUE: The language is very broad and will capture systems designed for non-military applications such as search and rescue, civil law enforcement, border protection, and commercial applications related to security surveillance systems for high value asset protection.

RECOMMENDATION: Change the language to read "Mobile reconnaissance, scout, or surveillance systems ***specially designed to*** provide real-time ***military*** target location at ranges greater than 5 km....."

(5)(iii) Multispectral imaging systems that classify or identify military or intelligence targets or characteristics;

ISSUE: The language is very broad and will capture systems designed for non-military applications such as search and rescue, civil law enforcement, border protection, and commercial applications related to security surveillance systems for high value asset protection.

RECOMMENDATION: Change the language to read "Multispectral imaging systems ***specially designed to***

classify or identify military intelligence targets or characteristics”;

(5)(viii) Gimbaled infrared systems, as follow;

(A) Having a stabilization better (less) than 30 microradians RMS and a turret with a ball diameter of 15 inches or greater; or

ISSUE: Turret ball diameter and stabilization are not military parameters.

- 1) Critical military parameters are a combination of objectives for a given mission.
 - a. The ability to detect, recognize, and identify certain objects at specified ranges
 - b. Features such as laser designators used to direct weapons
 - c. Type of platform e.g., UAV, fixed wing, rotary, high speed crafts
- 2) Gimbals are used for many non-military end-uses
 - a. Agricultural ✓
 - b. Power line monitoring
 - c. Search and rescue
 - d. Law enforcement
- 3) There is extensive availability from non-US sources
 - a. Wescam, extensive range of airborne stabilized platforms.
<http://www.wescam.com/index.php/products-services/airborne-surveillance-and-reconnaissance/>
 - b. PV Labs, extensive range of airborne stabilized platforms, advertise “ITAR FREE”, Canada
<http://www.pv-labs.com/>
 - c. Controp, extensive range of airborne stabilized platforms, Israel
<http://www.controp.com/category/long-range-payloads>
 - d. Airbus, France/South Africa http://www.defenceandsecurity-airbusds.com/en_US/web/guest/leo_iii_hd
 - e. Safran, extensive range of airborne platforms, France
<http://www.sagem.com/aerospace/helicopters/airborne-optronics-helicopters/electro-optical-systems-eos>
 - f. IAI, extensive range of airborne stabilized platforms, Israel
http://www.iai.co.il/Sip_Storage//FILES/5/41025.pdf

RECOMMENDATION: Delete this paragraph (5)(A) and utilize the “specially designed” language in (5)(B).

CONCLUSION

FLIR believes that the recommendations that it has provided in this document will help to fine-tune the proposed changes to Category XII in a way that continues to balance national security concerns against the need for U.S. technology evolution and innovation and commercial competition considerations. We greatly appreciate the enormous effort that the interagency drafters and reviewers have put into the February 2016 rewrite of CAT XII. FLIR and many others in industry, research institutes, universities, and government agencies provided voluminous comments, with supporting data, and expressed serious concern about the May 2015 draft. It is apparent that the Interagency group carefully reviewed the comments, analyzed supporting data related to commercial demand and foreign availability, and weighed those issues against U.S. national security concerns. We would like to commend the



interagency group for creating a new proposed rule that took into consideration and integrated many suggestions from the May 2015 public comment period.

Please contact Nancy Boughton, Vice President & Deputy General Counsel, by phone at 503-498-3301, or by e-mail at nancy.boughton@flir.com should you require any further information in support of our comments herein.

Best regards,
FLIR SYSTEMS, INC.

A handwritten signature in blue ink, appearing to read 'Andrew C. Teich', written in a cursive style.

Andrew C. Teich
Chief Executive Officer

April 4, 2016

Sent via email to: publiccomments@bis.doc.gov and DDTCTPublicComments@state.gov

Regulatory Policy Division
Bureau of Industry and Security
U.S. Department of Commerce
Room 2099B
14th Street and Pennsylvania Avenue NW
Washington, DC 20230

and

Office of Defense Trade Controls Policy
Directorate of Defense Trade Controls
Bureau of Political Military Affairs
Department of State
Washington, DC 20522

Subjects: RIN 0694-AF75 - Revisions to the Export Administration Regulations (EAR): Control of Fire Control, Range Finder, Optical, and Guidance and Control Equipment the President Determines No Longer Warrant Control Under the United States Munitions List (USML)

and RIN 1400-AD32 Amendment to the International Traffic in Arms Regulations: Second Proposed Revision of U.S. Munitions List Category XII

Dear Sir or Madam:

Fluke Corporation is pleased to have the opportunity to provide feedback on the Administration's proposed rule, Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII ("USML Proposed Rule") and complementary revisions to the Export Administration Regulations ("EAR Revisions"). This comment focuses on proposed changes to controls related to commercial thermal imaging cameras. Fluke is very supportive of the proposed changes to the USML, as they relate to our business. This proposal is an appreciated improvement from the May 5, 2015 proposal. We do, however, remain concerned about proposed changes to the EAR, which appear to conflict with several of the stated goals of the Administration's rulemaking.

As we discussed in our comment to the first proposed revisions, the EAR Revisions create new controls on items that were not previously controlled, increases licensing requirements, and removes availability of license exceptions, and even imposes a presumption of denial for certain items, all of which appear to be contrary to the stated objectives of Export Control Reform ("ECR") to focus high-level controls on the "crown jewels" of U.S. export controlled technology, and to increase regulatory flexibility with regard to less sensitive items.

The rewrite of USML Category XII and complementary EAR Revisions was initiated to protect the commodities and components most important to our military, while providing relief to companies struggling with outdated and overly burdensome regulations by placing less sensitive items on the more flexible CCL. With respect to our industry, the USML Proposed Rule meets the first goal, but the EAR Revisions still falls significantly short of the second half of the goal.

Under the current export control model, the U.S. thermal imaging industry is already at a competitive disadvantage against our foreign competitors. To be more competitive with foreign competitors, U.S. companies must find ways to reduce the impact of export control licensing hurdles. Therefore, many U.S. multi-national companies have chosen to move research, development and manufacturing to off-shore subsidiaries outside the U.S., and in some cases U.S. companies are fully outsourcing these functions to non-U.S. companies.

While the stated goal of maintaining strict export controls around thermal imaging technology is to preserve U.S. technological and tactical advantages, we are concerned that these changes will ultimately backfire, and lead to U.S. dependence on foreign technology and/or the loss of U.S. technological advantages in this area. The impact of these decisions will be felt by the U.S. commercial base and the U.S. Government. Advanced thermal imaging technology and products will soon be dominated by foreign industries. U.S. consumers – including the U.S. Government - will have to pay more for products produced outside the U.S. and the U.S. Government may lose access to domestic sources of the newest technologies, may become reliant on foreign sources for a critical tactical capability, and our war-fighters ultimately may be put at a disadvantage. Additionally, the proposed licensing requirements for EAR items will dramatically limit U.S. companies' ability to compete with European competitors, reducing the economic viability of the U.S. thermal imaging industry.

Fluke Corporation supports the U.S. Government's desire to protect U.S. technology and national security. Export controls play an important part in this endeavor. However, if the regulations are not carefully drafted to limit the strictest controls to products and technology that are critical to our national security, are equally protected by our allies, are not already in commercial use, and are not readily available in foreign markets, export controls begin to have the opposite effect.

A. PROPOSED RULE

As noted above, Fluke is very supportive of the Administration's proposed rule, Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII, as it applies to our commercial thermal imaging business. We believe that the Administration addressed the concerns Fluke described in our July 6, 2015, comment to the May 5, 2015, USML Proposed Rule. We appreciate the efforts of the Administration and the Sensors and Instrumentation Technical Advisory Committee ("SITAC") in drafting a USML Proposed Rule that balances the goals of ECR and the industry's concerns.

Fluke does not have any substantive comments with respect to the USML Proposed Rule and will focus on the complementary revisions to the Export Administration Regulations.

B. EAR REVISIONS

The EAR Revisions in this proposed rule are only nominally better than the 2015 proposed rule. The second proposed rule still increases licensing requirements, removes availability of license exceptions and even imposes a presumption of denial for certain items. The proposed revisions are contrary to ECR objectives, will create an administrative burden on the civil/commercial industry, and will place U.S. companies at a competitive disadvantage.

I. RSI + STA for 6A002 and 6A003 Will Put U.S. Industry at a Competitive Disadvantage

a. Foreign Availability of 6A993 and 6A003 Cameras

Attachment A is a foreign availability sampling of 6A993 and 6A003 cameras.¹ These cameras compete with Fluke's products, are manufactured outside of the U.S., are not subject to U.S. export controls and, to the best of Fluke's knowledge, are widely available throughout the world. Key highlights include:

- There are at least two dozen companies selling thermal imaging cameras, located in over a dozen countries.
- Competitive products are available in a wide range models with bandwidth ranging from 80x60 to 2048x1536 and frame rate from 9 Hz to 240 Hz.
- There are over twenty competitive 9 Hz camera models (6A993) manufactured in at least 8 different countries.
- There are over forty competitive cameras over 9Hz (30-240 Hz) (6A003).
- There are at least four brands in China with products ranging from 80x80 to 640x480 and 9 to 60 Hz.

b. Rollback of the 2009 Regional Stability Rule

In 2009, BIS revised the license requirements and license exception eligibility for certain thermal imaging cameras by implementing §742.6(a)(2)(ii) and (v) ("Regional Stability Decontrol"), recognizing the emerging availability of these cameras around the world and the export licensing practices of other Governments.² While the Regional Stability Decontrol rule does add some complexity to interpretation of 6A003 export controls, the rule put U.S. exporters on equal ground with our European and Japanese competitors, as the effect of the BIS rule is similar, for certain types of cameras, to the European Union's (E.U.) Community General Export Authorization (CGEA) and Japan's Bulk License, which cover most dual-use items, including thermal imaging cameras.

The Regional Stability Rule had its desired effect immediately. BIS's own data showed that "[t]here has been a spike in both U.S. and non-U.S. dual-use uncooled infrared camera sales from 2009-2010. This spike in sales coincides with the implementation of the 2009 rule that reduced licensing requirements to some regime partners for dual-use uncooled infrared cameras controlled under ECCN 6A003."³

License exception APR, when coupled with the RS Decontrol, further synchronizes the U.S. with our trading partners by authorizing transfers and many re-exports. From the customer's perspective (in an NLR country), purchasing a U.S. 6A003 camera is very much like purchasing an E.U. 6A003 camera – no administrative hurdles and relative freedom of ownership after the purchase.

This EAR Revision proposes to roll back the benefits afforded under the 2009 rule to "harmonize and simplify the EAR," which from the simple perspective of reading and interpreting the rule, the Administration will achieve this goal. However, from the exporter and customers' perspectives the EAR Revision creates dissonance with the export control systems of our close allies and complicates the sale, purchase and ownership of these cameras. The Regional Stability Decontrol was the first step in

¹ Data provided for the most part is publically available information. In some cases (when data was not publically available), data provided is based on Fluke's knowledge of the industry or best estimates, and may not be 100% accurate. If Country of Origin data was not publically available, Fluke provided the best known location of the company headquarters.

² See 74 FR 23941.

³ See https://www.bis.doc.gov/index.php/forms-documents/doc_view/630-night-vision-assessment

harmonizing the U.S. with the rest of the world and putting the U.S. camera manufacturers on equal footing with our foreign competitors. Any move away from the current state will have the simple effect of returning U.S. manufacturers to the competitive disadvantage they labored under prior to the 2009 changes.

c. STA vs. Regional Stability Decontrol & APR

BIS believes that the availability of STA should alleviate this concern. While the roll back doesn't take us all the way back to individual validated licenses ("IVL"), it dramatically increases administrative burdens, placing compliance requirements upon our international partners, slowing our ability to deliver to customers on time, which in turn places us at a competitive disadvantage as compared to our foreign competitors, including those within Wassenaar countries.

About 25% of Fluke's annual sales (thousands of transactions, all managed by distributors) will require additional administrative work, time and support under the STA regime. Companies in China, Japan and the E.U. manufacture products that compete with Fluke's 6A003 30/60 Hz cameras.⁴ Faced with the option to purchase two cameras with equal banner specs – one from the U.S. and one from a non-U.S. Wassenaar country – the customer will likely choose the non-U.S. camera, because they won't have to execute the required STA assurance. Despite the Commerce Department's apparent efforts to convince foreign buyers that executing an STA assurance does not impose any additional compliance requirements, this message has largely fallen on deaf ears in Europe.

Following BIS's 2014 decision to change Mexico to NLR for NS2 and RS2, Fluke witnessed in real time proof that more customers will purchase our U.S. manufactured cameras if they are not burdened by export legal paper work. Sales increased immediately when partners and customers learned that they no longer had to obtain individual licenses. Mexico is not an STA country and will once again require an IVL under the EAR Revisions. Fluke fully expects that its commercial thermal imaging business in Mexico, which just got into a new sales process, will be affected by any new license requirement.

Furthermore, less than 5% of Fluke's 6A003 cameras are sold to countries that, under today's controls, require an IVL ("IVL Countries"). In contrast approximately 60% of 6A993 cameras are sold to 6A003-IVL countries. Based on customer and distributor feedback, Fluke strongly believes that the administrative burdens of U.S. export licensing account for this huge inconsistency. We are very concerned that moving to an STA model will have a similar impact on Fluke's sales of 6A003 cameras in STA countries.

Fluke's sales model heavily depends on distributors throughout the world. We've observed that our international partners focus their efforts on selling product with the least amount of additional administrative work. Their perception is that the extra paperwork and time delays related to compliance approvals are too complicated and burdensome. And we hear time and time again that our competitors aren't requiring the same level of end-user documentation and compliance approval; that's because our competitors are not subject to U.S. export control jurisdiction and their jurisdictions do not have the same level of administrative hurdles for selling these cameras. Unless the U.S. government can convince countries like Russia, China, and many E.U. countries to adopt similar export control requirements, the primary impact of the change will be to reduce U.S. share of the commercial thermal imaging market, weakening U.S. manufacturers and strengthening foreign manufacturers by shielding them from competition.

⁴ See Attachment A.

d. Recommended Alternative – RS2

If BIS would like to harmonize thermal imaging camera export controls with our allies and allow U.S. companies, like Fluke, who have chosen to manufacture 6A003 cameras in the U.S., to compete effectively with competitors that manufacture off-shore, BIS should change all 6A003 cameras with a frame rate of ≤ 60 Hz to RS-2 control. This would acknowledge the reality that competitive thermal imaging technology is available from at least two dozen foreign manufacturers around the world,⁵ permitting U.S. companies to continue to compete on a level playing field within Country Group A:5.

II. Increase Controls for Infrared Detection Items is Contrary to ECR and Hampers U.S. Innovation and Competitive Ability:

a. Restrictions on the Use of License Exceptions STA and TSR

The EAR Revisions propose to eliminate STA eligibility for certain thermal imaging related ECCNs 6A002, 6D002, 6D003, 6D991, 6E001, and 6E002, as well as TSR eligibility for the export of 6E001 and 6E002 technology to our allies in A:5 countries. Given the current state of thermal imaging research, development and manufacturing, which is now spread throughout the globe, Fluke does not support elimination of STA for these ECCNs, and a return to individual license requirements for even our closest allies. While strong controls on certain components and development technology may be warranted, removal of STA eligibility for 6A002, 6E001, and 6E002 items undermines the flexibility of EAR controls on commercial thermal imaging devices, and would negatively impact the competitiveness of U.S. industry by burdening its ability to work cooperatively, even internally within corporate affiliates located in the European Union and other Wassenaar Arrangement countries.

Practically speaking, these changes will dramatically increase the administrative burden of U.S. industry and BIS. Multinationals that are now employing TSR and STA to support foreign subsidiaries in R&D, manufacture and service will now have to apply for licenses to export such technology to close allies, reducing the regulatory flexibility that has been in place and working well since 2009.

b. Expansion of Military End-User Controls

The Administration has stated since the beginning of the Export Control Reform Initiative that the reforms will be consistent with U.S. obligations to the multilateral export control regimes, and to the extent feasible, keep controls aligned with those of the regimes. This EAR Revision proposal to add a military end-user restriction to 6A993 cameras exported to every destination except Canada is far from aligned from these stated objectives.

Our allies in the E.U. and other Wassenaar countries don't even consider 6A993 cameras to be dual use items, i.e. 9 Hz thermal imaging cameras do not even have a military purpose, only civil purpose. But the issue of dual use or not, is not our concern. Our concern is the overly broad imposition of an end-user restriction, which essentially equates to a worldwide arms embargo on civilian cameras which are widely and commercially available around the globe, and which are subject to no multilateral export controls whatsoever. As discussed above, these cameras are manufactured by at least two dozen different manufacturers in the Americas, Europe and Asia, and are widely available throughout the world.⁶

The U.S. proposal is misaligned with the European Commission and E.U. member states, which in the first place don't even regulate these 9 Hz cameras, but second for those 6A003 cameras they do, they

⁵ See Attachment A.

⁶ See Attachment A.

would only impose military end-use/end-user restrictions on countries with which they have an arms embargo. Control at 6A993 with AT control, as well as the existing military end-use/r restrictions for China, Russia and Venezuela, is a reasonable alignment with multilateral controls. Anything more will only serve to harm U.S. industry, not protect U.S. national security.

Managing sales of 6A003 items that are subject to Section 744.9 is already a challenge. The proposed revisions on 6A993 cameras will significantly increase the complexity and burden on the U.S. thermal imaging industry. Many infrared cameras controlled by 6A993 are low-cost, consumer goods that are distributed internationally, often through multiple distributors and sometimes sold in storefronts and on-line.

Military end-users do sometimes purchase Fluke's 9Hz cameras worldwide (except where currently prohibited). These customers do not, however, purchase our cameras for military end-uses, but rather typically purchase the Fluke cameras for generic civil purposes such as: inspection of buildings for improperly installed or missing insulation, defective seals on doors and windows, and problems with HVAC installations. Fluke's distribution network includes well over a thousand distributors, and many of these cameras are sold through second and even third tier channels. Adding 6A993 to the list of items subject to 744.9 will be an overwhelming administrative/resource burden to implement proper controls. New processes, forms, training, and audits, both internally and with all global subs to control for this rule will be required. The increased administrative burden on distributors will hinder sales of these items, especially for 6A993.a cameras, and cause a significant competitive disadvantage.

BIS explained that "agencies determined that 9 Hz cameras are used in foreign-made military commodities and thus merited inclusion in §744.9." Fluke is not aware of any circumstance where any of our 6A993 9Hz thermal imaging cameras were incorporated into another commodity or system, especially a military commodity. Indeed, these are fully-packaged, commercially available cameras, and it strains credulity to think they would be used tactically, or incorporated into some other commodity. We strongly disagree with the theory that cameras, such as Fluke's, which are fully assembled and independently functioning, handheld, screen-display thermal cameras would be used in foreign-made military commodities. With their bright displays and hand-held form factors, these cameras are not effective in a tactical setting.

It is certainly workable for certain camera cores and FPAs, which are available worldwide, to be procured by military end-users for integration into tactical military systems. If BIS intended to focus this rule on camera cores or other camera form-factors that are easily incorporated into other end-items, Fluke recommends that BIS exclude those cameras that are put up for commercial sale as fully assembled and independently functioning, handheld, screen-display thermal cameras from the licensing requirements of EAR 744.9.

The commercial availability of foreign manufactured cameras and the very typical distributor/store based sales model for these low end cameras results in a feasibility of control, for the proposed control, which is very low. These changes are also inconsistent with the goals of ECR, which include facilitation of cooperation with multilateral regime partners, and not imposing new export controls on items without clear national security justification and a push for multilateral controls.

c. ROICs specially designed for 6A002.a.3 FPAs

Fluke strongly supports the move from the USML of read-out integrated circuits (ROICs) that are specially designed for 6A002.a.3 FPAs to 6A990. As Fluke and other commenters demonstrated in public comments to the 2015 proposal, these IRFPAs are manufactured in many countries, including China, and are widely available worldwide. These IRFPAs and their associated ROICs no longer warrant control on the USML.

The civil automotive application carve out in the note to 6A990.a, however, doesn't technically make sense as written. Historically, most, if not all, of the IRFPAs used in civil automotive applications have been general purpose IRFPAs that are used in numerous other applications. It is not at all clear or evident what properties of an IRFPA, and/or its corresponding ROIC, are peculiarly responsible for achieving or exceeding the performance levels, characteristics, or functions of civil automotive applications. Nor is it clear why these ROICs are any different than those used in all other applications.

Apparently, BIS included this automotive carve out "in order to address technological and market developments." It is Fluke's opinion that IRFPAs and ROICs used in other civil or dual use applications have achieved the same technological and market developments as those in the automotive industry, and therefore all ROICs specially designed for civil applications should be excluded from control.

d. Software Expansion

The EAR Revision proposes to expand 6D991 ("development," "production," or "use" of 6A002, 6A003, or 6A990 items) to include software specially designed for the "development," "production" or "use" of 6A002 and 6A003 items, and make 6D991 ineligible for License Exception STA or TSR.

These proposed controls could affect Fluke software used in the production and testing of 6A003, and possibly 6A993, items, although it is not clear the extent to which the controls would apply to particular types of software, due to the difficulty of applying the "specially designed" concept to software. It could potentially cause Fluke to need to get licenses to authorize the provision of field testing software to its service centers even in A:5 countries, since such software would not be STA eligible. At minimum, such items should be STA eligible to avoid undue burdens on the servicing and production capabilities of companies like Fluke.

C. CONCLUSIONS

Overall, Fluke is very supportive of the USML Proposed Rule, which are aligned with Export Control Reform goals, are technically sound and support and enable the U.S. commercial thermal imaging industry in a complete international industry. We appreciate the great efforts of the Administration in reaching this workable solution.

With respect to the EAR Revisions, we conclude there are still many fundamental flaws, which undermine the policy objectives of Export Control Reform, and the objectives of the U.S. export control regime in general. The overall effect of these controls will likely be to reduce the competitiveness of U.S. industry, sheltering foreign competitors and enabling them to gain a greater share of the commercial and military markets. This may lead to increased costs for the U.S. government, potential loss of U.S. technological edge, and ultimately to greater U.S. government reliance on foreign-sourced thermal imaging commodities. Fastening the export control tethers too tightly, without regard to existing foreign availability and the intertwined relationship between a healthy U.S. commercial thermal imaging industry

and a healthy U.S. military industry, may unintentionally transform those tethers into a noose, choking off a key source of important tactical technology for the U.S. government, while simultaneously pushing good U.S. jobs offshore to foreign competition.

Thank you once again for the opportunity to provide comments on this proposed rule. We would be pleased to discuss any of this with BIS.

Submitted on Behalf of Fluke Corporation by,

Matthew Schmidt, Director, Business & Technology Development

Jennifer Christy, Senior Manager, Trade Compliance

Slone Pearson, International Trade Compliance Counsel

Attachment A

Brand	Model	Resolution	Frame Rate	Country of Origin or HQ if COO Unknown	Link to Specs
BritIR	B0	80x80	50 Hz	China	http://www.guideinfrared.com/Plus/m_default/Cms/docDetail.php?ID=60
BritIR	B1	160x120	50 Hz	China	http://www.guideinfrared.com/Plus/m_default/Cms/docDetail.php?ID=60
Chauvin Arnoux	C.A 1950 DiaCam 2	80x80	9 Hz	France	http://www.chauvin-arnoux.com/sites/default/files/D00VTP46.PDF
Chauvin Arnoux	C.A 1886 RayCam	160x120	9/50Hz	France	http://www.chauvin-arnoux.com/sites/default/files/D00UQE34_0.PDF
Chauvin Arnoux	C.A 1888 RayCam	384x288	9/50Hz	France	http://www.chauvin-arnoux.com/sites/default/files/D00UQE34_0.PDF
Cordex	TC7150	320x240	9 Hz	UK	http://www.cord-ex.com/products/tc7150-nrti-listed-infrared-camera/
Cordex	TC7000	320x240	9 Hz	UK	http://www.cord-ex.com/products/tc7000-atex-iecex-certified-infrared-camera/
Dali	LT3	160x120	50/60 Hz	China	http://www.dali-tech.us/products/lt3-lt7-series-50.html
Dali	LT7	160x120	50/60 Hz	China	http://www.dali-tech.us/products/lt3-lt7-series-50.html
Dali	T4	160x120	50/60 Hz	China	http://www.dali-tech.us/products/t4-t8-series-51.html
Dali	T8	160x120	50/60 Hz	China	http://www.dali-tech.us/products/t4-t8-series-51.html
Dali	700E+	384x288	50/60 Hz	China	http://dalitech.en.ecplaza.net/dl-700e--95415-295164.html
FLIR	T420	320x240	9/60 Hz	Sweden	http://flir.com/uploadedFiles/Instruments/Products/T-Series/T-Series-Brochure.pdf?_ga=1.60701284.817447732.1453230622
FLIR	T440	320x240	9/60 Hz	Sweden	http://flir.com/uploadedFiles/Instruments/Products/T-Series/T-Series-Brochure.pdf?_ga=1.60701284.817447732.1453230622
FLIR	T460	320x240	9/60 Hz	Sweden	http://flir.com/uploadedFiles/Instruments/Products/T-Series/T-Series-Brochure.pdf?_ga=1.60701284.817447732.1453230622
FLIR	E8	320x240	9/60 Hz	Estonia	http://www.flir.com/e-series/
FLIR	E40	160x120	9/60 Hz	Estonia	http://www.flir.com/e-series/
FLIR	E50	240x180	9/60 Hz	Estonia	http://www.flir.com/e-series/
FLIR	E60	320x240	9/60 Hz	Estonia	http://www.flir.com/e-series/
FLIR	T600	480x360	30Hz	Sweden	http://flir.com/uploadedFiles/Instruments/Products/T-Series/T-Series-Brochure.pdf?_ga=1.124140995.817447732.1453230622
FLIR	T620	640x480	30Hz	Sweden	http://flir.com/uploadedFiles/Instruments/Products/T-Series/T-Series-Brochure.pdf?_ga=1.124140995.817447732.1453230622
FLIR	T640	640x480	30Hz	Sweden	http://flir.com/uploadedFiles/Instruments/Products/T-Series/T-Series-Brochure.pdf?_ga=1.124140995.817447732.1453230622
FLIR	T660	640x480	30Hz	Sweden	http://flir.com/uploadedFiles/Instruments/Products/T-Series/T-Series-Brochure.pdf?_ga=1.124140995.817447732.1453230622
HT Italy	THT45	80x80	50 Hz	Italy	http://www.ht-instruments.com/en/products/infrared-cameras/compact/tht45/
HT Italy	THT46	160x120	50 Hz	Italy	http://www.ht-instruments.com/en/products/new-products/infrared-cameras/
HT Italy	THT47	160x120	50 Hz	Italy	http://www.ht-instruments.com/en/products/infrared-cameras/touch-screen-termo/tht47/
HT Italy	THT60	160x120	50 Hz	Italy	http://www.ht-instruments.com/en/products/infrared-cameras/touch-screen-termo/tht60/
HT Italy	THT70	384x288	50 Hz	Italy	http://www.ht-instruments.com/en/products/infrared-cameras/touch-screen-termo/tht70/
i3system	THERMAL EXPERT	384x288	9 Hz	Korea	http://www.buykorea.org/product-details/thermal-expert--3041491.html and http://www.i3-thermalexpert.com/product
Infratec	VarioCam HD 900	2048x1536	30/60/120/240 Hz	Germany	http://www.infratec-infrared.com/thermography/infrared-camera/variocam-high-definition.html
Infratec	VarioCam HD 700	1280x960	60/120/240 Hz	Germany	http://www.infratec-infrared.com/thermography/infrared-camera/variocam-hd-inspect-700.html
Infratec	VarioCam HR 600	640x480	60 Hz	Germany	http://www.infratec-infrared.com/thermography/infrared-camera/variocam-hr-head-600-series.html
Infratec	InfraTec mobileIR	384x288	50/60 Hz	Germany	http://www.infratec-infrared.com/fileadmin/downloads/pdf/mobileIR_E9_mail_en.pdf
Jenoptik	IR-TCM-HD 1024 and 640; Variocam HD 1024 and 640	IR-TCM-HD 1024 (1024x768) and 640 (640x480); Variocam HD 1024 (1024x768) and 640 (640x480)	IR-TCM-HD 1024 (30Hz) and 640 (60Hz); Variocam HD 1024 (30Hz) and 640 (60Hz)	Germany	https://www.jenoptik.com/products/cameras-and-imaging-modules/thermography-camera
Avio (NEC)	R500	1280x960	7.5/60 Hz	Japan	http://www.daalog-systems.co.uk/thermal-imaging/cameras/item/70-avio-r500-r500pro#specifications
SAT (Satir)	G96	640x480	50/60 Hz	China	http://www.satir-uk.com/wp-content/uploads/SATR-Data-Sheets-G96.pdf
SKF	TMTI 300	16x16	8Hz	Sweden	http://www.hivimar.com/en/promociones/documentos/SKF%20TMTI300%20Ingles.pdf
Testo	869	160x120	9Hz	Germany	https://www.testo.com.br/detalhes_do_produto/0560+8690/testo-869-Thermal-imager#tab-8
Testo	870-1	160x120	9Hz	Germany	https://www.testo.com/product/0560+8701/testo-870-1-Fixed-focus-thermal-imager-160-x-120-FPA-#tab-8
Testo	870-2	160x120	9Hz	Germany	https://www.testo.com/product/0560+8702/testo-870-2-Fixed-focus-thermal-imager-160-x-120-FPA-#tab-8
Testo	875	160x120	9/33Hz	Germany	https://www.testo.com/en/home/products/thermography/875_series/875_series.jsp
Testo	885-1	320x240	33Hz	Germany	https://www.testo.com/product/0563+0885+V1/testo-885-1-Thermal-Imager-320-x-240-FPA-#tab-8
Testo	885-2	320x240	33Hz	Germany	https://www.testo.com/product/0563+0885+V2/testo-885-2-Thermal-Imager-320-x-240-FPA-#tab-8
Testo	882	320x240	33Hz	Germany	https://www.testo.com/product/0560+0882/testo-882-Adjustable-focus-thermal-imager-320-x-240-FPA-#tab-8
Testo	890-1	640x480	33Hz	Germany	https://www.testo.com/product/0563+0890+V1/testo-890-1-Thermal-Imager-640-x-480-FPA-#tab-8
Testo	890-2	640x480	33Hz	Germany	https://www.testo.com/product/0563+0890+V2/testo-890-2-Thermal-Imager-640-x-480-FPA-#tab-8
Therm-App® (under Opgal)	Therm-App® TH	384x288	8.7Hz	Israel	http://therm-app.com/therm-app-thermography/
Trotec	IC Series, EC Series, AC080V	IC Series (160x120 and 384x288); EC Series (160x120); AC080V (160x120)	IC Series (50/60Hz); EC Series (50/60Hz); AC080V (50/60Hz)	Austria	https://uk.trotec.com/products/measuring-devices/temperature/
Vacker	IC080LV	160x120	50/60Hz	Unknown	https://www.vackergroup.ae/our-products/measuring-instruments/
WUHAN GUIDE INFRARED (MegaBras)	Easir 4	160x20	50/60Hz	China	http://guideinfrared.com/Plus/m_default/Cms/docDetail.php?ID=42
Xenics	Bobcat, Gobi, and Onca	Various	Various	Belgium	http://www.xenics.com/en/products/cameras?field=field_thermography_term%3A630



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C. Edward Peartree
Office of Defense Trade Controls Policy
Department of State
Washington, D.C.
By email to DDTCTPublicComments@state.gov

RE: Second Proposed Amendment to USML Category XII

Dear Director Peartree:

Thank you for providing us the opportunity to comment on the State Department Directorate of Defense Trade Controls (“DDTC”) Second Proposed Amendment to Category XII of the International Traffic in Arms Regulations (“ITAR”) published as Public Notice 9445 in the Federal Register, Vol. 81, No. 33, on February 19, 2016. We greatly appreciate the opportunity to comment on this proposed amendment, as it may impact the conduct of fundamental research and collaboration at the heart of our educational mission.

Host to researchers from around the globe, Harvard University is committed to retaining openness in research, and accordingly relies on the “fundamental research exclusion” from the export-control laws to ensure a diverse research community that propels research forward. Harvard has a significant number of active students, as well as foreign scholars with Harvard appointments, who are neither U.S. citizens nor U.S. permanent residents. These international students and scholars study, teach, and participate in open research projects and, importantly in an academic setting, interact in a free environment across our campuses.

Unlike commercial proprietary research, the vast majority of research in a university setting is fundamental with few boundaries. Once students and scholars are permitted by the government to enter this country on valid visas, the U.S. gains the greatest benefit from research conducted by these individuals if their research remains free and open and they have access to technology necessary to support such research. Indeed, it is this diversity and fluidity that have resulted in our greatest scientific advancements – advancements that are open for broad dissemination and scrutiny.

Although we agree with the comments proffered by our colleagues such as the Association of University Export Control Officers (“AUECO”), we write separately to emphasize our concern with the newly proposed U.S. Munitions List (“USML”) inclusion criteria based upon the source of funding. Our overarching concern is that this new language in the Second Proposed Amendment introduces a new inclusion criterion that is overly broad and serves to threaten fundamental research and productive partnerships among academia, industry, and government sponsors. In particular, the

Second Proposed Amendment to Category XII adds new technologies to the USML in four new paragraphs, not based upon the design or proposed purpose of the article, but upon whether the technology is funded by the Department of Defense (“DoD”). These paragraphs are:

(b) Laser systems and items, as follows:

*(7) Developmental lasers or laser systems **funded by the Department of Defense** via contract or other funding authorization*

(c) Night vision, infrared, or terahertz imaging systems or end items, as follow:

*(9) Developmental electro-optical, infrared, or terahertz systems **funded by the Department of Defense***

(d) Guidance, navigation, and control systems or end items, as follows:

*(6) Developmental guidance, navigation, or control systems **funded by the Department of Defense***

(e) Parts, components, accessories, or attachments, as follows:

*(23) Developmental image intensification tubes, focal plane arrays, read-out-integrated circuits, accelerometers, gyroscopes, angular rate sensors and inertial measurement units **funded by the Department of Defense***

Each of these paragraphs broadly defines technology, hardware, technical data and data related to manufacture as protected on the USML simply because the source of funding is the DoD. However, many of the technologies described in proposed Category XII are not for military end use and have dual uses in such areas as oceanography, telecommunication, photonics, computer processor-memory interconnects, materials engineering, thermal management, computational ophthalmology, and molecular medical diagnostic tools. The assumption that all technologies funded by DoD are for military use ignores the possibility that a technology funded by DoD could be dual use or even EAR99.

No rationale is provided in the Second Proposed Amendment for this unprecedented new inclusion criterion, and it is unclear why the source of funding should be informative, let alone determinative, as to whether an article constitutes a defense article. In keeping with traditional inclusion criteria for the USML, all other articles listed of the Second Proposed Amendment are either listed due to their military purpose or to the fact that they are “specially designed” for military purposes or use in other military articles. For instance, category XII (a)(9) lists *Remote wind-sensing systems **specially designed** for ballistic-corrected aiming.*

Note 1(c), which is included in each of the above-referenced paragraphs, suggests that the agency can provide explicit authorization for dual-use items and technology, but such an exception turns the regulatory structure on its head. For years, we have operated under the understanding that dual use items are not generally covered by the Munitions List, and now we are to assume they are unless explicitly told otherwise. Also, as our experience with DFARS 252.204-7000 shows, Contracting Officers will be reluctant to provide independent determinations related to Category XII technology, even when there is no legitimate security or military concern with a particular project.

As written, the controls within the Second Proposed Amendment would apply to basic research with no specific military application, simply because it is funded by DoD. In effect, this would convert fundamental research on or using such articles into ITAR-controlled research, regardless of the fact that there is no specific military application. The Amendment could result in a scenario in which fundamental research using the same article would be treated differently, depending upon whether the research is funded by the Department of Defense or another source, including another government agency. As an example, under ITAR XII (b)(6) - (8) LiDAR research funded by the DOD would be subject to controls while a similar study that is funded by National Science foundation (NSF) or U. S. Department of Energy Office of Science would not.

Harvard University takes very seriously its responsibilities under the export control laws. The University has a policy concerning compliance with these rules; has an export control council comprised of individuals across the University's thirteen schools and chaired by our Chief Research Compliance Officer in the Office of the Provost, charged with the oversight and compliance of export control matters; and employs written materials, general training sessions, and targeted training to remind faculty, researchers, and administrators of applicable existing and emerging export control requirements. The release of the proposed amendment, while intended "to describe more precisely the articles warranting control on the USML," has introduced an overly broad criterion for inclusion of articles on the USML that threatens to consume the fundamental research exclusion for research funded by the Defense Department.

We therefore urge DDTC to:

- (a) remove the new USML inclusion criterion so that universities like Harvard can continue to secure the support of valuable sponsors like the Department of Defense in the conduct of open research where appropriate, and
- (b) modify the four paragraphs referenced in this letter as follows:

"Funded by the Department of Defense" should be replaced with *"specifically designed, modified, or configured for military use."*

We further recommend that DoD funding announcements clearly delineate when a program or opportunity would not qualify as fundamental research, thus ensuring consistent application of the

regulation, consistent compliance with the funding proposals of concern to the government, and the reduction of administrative burden for both contracting officers and researchers.

Sincerely,

A handwritten signature in blue ink, appearing to read "A. Tahmassian", with a long horizontal flourish extending to the right.

Ara Tahmassian
University Chief Research Compliance Officer

Honeywell
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April 1, 2016

Department of State
Bureau of Political-Military Affairs
Department of Defense Trade Controls
2401 E Street, N.W.
12th Floor, SA-1
Washington, D.C. 20522

ATTN: Mr. C. Edward Peartree, Director, Defense Trade Controls Policy

SUBJECT: Honeywell Response to Proposed USML Category XII Changes

Reference: Federal Register Vol. 81, No. 33, Amendment to the International Traffic
in Arms Regulations: Revision of U.S. Munitions List Category XII, published February 19, 2016
(RIN 1400-AD32)

Dear Mr. Peartree:

Honeywell International Inc. provides the following comments with regard to the proposed changes to ITAR Category XII, and specifically to the proposed language in Category XII(d), XII(e) and XII(f) which cover inertial systems, gyros, accelerometers and related technology.

Specific concerns regarding the proposed rule and requests for clarification are identified below:

USML XII (d):

This entry for guidance or navigation systems controls items that meet the stated position error rate, heading error or 8 hour position error rate regardless of whether they are "specially designed" for military systems. There appear to be technical issues with the text of these controls as follows:

- 1) Honeywell is seeking confirmation that performance limits should be understood as establishing the performance capability of a product as produced on a "product line," and not as a screen against individual units. It is recommended that a technical note be added stating that the performance limits referenced in XII(d)(1)(i) through iii) apply to the RMS value of the ensemble performance of the product line. Please note that evaluating a single item against those performance limits could unnecessarily lengthen the factory test process used by the customer to buy the product. Due to run-to-run variation in performance of Navigation and Inertial products, acceptability of a product could also vary from day-to-day. As a result, we recommend controlling acceptability based on the RMS of the ensemble performance of the product line.
- 2) Clarification is desired for the text in XII(d)(iv) making it clear that "specified to function at linear acceleration levels exceeding 25g" refers to "constant acceleration". It is important that this is not interpreted as to whether the system can perform when receiving a shock or vibration level that momentarily exceeds 25g.

Honeywell believes the term "specially designed" should be added to USML XII(d) control text for the following reason. By not including the term "specially designed" control language, there will be instances where commercially available, currently non-ITAR controlled accelerometers, with ranges greater than 25g are included in navigation systems. Even though designed and intended for commercial use, perhaps even using MEMS accelerometers available worldwide that require no licensing, these navigation systems, having no other requirement on their performance, appear could by default be controlled as ITAR USML items. There are MTCR and Wassenaar Arrangement agreed dual use controls in the Department of Commerce export regulations that capture these inertial navigation systems if performing at agreed to accuracy limits.

USML XII (e) Gyros and Accelerometer Controls

Honeywell is seeking clarification and recommends that the text in XII(e) be modified to clarify that the control limits are established against the RMS value of the ensemble performance of a particular device model (a product line), and not against individual sensors. It is also recommended that "specially designed" be included in the control text such that those that can be shown to be released from XII(e) through the Specially Designed definition in the ITAR controls are then released.

Additionally, XII(e)(11) calls out gyros specified at acceleration levels greater than 100g. Honeywell recommends replacing the term "acceleration" with "constant acceleration" in order to avoid confusion on whether gyros that operate (but do not perform to specification) through shock levels above 100g are controlled in this category.

USML XII (f) Technical Data:

In Category XII(f), the term "directly related" is introduced, but there is no definition of "directly related" provided. The concern is that technical data (and software) that is with respect to items that are not under ITAR control could be considered to be "directly related" to the military end item in that they are used in or with that end item, and this would create significant problems. It is recommended that additional clarification be provided, that XII(f) does not control technical data and software for parts, components, accessories and assemblies that themselves are under export controlled in the EAR and not Category XII of the USML.

If you have any questions or would like to discuss any of the comments provided above, feel free to contact the undersigned at 202-662-2641 or via e-mail at dale.rill@honeywell.com.

Sincerely,



Dale Rill
Director, International Trade
Export Control and Compliance
Honeywell International Inc.



March 31, 2016

U.S. Department of State
Washington, D.C. 20522

SUBJECT: ITAR Amendment—Category XII Second Proposed
Published in the Federal Register February 19, 2016

Dear Sirs:

Systron Donner Inertial thanks the Department of State for the opportunity to submit comments for the “Category XII Second Proposed” proposed rule. We support the Department’s objective of establishing a positive United States Munitions List (USML). In response, we provide the following comments for **Category XII – Fire Control, Laser, Imaging, and Guidance and Control Equipment.**

Reference: Paragraph (d) Guidance, navigation, and control systems or end items, as follows:

(1) We recommend separating paragraphs (d)(1)(i), (d)(1)(ii), and (d)(1)(iii) by the word “or” to indicate that the inertial system need only fulfill one of the criteria.

(2) We recommend that for paragraphs (d)(1)(i), (d)(1)(ii), and (d)(1)(iii), it may be instructive to indicate the predominant intended application as follows:

For (d)(1)(i), insert “for airborne applications”

For (d)(1)(ii), insert “for land applications”

For (d)(1)(iii), insert “for maritime applications”

(3) We recommend adding the qualifier “50%” to the term “CEP” used in paragraph (d)(1)(i) and (d)(1)(iii). Some specifications designate CEP as 50% and others designate CEP as 95%. Adding the qualifier would add clarity.

(4) We recommend clarification of the “specified to function” term in paragraph (d)(1)(iv). “Function” could be interpreted that no damage is done to the system while undergoing 25 g acceleration and the system may continue to provide output above 25 g with degraded the accuracy. A commercial system, with insufficient performance above 25 g to be suitable for military applications, could be controlled by (d)(1)(iv). We recommend that paragraph (d)(1)(iv) be changed to reflect both the 25 g criterion and the accuracy required for military applications. For example:

(iv) Specified to provide outputs with gyroscope errors less (better) than 10 deg/hr and accelerometer output error less (better) than 10 mg at linear acceleration levels exceeding 25 g.

The example paragraph (d)(1)(iv) would capture military “tactical guidance” class systems and higher performance systems capable of operating beyond 25 g without the risk of capturing commercial

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systems that are "specified to function" above 25 g but incapable of military application performance above 25 g.

Reference: Paragraph (e) Parts, components, accessories, or attachments as follows:

(5) We recommend that the term "bias" be used in both paragraphs (e)(10) and (e)(11). The term "bias stability" is used for accelerometers in paragraph (e)(10) and "drift stability" is used for gyroscopes in paragraph (e)(11). Gyro "drift" and "drift rate" are older terms that, while still used, are not found as commonly as "gyro bias." We recommend defining "bias" as the critical parameter for both accelerometers (e)(10) and gyroscopes (e)(11) and then relate "drift," "drift rate," and "bias" in the technical note.

(6) We recommended that an adjective or statement be added to clarify that "ROICs" in paragraph (e)(13) and "drive, control, signal...electronics" in paragraph (e)(18) pertain to optical sensors and not to accelerometers and gyroscopes. As currently written, paragraphs (e)(13) and (e)(18) could be interpreted that "ROICs," and "drive, control, signal...electronics" on commercial accelerometers and gyroscopes are captured on the USML.

We appreciate the opportunity to comment on the proposed rule.

Sincerely,

A handwritten signature in blue ink that reads "Dean Johnson".

Dean Johnson
Technical Advisor
Systron Donner Inertial
djohnson@systron.com



Gerald Musarra
Vice President, Government & Regulatory Affairs

April 4, 2016

Submitted Via E-Mail (DDTCTPublicComments@state.gov)

Mr. Edward Peartree
Director, Office of Defense Trade Controls Policy
Directorate of Defense Trade Controls
U.S. Department of State
Washington, D.C.

ATTN: Regulatory Change, USML Category XII (RIN 1400-AD32)

Lockheed Martin Corporation (Lockheed Martin) is pleased to submit the following comments in response to the February 19, 2016 proposed rule “Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List [USML] Category XII. The proposed rule follows the May 5, 2015 publication of proposed revisions to USML Category XII, which received substantial public comment. Lockheed Martin appreciates the extensive effort the U.S. Government has undertaken to review and consider those comments to produce a much improved proposed rule. The revisions contained in the proposed rule provide more clarity and predictability for exporters of Category XII items and related items subject to the licensing jurisdiction of the Department of Commerce Export Administration Regulations (EAR).

However, the comments below discuss two issues that warrant further evaluation and revision, including recommendations for deleting or revising two notes in the rule that create uncertainty and undermine the intent of the list reform process to provide clear jurisdiction for items on the USML or Commerce Control List (CCL).

I. NOTE TO CATEGORY XII: Specially Designed for a Military End User & Document Retention

The proposed rule includes a final note, applicable to the entire Category XII, that defines whether an item is specially designed for a military end user – and when it is not. In particular, the note states that:

A system or end item is not specially designed for a military end user if the items was developed with knowledge that it is or would be for use by both military end users and non-military end users, or if the item was or is being developed with no knowledge for use by a particular end user. In such instances, documents contemporaneous with the development must establish such knowledge. [Emphasis added.]

The requirement to provide “documents contemporaneous” to the development of a system to show the intent for both commercial and military end use is overly burdensome and unnecessary. At the time of development, a company may not be contemplating a specific customer or customers. Such contemporaneous documents may not be available to show design intent at a later time. This was one of the challenges with the ITAR/USML prior to Export Control Reform (ECR), which was in part intended to avoid design intent – rather than technical parameters – as the basis for control.

In this instance, we recognize that using design intent for a specific military end user may be useful in distinguishing between a commercial/dual-use and military item. However, the requirement that these documents “must” be available to “establish such knowledge” will potentially capture items that do not warrant control on the USML.

Under the requirement of this note, a manufacturer would not be permitted to show dual use design intent with post-development documentation. Manufacturers should be able to show evidence of design intent with statements made after the development stage, if necessary. To require innovators to document their design intent would actually expand export control record requirements beyond what the ITAR has required in the past to determine appropriate jurisdiction.

Prudent industry practice should be to keep such documentation, but to require that contemporaneous documentation “must” be available poses the risk of over-controlling commercial systems in the future. Moreover, this documentation requirement does not “grandfather” any existing systems for which contemporaneous documentation may not be available. This retroactive application is both potentially infeasible and unreasonable.

Documentation from a manufacturer outlining such intent regardless of whether it was produced pre- or post-development should be sufficient and would prevent an onerous new record-keeping requirement.

Recommendation:

Based on the analysis above, we recommend deleting the requirement that “documents contemporaneous with the development must establish” knowledge to show concurrent civil/military design intent.

II. NOTE 2 TO CATEGORY XII PARAGRAPH (b)(7): Controls on Developmental Systems (Similar controls contained in Paragraphs (c)(9); (d)(6); and (e)(23))

Similar to the issue discussed in Section I above, the intent of the notes in paragraph (b)(7) (with similar control construction contained in Paragraphs (c)(9); (d)(6); and (e)(23)) is unclear.

Note 1 in paragraph (b)(7) specifies that the controls do not apply to systems in production, determined to be subject to the EAR per a commodity jurisdiction (CJ) determination, or identified in a DOD contract or other funding authorization as being developed for both civil and military applications. Note 2 in paragraph (b)(7) specifies that note 1 does not apply to defense articles enumerated on the USML. This exclusive control structure poses a jurisdictional conundrum in some cases.

For example, a manufacturer has a Category XII(b)(6) LIDAR system developed for the military, but also makes a commercial version. There is no contemporaneous documents supporting concurrent design intent, so the manufacturer submits a CJ request. The CJ determines the item is Commerce-controlled. Note 1 to (b)(6) clarifies that the paragraph does not control laser systems determined to be subject to the EAR via CJ. However, Note 2 says that Note 1 does not apply to defense articles enumerated on the USML. This is a problem in that it would potentially override the CJ determination and make such requests moot.

Recommendation:

Delete Note 2 to paragraph (b)(7) (and similar controls contained in Paragraphs (c)(9); (d)(6); and (e)(23)) or provide further clarification regarding the intent of this exclusion to the application of Note 1.

CONCLUSION

Thank you for the opportunity to provide comments in response to the notice of inquiry regarding USML Category XII. Lockheed Martin remains committed to supporting the ongoing effort to reform and improve the U.S. export control system. We are confident that the changes recommended above will have a positive impact on our ability to support U.S. national security and foreign policy priorities.

If you have any questions related to these comments or would like additional information related to the issues discussed above, please contact Mark Webber, Director, International Trade Policy, Government & Regulatory Affairs at 703-413-5951 or Mark.J.Webber@lmco.com.

For Lockheed Martin Corporation,



Gerald Musarra
Vice President, Government & Regulatory Affairs

cc: publiccomments@bis.doc.gov
Bureau of Industry and Security
U.S. Department of Commerce



PHYSICAL SCIENCES INC.

9 March 2016

C. Edward Peartree
Director, Office of Defense Trade Controls Policy
U. S. Department of State
Directorate of Defense Trade Controls
2401 E Street, NW, SA-1, Room H1200
Washington, DC 20522-0112

Re: Amendment to the International Traffic in Arms Regulations: Revision of the U.S. Munitions List Category XII – Second Proposed

Dear Mr. Peartree,

Physical Sciences Inc. (PSI) is a Massachusetts corporation engaging in technology development for agencies of the U.S. government and private industry. PSI also manufactures products sold to industry, the U.S. Department of Defense, and Tier 1 Prime Contractors producing systems for the U.S. Department of Defense.

Many of our technologies and products involve laser and electro-optic components. We are very familiar with and support existing ITAR control of general technology and specific components developed for military applications.

However, the Second Proposed Amendment to Category XII, published as Public Notice 9445 in the Federal Register, Vol. 81, No. 33, on Friday, February 19, 2016, adds new technology to the U.S. Munitions List in 4 new paragraphs that would substantially damage future development of laser and electro-optic technology in this country. These paragraphs are:

(b) Laser systems and end items, as follows:

(7) Developmental lasers or laser systems funded by the Department of Defense via contract or other funding authorization

(c) Night vision, infrared, or terahertz imaging systems or end items, as follow:

(9) Developmental electro-optical, infrared, or terahertz systems funded by the Department of Defense

(d) Guidance, navigation, and control systems or end items, as follows:

(6) Developmental guidance, navigation, or control systems funded by the Department of Defense

(e) Parts, components, accessories, or attachments, as follows:

(23) Developmental image intensification tubes, focal plane arrays, read-out-integrated circuits, accelerometers, gyroscopes, angular rate sensors and inertial measurement units funded by the Department of Defense

Each of these paragraphs broadly define technology, hardware, technical data, and data related to manufacture as protected on the U.S. Munitions List simply because the source of funding is the Department of Defense (DoD). As written, the controls would apply to basic research with no specific military application that happens to be funded by the DoD and would apply to any organization, including University and other academic organizations.

The only remedy suggested in the proposed revision is Note 1(c) that follows each of the above paragraphs:

This paragraph does not control items: (c) identified in the relevant Department of Defense contract or other funding authorization as being developed for both civil and military applications.



PHYSICAL SCIENCES INC.

This remedy requires a government Contracting Officer to specifically declare that the content of relevant contract or grant is not related to military use or has both civilian and military applications. As you know, it is the legal requirement of the contractor, not the government Contracting Officer, to abide by the ITAR controls. In our experience, Contracting Officers are not inclined to independently determine the ITAR status of research contracts. Instead, our contracts include a default to a fail-safe provision declaring that the material under contract may be ITAR and/or EAR controlled and noting that it is the requirement of the contractor to abide by the legal constraints of the ITAR/EAR controls.

This language in the Second Proposed revision to Category XII is far too broad and will have the effect of ending a decades-old and astonishingly productive partnership between the DoD and U.S. Industry/Academia in the development of lasers and electro-optic technology. Universities would no longer be able to participate in laser or electro-optic related research supported by the DoD. U.S. Industry would have no incentive to participate in many DoD-supported laser or electro-optic technology development efforts because such development may be ITAR controlled.

Citing one example from PSI's experience, an Air Force SBIR Phase II program developed a MEMS-based optical pressure transducer that was the basis for a venture-backed spin-out company, Confluent Photonics, which raised over \$20M to pursue commercial telecommunication applications. Such commercial opportunities could not have happened if the proposed language automatically placing the technology on the US Munitions List were in place.

We suggest that the language of each of the 4 paragraphs above be modified as follows:

The phrase "*funded by the Department of Defense*" should be replaced by "*specifically designed, modified, or configured for military use*".

We note that the language we suggest is taken directly from the current version of the U.S. Munitions List.

Respectfully yours,

A handwritten signature in blue ink that reads "B. David Green".

B. David Green
President and CEO
Physical Sciences Inc.
Andover, MA

April 4, 2016

Via email DDTCPublicComments@state.gov
Publiccomments@bis.doc.gov

Re: Proposed Revisions to EAR and USML Category XII

ATTN: Mr. Ed Peartree, Director, Office of Defense Trade Controls Policy

Dear Sir,

Princeton Infrared Technologies, Inc. ("Princeton IR") submits the following comments on the proposed rule changes to the U.S. Munitions List, Category XII as well as the Department of Commerce Bureau of Industry and Security for your consideration.

Background

Princeton IR was founded in December 2013 to develop and manufacture infrared detector solutions, particularly indium gallium arsenide ("InGaAs") focal plane arrays, for various commercial and military applications. Commercial applications of Princeton IR's products include spectroscopy for material inspection, machine vision in factories for glass inspection, and monitoring dense wavelength division multiplexing telecommunication networks.

Overview

Princeton IR believes the proposed regulations of February 19, 2016 are a significant improvement from the last set of rules release in May of 2015. That being said this revision does have some areas which can be quite detrimental to many in the Infrared industry with these new regulations. The current rules are still somewhat ambiguous and could hurt the domestic IR industry and would have negative economic and national security consequences. Foreign competition would likely leap-frog over domestic production both in quality and cost, making better, cheaper product available outside the U.S. and increasing costs for U.S. defense contractors. The foreign competition does not have to deal with the ambiguity and are freer to send their Infrared parts to commercial applications. For these reasons, we believe there should be modifications to the proposed rule changes in their current form and ask that the agencies involved revise those rules accordingly. Modifications to protect military technology but allow the commercial applications to be sold world wide will actually strengthen the domestic infrared market. Removing the ambiguity in some of the rules will enable this to happen.

Discussion

USML revisions Vol 81, No. 33

1. Definitions

A. Focal Plane Arrays

Several new definitions are established in this USML reading. The first one on page 8441.

“Focal Plane array is a linear or two-dimensional planar layer, or combination of planar layers, of individual detector elements, with or without readout electronics which work in the focal plane.”

This definition is problematic as it needlessly immediately sets up non-bright lines and very low walls.

It has been well established in the literature that a “detector array” is an array of detector elements either in linear or two dimensional form. These detectors are not tied to electronics and are simply able to convert photons to electron-hole pairs. The detector elements need to be hooked to some electronics to convert the signal.

Once these detector arrays are then attached to electronics or a Read our integrated circuit it becomes a focal plane array, either one dimensional or two dimensional. The above definition needs to be changed as any photodiode manufactured using standard semiconductor techniques becomes a focal plane array. Thus any detector array could fall under the USML. In semiconductor processing the detectors are manufactured in arrays of diodes. This makes it easy for processing since a step and repeat mask set can be used. It also allows for easy testing and post processing where the die are cut and separated. By the above definition once the wafer is processed into detectors it would then inherently be a focal plane array. That could be single element detectors or where linear arrays or 2D arrays where intended. The process is the same for both. This definition is a poor definition and should be changed as it places any detector manufacture by semiconductor processes as a focal plane array. This is the definition of a very low wall and not a bright line.

The definition should be a “focal plane array’ is an array of detector elements either one dimensional or two dimensional where each individual detector is attached to set of read out electronics that has amplifiers that outputs an analog or digital signal the user can utilize. The detector arrays should not be in the USML since the detector structures are quite common and thoroughly understood in the literature and manufactured all over the world. We need to have bright lines and the current definition creates a very gray line between the specific detector arrays and how semiconductor detectors are manufactured.

This definition of a focal plane array does not appear anywhere in the actual document, it only appeared in the discussion section. This needs to be clarified.

B. Military End Users

Another problematic definition is what is defined as military end user. It was stated as follows:

While applying the standard terminology “specially designed for a defense article” would apply to articles that operate as a component for a higher level assembly, that terminology would not describe the same articles when used as end items on their own for the same military purpose. To address this concern, paragraphs (b)(6) and (c)(2)(iii) control articles if they are specially designed for a military end user. A military end user is defined in the new Note to Category XII as the national armed services, National Guard, national police, government intelligence or reconnaissance organizations, or any person or entity whose actions or functions are intended to support military end uses. If an item is created for both military and non-military end users, or if the item was created for no specific end user, then it is not specially designed for a military end user. Contemporaneous documents are required to support the design intent; otherwise, use by a military end user will establish that the item was specially designed for a military end user.

It is confusing as to why an item is considered “specifically designed for a defense article” if there is no documentation showing it was designed for commercial applications. That is counter intuitive and in direct contrast to the sentence above, which is highlighted here: **“If an item is created for both military and non-military end users, or if the item was created for no specific end user, then it is not specifically designed for a military end user.”** If something is specifically designed for a military end user then there are specifications or documents showing it was designed for a military end user application. That second part of the sentence clearly puts the onus on the government to show the item is designed for a military end user not the other way around. The definition above clearly indicates you don’t need documentation for a non-military use if there is no end user. If in the lab someone decided to put peanut butter down on an ROIC and found that it detected infrared light then it should not be considered “designed for a military end user” even if there is no documentation it was for a commercial application. The device was not designed for a military application and no end user was requesting it yet there was no documents to show the intent was to build a commercial imager with a specific application but it be considered under the USML by the above rule. There is no reason it should be established to be for a military end user. Especially by the highlighted sentence above. **The sentence “Contemporaneous documents are required to support the design intent; otherwise, use by a military end user will establish that the item was specially designed for a military end user”**

should be struck since it is in direct opposition to the highlighted sentence above. It is clear by the definition that if it was not specifically designed for a military end user then it is commercial.

C. Funded by Department of Defense

E(23) funded by the department of defense needs further definition. What is the definition of funded? If an item was developed 95% commercially and then the government pays for the last 5% of development for a system is that considered funded? The definition of funded should be more clearly laid out.

D. Specifically Designed

In XIII a2i does not say specifically designed for a military end user yet for c2(iii) states specifically designed for a military end user. In a(2)i there is a vagueness of what a weapon imaging system is. By the USML definition a weapon imaging system does not need a display or reticle and therefore it could be any infrared imaging camera. The camera does not need to be attached to a weapon to be a weapon sight according to the definition. **The definition of a weapon sight in the proposed rules could be any camera, it does not even need a viewer or display.** This is not a bright line and sets up for very low walls. **It should be clear in a2i that it is for military end user or the definition of a weapon sight become clear since the current definition is unclear.** An e.g. is added to state it could clip on but that is just an example. The government needs to define a weapon sight versus a camera since any infrared camera could fall under this definition.

A weapon sight is used for aiming a weapon so we believe the reticle is a main part of a weapon sight. In addition we are not sure why “clip-on” is the example not a definition of a weapon sight.

Furthermore the definition of an infrared focal plane array is 1D and 2D making both technically under the definition in a camera as USML. This can't be the intention of this rule. The definition of a weapon sight needs to be clarified as this definition is counter to what is states in c2(iii) which stated “Having an infrared focal plane array or imaging camera, and is specially designed for a military end user;” and e(4) for Infrared focal plane array (IRFPAs) specially designed for articles in this subchapter. Under the current rule the FPAs would not be under USML unless they were put in a camera since any camera could be construed as a weapon sight under the definition given.

The following table contains a few examples of devices that are readily available now, but which would be now considered USML because they most likely have no documentation saying before they were designed that they were for commercial applications and they are simply detector arrays which will fall under the current focal Plane array definition. They also could also be considered a weapon sight by the above definition:

Device Name	URL
InGaAs PIN Photodiode with Large Photosensitive Area Chip-on-Carrier	http://welcome.gofoton.com/product/ingaas-pin-photodiode-with-large-photosensitive-area-chip-on-carrier/
Simple InGaAs photodiode array without packages	http://www.alibaba.com/product-detail/Optoelectronic-chip-integrated-circuits-ingaas-pin_1783007100.html?s=p
Short 4x1 array on InGaAs photon detectors that can be repeated many times to form a 3x4 array for fiber ribbons	http://www.albisopto.com/albis_product/pdcaxx-32-sc/
12-channel optical receiver used in Datacom and telecom	http://www.avagotech.com/pages/en/fiber_optics/parallel_optics/12-channel_parallel_optics/afbr-83pdz/
45 element arrays of receivers	http://www.a3pics.com/a_spec.htm

Princeton IR is unaware of any military system, anywhere in the world, that uses a one-dimensional photodetector array in the SWIR band (900-2600nm). Thus, Princeton IR believes that the focal plane array definition should only refer to two dimensional arrays and linear arrays should continue to be controlled by commerce department.

Further, we believe that the distinction between square pixels and tall pixels should also be removed from the CCL list, such that SWIR products using tall or square pixels should fall within the EAR99 classification.

First, it is important to note that many telecommunication detectors are manufactured in arrays called linear focal plane arrays fall under this section. Since these arrays are never packaged, the detectors would be subject to significantly heightened controls, with no national security benefit. The array sizes of 1024 elements and 2048 elements are currently available from foreign suppliers and have been sold for years in the U.S. and around the world.

The following table contains a few examples of companies that sell these types of arrays:

Device Name	URL
12 channel 10Gb/s detector array (Singapore)	http://www.avagotech.com/pages/en/fiber_optics/parallel_optics/12-channel_parallel_optics/afbr-83pdz/

4x1 array (Switzerland)	http://www.albisopto.com/albis_product/pdcaxx-32-sc/
256x1, 512x 1, 1024x1 and 2048x1 on pitches from 50um to 10um (USA)	http://www.sensorsinc.com/products/detail/le-series http://www.sensorsinc.com/products/detail/g12048-r-ingaas-linescan-camera
512x1, 1024x1 and 2048x1 (Belgium)	http://www.sinfrared.com/en/infrared_camera/detector_arrays_for_infrared_linescan_imaging_and_spectroscopy_applications/xlin_detector_series.asp
Camera systems using the arrays (Belgium)	http://www.sinfrared.com/en/infrared_camera/swir_-_short_wave_infrared_cameras/lynx-gige_high_resolution_high_speed_uncooled_swir_gige_line-scan_camera.asp
1024 on 25um pitch (Japan)	http://www.hamamatsu.com/us/en/product/category/3100/4005/4208/4121/G10768-1024DB/index.html
256 element arrays (China)	http://en.cnki.com.cn/Article_en/CJFDTOTAL-JGHW200611007.htm http://www.medsci.cn/sci/show_paper.asp?id=2608159269

The examples above are only used in commercial applications.¹

For the above reasons, we believe the proposed regulations need modifications to their definitions and should either be amended or discarded in their entirety.

2. Comments on other modifications of the CCL

2.1. General Commentary

The new CCL is now so complicated that two Engineers and a scientist with a Ph.D. could not understand these new rules after three days of reading them. There are so many ECCNs that refer to other ECCNs that it appears circular in nature. This is not a simplification of the rules but a way of making them more complex. They are so complicated that we could not provide great guidance on the new set of rules. The CCL is complicated, lengthy and should be simplified to better serve the needs of small businesses. Currently, we are able to manage the workload with minimal advice from our attorneys. However, due to the new, complex language and overuse of acronyms and multiple ECCNs that are circular, small businesses must hire expensive attorneys for advice and assistance in establishing the correct procedures for exports. **Even our attorneys were confused by the rules and**

¹ There are systems that are TDI (time domain integration), but TDI systems are made by adding multiple linear array elements together, which differentiates them from pure one-dimensional arrays.

said they were waiting guidance. They couldn't even help us provide commentary. Businesses also need to pay for a full-time administrator to handle the increase in paperwork and documentation. The modifications were meant to simplify the process, but we believe the changes have actually made the process more difficult.

The new rules were so complicated that they were not printed out in their entirety. Instead it constantly just showed the ECCN and where it referred. It should have been just printed out in one document that one could read in its entirety, similar to the USML. Instead one needs to have multiple documents now to see where insertions and deletions should occur. There are also too many acronyms and subheadings. Many of these rules could be simplified with charts and tables versus lists that go down many levels. There are many lines with "having the following" or having double negatives in the control line.

2.2. Revisions to ECCN 6A002

The change in Category XII now will allow 2D arrays to be exported under commerce control if the array was not "specially designed for military end users. It is not clear from this rule what will be considered EAR99 for 2D focal plane arrays and what will be commerce control and to what level of 6A003.

2.3. ECCN 6a990

We understand the DoD is trying to restrict sensitive information on military grade ROICs from leaving the country; however, to be effective, the regulation needs to distinguish military and commercially designed ROICs more clearly. Commercial ROICs should be excused from the CCL and USML. The USML is taking care of ROICs specially designed for military end users but this is not true for commercial ROICs. IRFPA ROICs are readily available worldwide up to resolutions of 1280x1024 for both SWIR, MWIR and LWIR devices, <http://www.mikro-tasarim.com.tr/products>. All commercial ROICs should be considered EAR99. This regulation is not clear where the ROICs sit for commercial ROICs. The specialty designed ROICs are under USML Category XII but other than that there is a lack of clarity.

Note: We believe that the exception for ROICs valued under \$500 appears reasonable Wafers from a foundry cost about \$5,000, and one receives more than 10 chips even for larger devices. We assume this \$500 limit is per ROIC not a wafer of ROICs.

2.4. Revisions to ECCNs 6E001 and 6E002

The proposed rule puts restrictions on the commodities related to manufacturing a focal plane array including substrates, epitaxial grown materials, zinc diffusion, software and firmware in cameras. The commodities portion of the proposed rules is our biggest concern

because lattice matched InGaAs epitaxial wafers are currently not made in the United States. Due to the commodities restriction, the proposed rule would require all companies to get a license. We believe the rule will heavily impact the SWIR and telecommunications industries unless and until licenses are issued. (Companies that manufacture telecommunications devices use InGaAs detector material for single element devices and would be subject to the same regulations.)

A license would also be required for the software that interfaces with the arrays for either manufacture or testing applications including the software that interfaces with the cameras. U.S. companies using non-U.S. workers—including consultants, visitors, or temporary employees—would be subjected to the heightened regulations even if the cameras are just in the U.S. plants. Any person in the company with access to the cameras would place the entire company in violation of the proposed rule. This software ruling needs to be modified. Software used to operate a camera should be EAR99. This regulation will force companies in the U.S. to get a license if a camera is in their plant and they have foreign workers.

As a result, this rule is not protecting U.S. technology and is just making SWIR commercial equipment more difficult to use. Companies will resort to other solutions ultimately weakening the SWIR industry at home.

3. Conclusion

Princeton IR believes refinement to these rules are necessary to make bright lines to distinguish military hardware from commercial hardware. Some of the definitions allow for ambiguity which then leads to problems further down the road. This is especially true in the USML list. The definitions needs to be clear so the bright lines are bright. The Department of Commerce revision needs to be simplified. The new rules are way too complicated and circular in nature. The USML list is straightforward and the Department of Commerce list should be the same.

Respectfully submitted,



Martin H. Ettenberg, Ph. D.

Raf#13580240v

April 2, 2016

To: DDTCTPublicComments@state.gov
Attn: Regulatory Change, USML Category XII

Dear Mr. Peartree:

Rafael Advanced Defense Systems (“Rafael”) is hereby submitting this comment regarding the proposed revisions to the United States Munitions list of Category XII published by the Directorate of Defense Trade Controls (DDTC) as it pertains to electro optical surveillance, target detection and acquisition systems for military use. In its February 19, 2016 proposed rule revising Category XII, DDTC proposed adding several specific entries related to electro optical equipment, notably XII(a)(6) “Electro-optical missile or ordnance tracking systems”, (a)(7) “Electro-optical ordnance guidance systems” and (a)(8) “Electro-optical systems that automatically detect and locate weapons launch or fire.”

Rafael manufactures a number of electro-optical systems that come close to these descriptions, and can include components and features that are enumerated on the USML, but the actual electro optical systems are higher level assemblies that are not accurately described by these paragraphs. Specifically, Rafael manufactures electro optical pods and systems that are mounted on various aircraft, vehicle or stationary platforms, including systems used by the US Department of Defense. Traditionally, Rafael has treated these systems as ITAR controlled. These pods include sensors and have the capability for surveillance, target detection and target acquisition, yet they are not specially designed for or are not missile, ordnance or fire detection systems in the proposed (a)(6) and (7). Nor are they ordnance guidance systems as described in the new XII(a)(8). Therefore, Rafael is unsure whether DDTC has intentionally determined that such systems no longer warrant control on the USML, or if DDTC continues to view these systems as still being under ITAR control in XII or elsewhere.

We note that the DDTC has viewed surveillance, target detection and sensor capabilities, which these Rafael systems provide, as meaningful in determining whether a higher level platform like a military vessel, vehicle or aircraft incorporates a mission system and is thus controlled on the USML – see e.g. the note to Category VI(b)(4), VII(c) and VIII(a)(11). Given that the capability provided by electro optical pods Rafael produces has ITAR meaning in other contexts, it further raises doubt that the DDTC actually intended for these systems to be moved to the “600 Series” of the EAR even if they are no longer clearly enumerated in the proposed XII or otherwise.

Therefore, Rafael is requesting that the final rule specifically address electro optical systems like those that Rafael produces (surveillance, target detection and target acquisition) if indeed it is DDTC's intention to retain these items on the USML. For example XII could include: "electro optical systems specially designed for military reconnaissance, military surveillance, target detection or target acquisition." We also note that the corresponding EAR proposed revisions also do not specifically enumerate or address these systems, though if not ITAR controlled, one possible ECCN is 3A611.a. We thank you in advance for your consideration of this comment.

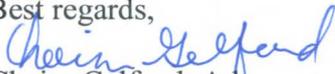
Below please find links to Rafael electro optical products for further information about their capabilities:

Litening <http://www.rafael.co.il/Marketing/334-914-en/Marketing.aspx>

Reccelite <http://www.rafael.co.il/Marketing/334-915-en/Marketing.aspx>

Toplite: <http://www.rafael.co.il/Marketing/396-918-en/Marketing.aspx>

Best regards,



Chaim Gelfand, Adv.

Deputy General Counsel

Compliance

Rafael Advanced Defense Systems Ltd.

April 4, 2016

U.S. Department of State
Directorate of Defense Trade Controls
PM / DDTC, SA-1 12th Floor
2401 E Street, NW
Washington, DC 20522

**Subject: Raytheon Company Comments on the State Department's Review of USML
Category XII**

Ref: 81 Fed. Reg. 8,438 (Feb. 19, 2016)

On February 19, 2016, the Department of State requested comments from the public on proposed amendments to U.S. Munitions List (USML) Category XII (81 Fed. Reg. 8,438). This is DDTC's second proposed rule related to Category XII (as a follow up to public comments received by DDTC to the initially proposed changes to USML Category XII published by DDTC on May 5, 2015 (80 Fed. Reg. 25,821)). The Department of State indicated it would accept comments from the public on the second proposed rule until April 4, 2016. Below please find comments from Raytheon on USML Category XII.

I. COMMENTS ON CATEGORY XII(a)(9)

The current language of Category XII(a)(9) controls: "Remote wind-sensing systems specially designed for ballistic-corrected aiming." Raytheon notes the inclusion of the word "remote" in the current language appears to exclude wind-sensing systems mounted on vehicles from the controls under Category XII(a)(9).

If DDTC intended to also include wind-sensing systems mounted on vehicles under the controls of Category XII(a)(9), Raytheon recommends DDTC remove the word "remote" from Category XII(a)(9) or add a note to clarify whether wind-sensing systems mounted on vehicles are controlled under Category XII(a)(9).

II. COMMENTS ON CATEGORY XII(e)(17)

The current language of Category XII(e)(17) controls: "Infrared lenses, mirrors, beam splitters or combiners, filters, and treatments and coatings, specially designed for articles controlled in this category." Raytheon requests DDTC add a note to Category XII(e)(17) clarifying that the application of a coating, once applied and dried to an item, does not by itself change the jurisdiction of the item. Adding such a clarifying note would be consistent with DDTC-published guidance that a Chemical Agent Resistant Coating (CARC) coating applied and dried to an item does not, by itself, change the jurisdiction of the item. Thus, Raytheon recommends DDTC include the following note to Category XII(e)(17):

Note to paragraph (e)(17): The application of a coating to modify performance of the item, once applied and dried to the item, does not qualify the item as specially designed under this paragraph.

Raytheon believes the addition of the note above to Category XII(e)(17) is consistent with DDTC's guidance on performance enhancing coatings. Specifically, DDTC's guidance establishes that even if the coating is itself ITAR controlled, the control of the coating does not impact the specially designed status of an article on which the coating is applied, unless the coating provides a unique military capability. See <https://www.pmddtc.state.gov/faqs/ecr.html> regarding CARC coatings. Specifically, DDTC posits that the application of performance enhancing coatings to an article does not change the control of the article.

Raytheon understands one of the central goals of Export Control Reform is to promote consistent interpretations. Therefore, the language in proposed Category XII(e)(17) should be consistent with DDTC's already-existing interpretation of performance enhancing coatings not impacting specially designed status of the item on which the coating is applied. For example, under DDTC's current guidance, a commercial optics item to which an anti-reflective coating is applied, would not render that item controlled under Category XII(e)(17) merely because of the coating. Thus, the note Raytheon has recommended DDTC include to Category XII(e)(17) will simply clarify this existing DDTC guidance.



Perry A Smith
Director
Export and Import Compliance
Office of the General Counsel

**Rockwell
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Mr. C Edward Peartree
Director, Office of Defense Trade Controls Policy
US Department of State

Re: ITAR Amendment—Category XII Second Proposed (22 CFR Part 121)

Dear Mr. Peartree:

Rockwell Collins appreciates the opportunity to provide comments on the proposed Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII (RIN 1400-AD32), published in the Federal Registrar on May 5 2015.

Rockwell Collins, Inc. is an industry recognized leader in the design, production and support of communications and aviation electronics for commercial and military customers worldwide. While our products and systems are primarily focused on aviation applications, our Government Systems business also offers products and systems for ground and shipboard applications. The integrated system solutions and products we provide to our served markets are oriented around a set of core competencies: communications, navigation, automated flight control, displays/surveillance, and simulation and training, integrated electronics and information management systems. We also provide a wide range of services and support to our customers through a worldwide network of service centers, including equipment repair and overhaul, service parts, field service engineering, training, technical information services and aftermarket used equipment sales. We are headquartered at 400 Collins RD NE, Cedar Rapids, Iowa 52498 and employ approximately 20,000 individuals worldwide.

Regarding the proposed changes to United States Munitions List (USML) Category XII – Fire Control, Range Finder, Optical and Guidance and Control Equipment: Amendment to the International Traffic in Arms Regulations: Exports and Temporary Imports Made to or on Behalf of a Department or Agency of the U.S. Government; Procedures for Obtaining State Department Authorization To Export Items Subject to the Export Administration Regulations; Revision to the Destination Control Statement; and Other Changes.

Rockwell Collins submits the following comments:

(1) Part 121 Category XII (b)(1)(iv) Specified to function at linear acceleration levels exceeding 25 g.

Comments:

Issue: The term "function", as used in the proposed language, is unclear. Function could be interpreted as continues to provide output. Most accelerometers used in cell phones, commercial aircraft equipment, and commercial asset tracking systems continue to provide output at accelerations above 25 g. However, these commercial systems typically have outputs that are limited, have reduced accuracy at high g levels, or generally have accuracies that are inadequate for non-commercial applications. It is believed that the intent of this language is to restrict devices that provide valid acceleration output above a 25 g acceleration level with sufficient accuracy to support non-commercial military applications.

Mr. C Edward Peartree
Director, Office of Defense Trade Controls Policy
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Examples of typical commercial applications:

Most current commercial avionics systems continue to function at well above 25 g acceleration levels, but their output is limited or flagged as invalid above a 4 to 10 g (depending on the axis of the aircraft) acceleration level. The limited output range makes these systems unsuitable for non-commercial military applications.

Individual accelerometers used in avionics and flight control applications have accurate outputs at lower acceleration levels. These devices may produce an output signal at very high acceleration levels, but output nonlinearity and other factors limit the accuracy of this output at very high accelerations. The degraded accuracy at high acceleration levels generally makes these accelerometers unsuitable for non-commercial military applications.

Asset tracking systems incorporating accelerometers are designed to record shipping shocks to help determine if the package has been handled properly and to identify potentially damaged equipment or products. These systems typically require measurement of very high g levels such as 70 to 100 g shock. However, although the accelerometers used in these systems have very high acceleration ranges, they generally don't have the accuracy needed to support non-commercial military applications.

Proposed change:

We propose that the language be changed to reflect simultaneous dynamic range and accuracy required for non-commercial military applications: (iv) Specified to provide outputs with error less (better) than 1 mg at linear acceleration levels exceeding 25 g.

(2) 22 CFR 121 Category XII (d)(2)(i) GNSS receiving equipment specially designed for military applications.

Comments:

Clarification: GNSS receivers not having any military function (e.g. No encryption, or decryption, of PPS signals) specially designed for a military application will be captured. This also appears to impose ITAR on any GPS Standard Positioning Service (SPS) receivers that are being designed into lower-tier international military products. Rockwell Collins currently sells SPS receivers with EAR controlled communication interfaces to military users. Will the SPS GPS receivers currently under the EAR now be controlled in the USML Category XII?

(3) 22 CFR Category XII (d)(2)(i) (MT if designed or modified for airborne applications and capable of providing navigation information at speeds in excess of 600 m/s);

Comments:

Clarification: The parenthetical statement in the referenced paragraph states a velocity limitation of 600 m/s and contains no altitude limitation. Section 121.16 (MTCR) Annex, Item 11-Category 2, paragraph (c)(1)(i and ii) states a velocity limit of 515 m/s and an altitude limitation of 60,000 ft.. Are the velocity limits of Section 121.1 and Section 121.16 intended to be different? Are the altitude limits of Section 121.1 and Section 121.16 intended to be different?

(4) 22 CFR 121 Category XII (d)(6) and it's notes 1 through 4. Developmental guidance, navigation, or control systems funded by the Department of Defense (MT if designed or modified for rockets, missiles, SLVs, drones, or unmanned aerial vehicle systems capable of a range equal to or greater than 300 km);

Mr. C Edward Peartree
Director, Office of Defense Trade Controls Policy
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Comments:

Clarification: Does this include partial funded systems? There are ongoing contracts, where some funding is coming from various arms of DoD, but the background IP was developed with company funding. Consider the following situation: let's say we have developed a GNC (guidance, navigation or control) system under a source of funding other than DoD, and it has been classified as EAR. Then we accept a contract from DoD to modify this system for a military prototype (so it is developmental). This regulation would make that instantiation of GNC system ITAR. That is not desirable.

(5) 22 CFR 121 Category XII Note to Category XII (found at the end of the Category XII text). A system or end item is not specially designed for a military end user if the item was developed with knowledge that it is or would be for use by both military end users and non-military end users, or if the item was or is being developed with no knowledge for use by a particular end user. In such instances, documents contemporaneous with the development must establish such knowledge.

Comments

Clarification: The note has provided a more detailed definition of "specially designed for a military end user", and that documentation must exist to establish intent for non-military use. This clause is being injected into many areas of the proposed update, and it appears the manufacturer has a greater burden of proof than before. Will this rule limit defense articles, no longer in development, to the ITAR category XII?

Sincerely,



Perry A. Smith
Director, Export and Import Compliance
Office of General Counsel
Rockwell Collins



Phone: 408.376.0252 Fax: 408.376.0950 Website: www.saphotonics.com

April 1, 2016

C. Edward Peartree
Director, Office of Defense Trade Controls Policy
U.S. Department of State
2401 E. Street, NW, SA-1, Room H1200
Washington, DC 20522-0112

Re: Amendment to the International Traffic in Arms Regulations: Revision to Munitions List Category XII Second Proposed

Dear Mr. Peartree,

SA Photonics, Inc. is a California based corporation with offices in Massachusetts and Silicon Valley. Our activities include defense and commercial development and production of systems that include lasers, infrared sensors, communication systems and displays. Our customers include agencies of the U.S. government dedicated to National Security and their contractors, medical system and instrument suppliers, satellite and telecommunications companies. We welcome the changes to the Munitions List regarding Category XII in order to provide bright line delineation for jurisdiction and increased trade. We thank you and your department for your efforts. I offer guidance, examples and questions concerning the second proposed revisions.

We manufacture narrow band and supercontinuum lasers as a specialty manufacturer and worldwide leader. These are used in laser radar sensors, communication systems and for instrumental analysis and calibration. We produce displays used for virtual reality and to provide situational awareness for pilots in commercial and combat aircraft. SA Photonics also manufactures inertial sensors that are used for optical ring gyroscopes. These provide feedback to machines and systems that determine angular change and rate of change with applications in autonomy, robotics, navigation and guidance. Many of our products have dual-use applications so a bright line delineation is highly desirable.

It is important to emphasize that the document use of “specially designed for defense” in each section supports a “bright line” definition for inertial sensors, lasers and infrared systems. Laser ranging systems are used in automotive and industrial applications and defense applications overlap technical specifications. Specifically, range finders used for collision avoidance, navigation and imaging in parking assist or speed control for consumer automotive systems are useful for military vehicle guidance and driver assistance. The military end-use is not a substantive basis for classifying such a commercially derived product as “specially designed” based solely on military end-use even if defense funds are used to evaluate the viability of the commercial hardware. A commercial-off-the-shelf product can serve consumer and affordable military end-use. Comparable systems are produced internationally and are imported in luxury vehicles, commercial transport and aviation systems among others.

Range finders using laser or acoustic techniques are found in speed control hardware that measures sports performance in baseball, tennis, golf or other sports and leisure applications. Range and velocity data derived from compact laser systems is used for industrial machining

control and process control applications. Lasers are used for industrial safety providing an invisible infrared boundary for access control.

Defining military applications with the “specially designed” designation can provide bright-line definition if the component is used as a uniquely designed end-item for a military function, or as a system with a unique military use. As an example where COTS systems can be incorporated into a unique defense article, a helmet mounted display system used for virtual reality with integrated laser range and integrated infrared and/or intensified visible sensor can be used for night vision fire control. The higher level assembly and mission configuration is controlled under ITAR but components within: the laser ranging system, intensified CMOS camera and sensor, optics, firmware or embedded control software (not mission specific) – collectively define a controlled article. The aggregation of COTS hardware can achieve a level of performance with applicability to expeditionary or other missions only following integration and implementation of software suited to training, tactics and procedures (TTP). Military portable terminals and mission specific software defining TTP or mission functionalize the commercial aggregate for operational use. Components should be categorized under the BIS as COTS, the integrated military system is subject to the USML. Analysis of COTS components for suitability in aggregate configurations should not reclassify COTS as restricted articles. The applicability of development funding should not be used as the basis of COTS component assignment. Reports from studies are regulated under conditions of contracts and appropriate regulation. We request the addition of “specially designed for military end-use” for § 121.1 Category XII (a) (10)

§ 121.1 Category XII (b) (2) – Target illumination systems based on >710 nm unnecessarily restricts all eye-safe laser illuminators (e.g. 1550 nm) used for imaging including broadband illuminators like the innovative supercontinuum source produced by SA Photonics (400 – 2100 nm). These systems provide superior illumination for autonomous system navigation by scene illumination and are useful for holographic and photographic industrial use. They also provide exceptional illumination for potential applications in robotic assisted medicine and emerging applications. A “specially designed for military end-use” remark is requested for this section.

§ 121.1 Category XII (b) (3) – Laser rangefinders are nearly ubiquitous and the application of 1064 nm is not isolated to military applications. Low-power 1064 nm, 1550 nm and other laser ranging systems are used for: industrial LADAR mapping, architectural and topographic dimensioning, scene definition for modeling and simulation, movie production, navigation aids and other applications. The target board performance standard requires commercial LADAR testing in non-commercial environments without suitable standards, test facility or adjudication of compliance. We request instead, elimination of the § 121.1 Category XII (b) (3) (A) and (B) criteria and replacement with “specially designed for military end-use.”

§ 121.1 Category XII (b) (4) – Advanced navigation systems fuse GNSS and laser range information with map data and visible camera processed information to achieve autonomous navigation, guidance and collision avoidance. Robotic systems used for commercial package handling utilize laser based navigation with retroreflector targets for position and track adjustment. GNSS augmentation has been incorporated and/or tested in commercial applications. It is recommended that the initial description be changed to, “Military targeting and target location systems incorporating or specially designed to ...”

§ 121.1 Category XII (b) (5) – Vehicle and robotic collision avoidance systems have used LED and laser arrays to illuminate scenes with the intention of avoiding collision with animals, small children or other obstacles. It is recommended that the initial description be changed to, “Military systems specially designed to ...”

§ 121.1 Category XII (b) (7) – developmental lasers funded by the department of defense should not be restricted in this fashion. Analysis of COTS lasers for military missions is one area where the data is restricted but the laser should not incur re-definition as part of the USML based on the source of funding. Contract terms and conditions should specify the category and treatment of the outcome of defense development funding. Basic research and development should retain its current unrestricted status by reason of fundamental research exemption since it is not associated with military systems. It is recommended that this category substitute the word “Other” for “developmental” but it is preferred that this section be deleted to maintain a “bright line” definition.

§ 121.1 Category XII (c) (1) – The detector and camera used in commercial LADAR systems would be restricted under USML Category XII based on this wording. Similarly, home security infrared imaging systems, commercial cameras based on IR sensitive CMOS and industrial sensors are unnecessarily included by the imprecise wording. It is recommended that “specifically designed for military systems” be inserted following “...end items.”

§ 121.1 Category XII (c) (2) – The description as written will Categorize hardware used for medical applications under the USML. It is recommended that “specifically designed for military systems” be inserted following “...display)” and generally applied hence similar wording could be removed from (c) (2) (iii).

§ 121.1 Category XII (c) (5) – (viii) It is observed that coded aperture and improved illuminator power makes smaller aperture systems with more precise pointing feasible. It may be in the interest of review to include (C) “Specially designed systems for military end-use with less than 30 microradians RMS stability and ball diameters less than 15 inches.”

§ 121.1 Category XII (c) (9) – developmental EO/IR and THz sensors funded by the department of defense should not be restricted in this fashion. Electro-optic, infrared and even terahertz sensing has become common for industrial controls, photography, security systems, robotic systems sensing and control, environmental management and other commercial purposes. Defense should make full and unrestricted use of R&D capabilities without re-categorizing products in commercial development. Contract terms and conditions should specify the category and treatment of the outcome of development funding. Basic research and development should retain its current unrestricted status by reason of fundamental research exemption since it is not associated with military systems. It is recommended that this category substitute the word “Other” for developmental but it is preferred that this section be deleted to maintain a “bright line” definition.

§ 121.1 Category XII (d) – GNSS and precision inertial sensors have resulted from improved materials, processes, electronics and control theory understanding. Industrial machining, additive

manufacturing, robotic systems (medical, manufacturing, consumer, industrial), shipping, tracking and logistics have implemented guidance navigation and control systems. It is recommended that the title of this section be changed as follows: “Guidance, navigation, and control systems or end items specially designed for military systems, as follows:”.

It is further recommended that § 121.1 Category XII (d) (1) (i-iv) be deleted as there appear to be assumptions that are subjective and related to control authority for the systems being used as an indicator for the performance stated, and all appear to be directed toward applications regulated under the MT restrictions as currently noted. Then, (iv) also would overly restrict position sensing systems used for tool heads in computer aided machining systems which can exceed accelerations indicated for very short intervals, particularly related to impact based systems subject to abrupt transitions in motion. This is a similar issue with CCL Cat6.

§ 121.1 Category XII (d) (6) – developmental navigation and guidance sensors funded by the department of defense should not be restricted in this fashion. Position sensing has become ubiquitous with daily life including mobile communications, shipping, transportation, photography, robotics and many other commercial purposes. Defense should make full and unrestricted use of commercial R&D capabilities without re-categorizing products in commercial development. SA Photonics is advancing precision fiber optic inertial based sensors and is aware of advances in atomic inertial sensors, opto-acoustic sensors, micro-electro-mechanical sensors and other technologies with relevance to commercial products and applications. Contract terms and conditions should specify the category and treatment of the outcome of development funding. Basic research and development should retain its current unrestricted status by reason of fundamental research exemption since it is not associated with military systems. It is recommended that this category substitute the word “Other” for developmental but it is preferred that this section be deleted to maintain a “bright line” definition.

In summary, the undertaking of the Undersecretary, Arms Control and International Security, Department of State through your office and these impressive efforts to provide reform in Category XII may be improved by adding “specially designed for military end use” to additional sections, improving the test and determination methods for specific restrictions used to classify commercial hardware under the USML and by elimination or refinement of the restrictions proposed for developmental efforts funded by defense funds. Thank you for your consideration.

Respectfully Submitted,

Dr. Michael D. Evans
Vice President and Export Control Manager
SA Photonics, Incorporated
Los Gatos, California & Lexington, Massachusetts



VIA EMAIL: DDTCPublicComments@state.gov

April 1, 2016

Department of State
Office of Defense Trade Controls Policy

ATTN: Regulatory Change, USML Category XII
Public Comment regarding proposed Amendment to the International Traffic in Arms Regulations: Revisions of U.S. Munitions Category XII (as published in the Federal Register, Vol. 81, No. 33, Friday, February 19, 2016)

COMPANY BACKGROUND

Seiler Instrument & Manufacturing Company, Inc. (Seiler) is a United States Company that manufactures a variety of defense-related products including the optical-mechanical fire control and sighting systems used on certain Howitzer and Mortar systems. Seiler is a registrant with the DDTC pursuant to ITAR 122 and considers many of its products to be controlled under the existing USML Category XII.

SUMMARY

Seiler understands that one of the stated goals of the proposed rule is to clearly describe controlled items and to establish a "bright line" between the USML and the CCL for the control of these items. In furtherance of this goal, Seiler herein offers the following recommendations for consideration:

1. Seiler recommends that the revised USML Category XII provide clarity with respect to the types of equipment included within the scope of revised USML Category XII(a)(1) "fire control systems". As discussed below, this term is not clearly defined and, if defined broadly, encompasses all of the items described by XII(a)(2) through (10) and much more. This creates confusion over the proper classification of items among the various XII(a) subparagraphs and with XII(e)(1).
2. Seiler recommends that the revised USML Category XII provide guidance on how to classify items explicitly described by the existing USML Category XII(a) but no longer mentioned at all under the proposed rule. Examples include "periscopes" and certain "weapon sights, weapon aiming systems, and weapon imaging systems". There is uncertainty as to whether control of these items is meant to fall under proposed XII(e)(1) as a part or component of a "fire control system" or to the USML Category that controls the article with which they are associated.

SPECIFIC DISCUSSION AND RECOMMENDATIONS

Confusion over the scope of items covered by proposed USML Category XII (a)(1):

This section controls "fire control systems", without defining the term.

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“Fire control” is a term which, in the broad sense, includes a variety of technologies and disciplines associated with the computation of a firing solution and then the implementation of that solution through the coordination and delivery of effective fire on a military target or targets. For example, the United States Army includes a wide variety of weapon sights, laying equipment, test fixtures, and even tripods within the scope of “fire control materiel” and subject to MIL-F-13926 “Military Specification: Fire Control Materiel, General Specification for Manufacture and Inspection” (published December 29, 1961, last revised April 3, 1991). The scope of this specification “covers the general requirements for the procurement, manufacture and inspection of systems, components, and assemblies used in *fire control materiel*” (see MIL-F-13926 1.1) and implies that any products referencing this specification are, therefore, considered to be “fire control” or a part thereof.

Therefore, and considering the broad sense in which the US Army applies the definition of “fire control materiel”, the proposed USML Category XII(a) will not allow for confident distinction between (a)(1) articles “Fire control systems” and (a)(2), (a)(3), (a)(4), (a)(5), (a)(6), (a)(7), (a)(8), (a)(9), or (a)(10) articles and systems and XII(e)(1) “parts and components” of (a)(1) articles (“fire control systems”). This is because (a)(2) – (a)(10) articles are not necessarily and clearly distinct from and are, in fact, often considered to be “parts or components” of the broad category “fire control systems”, and therefore, also controlled by XII(e)(1).

This is particularly important because proposed USML Category XII(e)(1) controls only “parts, components, accessories, or attachments” for XII(a)(1) or XII(a)(8) articles. A correct determination of an article to the correct subparagraph of XII(a) (1-10) is critical in order to determine the jurisdiction of that article’s component parts. In the proposed rule, the lack of definition as to what is meant to be included within XII(a)(1) “fire control systems”, and how those articles are distinct from those described by (a)(2) – (a)(10) will cause considerable jurisdictional confusion and may require a large number of commodity jurisdiction requests to resolve.

In addition, a broad definition of “fire control systems” which includes, for example, many of the low-tech optical mechanical items covered by MIL-F-13926 (“Fire Control Materiel” specification) would create an inconsistency between the jurisdiction of the component parts of those items and other, much higher technology items, described by XII(a)(2), (3), (4), (5), (6), (7), (9), and (10). This is due to proposed USML XII(e)(1) retaining under the USML “parts, components, accessories, or attachments” related to XII(a)(1) or XII(a)(8) articles only. This could lead to examples where the “parts” related to an optical-mechanical weapon sight designed 40 years ago (falling under XII(a)(1)) are controlled under USML XII(e)(1) whereas “parts” of much more advanced weapon sights described by XII(a)(2) fall to control under the Commerce Control List.

Further confusion would arise in resolving conflicts between USML Category XII(e)(1) which controls “parts and components specially designed for articles described in paragraph (a)(1)” and items which might also be described specifically within XII(a)(2)-(10) (excluding (a)(8)). For example, how would an “optical weapon positioning system” be classified? It is described specifically by XII(a)(3) but could also be considered a “part or component” of a “fire control system” and therefore described by XII(e)(1). If XII(a)(3) is correct, then the “parts and components” of the “optical weapon positioning system” are not controlled by the USML (i.e. XII(e) does not list “part and

components” of (a)(3) systems). However, if XII(e)(1) is correct, then the “parts and components” would be by the USML, also under XII(e)(1) (i.e. if an item is controlled under XII(e)(1) then, presumably, all of its parts are also controlled under XII(e)(1)).

As live examples, please refer to the attached Seiler Instrument & Manufacturing Co., Inc. “Guide to Optical Fire Control for Howitzers & Mortars”. Virtually all of these systems and components are considered to be “fire control materiel” by virtue of the applicability of MIL-F-13926 to their manufacture and testing. But they could also be more specifically described as “weapon sights”, “optical weapon laying systems”, or parts and components thereof. And so, it is not at all clear how these articles should be classified under the proposed rule.

Recommendation

One of the primary objectives of Export Control Reform is to precisely describe the articles warranting control on the USML and to establish a “bright line” between the USML and the CCL. Seiler recommends that, consistent with those objectives, the final rule provide clarification of what articles are intended to be controlled under XII(a)(1) “fire control systems” and how those articles are distinct from those described by other subparagraphs within XII(a). If articles described by XII(a)(2) – XII(a)(10) are just specifically named “parts or components” of XII(a)(1) “fire control systems”, then those categories are merely redundant to XII(e)(1) which also controls “parts and components” of XII(a)(1) “fire control systems” (and XII(e)(1) does so more tightly). This will resolve actual confusion over how to properly classify items between XII(a)(1) and XII(a)(2) – (10) and XII(e)(1) and allow for correct and consistent jurisdictional classifications by all parties working with products subject to these controls.

Jurisdictional confusion over items controlled under existing USML Category XII(a) but not described within proposed USML Category XII.

The proposed USML Category XII(a) omits several categories of items controlled under the existing USML Category XII.

Example: “Periscopes”

“Periscopes” (for the articles in this section) are not mentioned at all in the proposed rule, though they are explicitly controlled under the existing USML XII(a). If this is intentional, where are military “periscopes” controlled?

One possibility is that the control of “periscopes” would now shift to the USML Category that controls the article with which they are associated. For example, if the “periscope” is attached to a tank, control would fall under USML Category VII or, if not explicitly enumerated there, to ECCN 0A606. But certain “periscopes” might also be considered as a part or component of a “fire control system” and would, therefore, be controlled under proposed USML Category XII(e)(1). This potential confusion over which USML Category would control these items is

inconsistent with the stated goal that the revised USML clearly describe the articles controlled to establish a “bright line” between the USML and the CCL.

Example: certain “weapon sights, weapon aiming systems, and weapon imaging systems”

Proposed USML Category XII(a)(2) appears to control only “weapon sights, weapon aiming systems, and weapon imaging systems...” which incorporate or are specially designed to incorporate one or more of the articles or technologies listed under XII(a)(2)(i) through (iv). If this is intentional, where are “weapon sights, weapon aiming systems, and weapon imaging systems” not meeting one of the four criteria controlled?

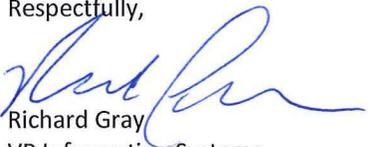
One possibility is that control of these “weapon sights, weapon aiming systems, and weapon imaging systems” would shift to the USML Category that controls the weapon with which they are used (i.e. USML Categories I, II, or VII). But these items might also be considered as a part or component of a “fire control system” and would, therefore, be controlled under proposed USML Category XII(e)(1). This potential confusion over which USML Category would control these items is inconsistent with the stated goal that the revised USML clearly describe the articles controlled to establish a “bright line” between the USML and the CCL.

Recommendation

Seiler recommends, as stated in the previous comment, that the final rule provide clarification of what articles are intended to be controlled under XII(a)(1) “fire control systems”. Seiler further recommends that the final rule provide guidance on how to classify items previously controlled by USML Category XII(a) but now not explicitly described under the revised USML Category XII(a). This will resolve actual confusion over how to properly classify items and allow for correct and consistent jurisdictional classifications by all parties working with products subject to these controls.

Thank you for your consideration.

Respectfully,


Richard Gray
VP Information Systems
Empowered Official

Attachment #1

GUIDE TO OPTICAL FIRE CONTROL FOR HOWITZERS & MORTARS



Manufacturing Division
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Seiler is the Original Equipment Manufacturer for the optical fire control used on all United States howitzer and mortar systems. Seiler machines, assembles, and tests all of our products for the United States Government, military contractors, and both public and private enterprises.

Within our expertise of machining, assembly, and testing capabilities, Seiler also specializes in the inspection, repair, overhaul, and refurbishment of the artillery fire control used on all existing United States howitzer systems as well as many howitzer systems used by our allies. Refurbished fire control can extend the life of your weapon system at a fraction of the cost to replace the damaged or depreciated instrument.



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M109



M109 SERIES, 155MM SP HOWITZER



ELBOW TELESCOPE M118A2

NSN: 1240-01-092-2693

P/N: 11829207



TELESCOPE MOUNT M146

NSN: 1240-00-864-0348

P/N: 8616011



PERISCOPE M42

NSN: 1240-00-864-2933

P/N: 7645543



PANTEL M117A2

NSN: 1240-00-106-7754

P/N: 11739510



PANTEL MOUNT M145A1

NSN: 1240-01-313-6842

P/N: 8267701-1



ALIGNMENT DEVICE M140A1

NSN: 4931-01-472-6622

P/N: 11741648-4

M777



M777 LIGHT WEIGHT HOWITZER



M172A1 TELESCOPE MOUNT
NSN: 1240-01-517-2171
P/N: 13005089



M138A1 ELBOW TELESCOPE
NSN: 1240-01-515-8264
P/N: 13005104



M18A1 FIRE CONTROL QUADRANT
NSN: 1290-01-515-8262
P/N: 13005102



M171A1 TELESCOPE MOUNT
NSN: 1240-01-515-8265
P/N: 13005103



M137A2 PANORAMIC TELESCOPE
NSN: 1240-01-277-0472
P/N: 12984713



M17A1 FIRE CONTROL QUADRANT
NSN: 1240-01-515-8260
P/N: 13005101



ALIGNMENT DEVICE M154
NSN: 4931-01-516-1430
P/N: 11741648-5

M198



M198 HOWITZER — 155MM TOWED



M172A1 TELESCOPE MOUNT
NSN: 1240-01-517-2171
P/N: 13005089



M138A1 ELBOW TELESCOPE
NSN: 1240-01-038-0530
P/N: 13005104



M18A1 FIRE CONTROL QUADRANT
NSN: 1290-01-515-8262
P/N: 13005102



M171A1 TELESCOPE MOUNT
NSN: 1240-01-515-8265
P/N: 13005103



M137A3 PANORAMIC TELESCOPE
NSN: 1240-01-483-6100
P/N: 12984775



M17A1 FIRE CONTROL QUADRANT
NSN: 1290-01-515-8260
P/N: 13005101



ALIGNMENT DEVICE M139A1
NSN: 4931-01-472-6621
P/N: 11741648-3

M119



M119 LIGHT WEIGHT HOWITZER



M186 TELESCOPE MOUNT

NSN: 1240-01-277-0473

P/N: 12599175



M90A3 STRAIGHT TELESCOPE

NSN: 1240-01-480-0292

P/N: 12984673



M187 TELESCOPE MOUNT

NSN: 1240-01-483-5324

P/N: 12984689



M137A2 PANORAMIC TELESCOPE

NSN: 1240-01-277-0472

P/N: 12984713



ALIGNMENT DEVICE M140A1

NSN: 4931-01-472-6622

P/N: 11741648-4

M110A2



M110A2 HEAVY, SELF PROPELLED HOWITZER, 8"



M137 TELESCOPE MOUNT
NSN: 1240-00-895-6492
P/N: 8587295



M115 PANORAMIC TELESCOPE
NSN: 1240-00-895-9186
P/N: 8587340

PHOTO NOT

AVAILABLE

M138 TELESCOPE MOUNT
NSN: 1240-00-896-2240
P/N: 8587500



M16A1D ELBOW TELESCOPE
NSN: 1240-00-759-7781
P/N: 7597781



ALIGNMENT DEVICE M140A1
NSN: 4931-01-472-6622
P/N: 11741648-4

M110A1



M110A1 HOWITZER



M16A1D ELBOW TELESCOPE

NSN: 1240-00-759-7781

P/N: 7597781



M23 TELESCOPE MOUNT

NSN: 1240-00-757-8441

P/N: 7578441



M12A7S PANORAMIC TELESCOPE

NSN: 1240-00-917-6433

P/N: 8213037



M21A1 TELESCOPE MOUNT

NSN: 1240-00-757-8596

P/N: 7578396



M4A1 FIRE CONTROL QUADRANT

NSN: 1290-00-674-0765

P/N: 6740765

M102



M102 LIGHT, 105MM TOWED HOWITZER



ELBOW TELESCOPE M114A1

NSN: 1240-00-150-8889

P/N: 11730285



M14 FIRE CONTROL QUADRANT

NSN: 1290-00-066-4994

P/N: 8626310



M113A1 PANORAMIC TELESCOPE

NSN: 1240-00-150-8886

P/N: 11730267



M134A1 TELESCOPE MOUNT

NSN: 1240-00-150-8890

P/N: 10553215



ALIGNMENT DEVICE M140A1

NSN: 4931-01-472-6622

P/N: 11741648-4

EFSS120MM



120MM M137 TOWED RIFLED MORTAR SYSTEM



M67A1 SIGHT UNIT
NSN: 1015-01-556-1178
P/N: SLB10821

- **M67A1 MOUNT**
NSN: 1240-01-556-1188
P/N: SLB10804

- **M67A1 ELBOW TELESCOPE**
NSN: 1240-01-556-1187
P/N: SLB10430



M45E1 BORESIGHT
NSN: 1240-00-152-3512
P/N: 10549221

120MM



120MM M120/M121 MORTAR SYSTEM



M67 SIGHT UNIT
NSN: 1240-01-366-7322
P/N: 9356182

- **M67 MOUNT**
NSN: 6650-01-340-6082
P/N: SLB10804

- **M67 ELBOW TELESCOPE**
NSN: 6650-01-341-5195
P/N: 9356181



M45E1 BORESIGHT
NSN: 1240-00-152-3512
P/N: 10549221

81MM



81MM M252 MORTAR SYSTEM



M45E1 BORESIGHT
NSN: 1240-00-152-3512
P/N: 10549221



M64 SIGHT UNIT
NSN: 1240-01-379-7953
P/N: 99360168

- **M64 MOUNT**
NSN: 1240-01-201-8299
P/N: 9360169

- **M64 ELBOW TELESCOPE**
NSN: 1240-01-211-3608
P/N: 9360257



M67 SIGHT UNIT
NSN: 1240-01-366-7322
P/N: 9356182

- **M67 MOUNT**
NSN: 6650-01-340-6082
P/N: SLB10804
- **M67 ELBOW TELESCOPE**
NSN: 6650-01-341-5195
P/N: 9356181

60MM



60MM M224 MORTAR SYSTEM

M45E1 BORESIGHT
NSN: 1240-00-152-3512
P/N: 10549221



M64 SIGHT UNIT
NSN: 1240-01-379-7953
P/N: 99360168



- **M64 MOUNT**
NSN: 1240-01-201-8299
P/N: 9360169

- **M64 ELBOW TELESCOPE**
NSN: 1240-01-211-3608
P/N: 9360257

M67 SIGHT UNIT
NSN: 1240-01-366-7322
P/N: 9356182



- **M67 MOUNT**
NSN: 6650-01-340-6082
P/N: SLB10804

- **M67 ELBOW TELESCOPE**
NSN: 6650-01-341-5195
P/N: 9356181

HANDLE & FIRING MECHANISM
NSN: 1010-01-043-2050
P/N: 11578985



RANGE INDICATOR
NSN: 5840-01-458-6159
P/N: 9360374

RANGE INDICATOR KIT
NSN: 1010-01-237-9033
P/N: 9360382

SUPPORTING EQUIPMENT FOR HOWITZERS AND MORTARS



M2A2 AIMING CIRCLE WITH EQUIPMENT

NSN: 6675-01-067-0687
P/N: 11785090



M24 TRIPOD

NSN: 1290-00-346-8184
P/N: 8242777



GUNNER'S QUADRANT M1A1

NSN: 1290-00-891-9999
P/N: 7197156



M58/M59 AIMING POST LIGHT

NSN: 1290-00-169-1934
1290-00-169-1935
P/N: 11730975/11730976



M14 AIMING POST LIGHT

NSN: 1290-01-509-2714
P/N: SLB10530/13010087



COLLIMATOR M1A2

NSN: 1240-01-465-5452
P/N: 12984644



CROSS LEVELING FIXTURE

NSN: 6650-00-652-3553
P/N: 6523553



AZIMUTH TEST FIXTURE

NSN: 4931-00-769-1596
P/N: 7691596



M3 BORESCOPE

NSN: 6650-01-063-0035
P/N: 11584701



ELEVATING MECHANISM

NSN: 1015-01-414-6269
P/N: 11580034



TRAVERSING MECHANISM

NSN: 1015-01-414-7493
P/N: 11579980

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April 4, 2016

Office of Defense Trade Controls Policy
Department of State
2401 E Street NW, SA-1, Room H1200
Washington, DC 20037

Subject: Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII

Director C. Edward Peartree:

On behalf of SPIE, the international society for optics and photonics, we appreciate the opportunity to comment on the second proposed changes to the USML Category XII. SPIE is the largest international not-for-profit society in optics, photonics and imaging. Together with our 18,000 individual members and 600 corporate members, the Society seeks to build a better world with light through scientific education and innovation.

Photonics is an exciting growth area based on light. Photonic components, optics, sensors, fibers, lasers, photodetectors, light modulators, lasers etc., themselves make up a substantial global product market of more than \$150 billion, with around 700,000 jobs. When the basic photonic products are added (such as displays, the optical telecommunications hardware, equipment for precision production and metrology for manufacturing, solar energy converters, LED lighting, cameras and light based medical instruments) the product market is calculated at \$500 billion with 2.2 million jobs worldwide. Photonics, as an enabling technology, underpins many trillions in the services of today's economy, data, entertainment, and e-commerce. Advances in photonics are key to the future of consumer brand name companies such as Google, Facebook, and to realizing solutions to familiar diseases.

SPIE supports an overhaul of U.S. export controls to save American jobs and better protect our most sensitive military items through the Export Control Reform (ECR) initiative that was launched in 2009. As stated in our comments submitted in May 2015, SPIE had great concerns with the first proposal for this category and the potential of long-term negative impact on the industry as a whole.

Overarching concerns included proposed performance parameters that intruded on the commercial market or simply capped technologies at the current edge of capabilities, a major issue for a technology space that is growing so rapidly.

However this second proposed rule is a vast improvement from the prior rule. SPIE supports the increased use of “specially designed” to mitigate the issue of dual-use technologies being designated a munitions item. This approach also assists in shortening and simplifying the rule, a complaint we heard from many companies and universities regarding the first proposal. The “specially designed” criteria is also a more appropriate evaluation to apply to technologies that are constantly growing and changing in their usage and capabilities than static performance parameters.

Though overall we are very pleased with this new proposal, some issues still remain. Language stating that any end items resulting from developmental research funded by the Department of Defense would have a default designation of ITAR [Paragraph (b)(7); Paragraph (c)(9); Paragraph (d)(6); Paragraph (e)(23)] has been retained in this proposal. As stated in our comments for the first proposed rule in May, though there is a note listing some exceptions to this language, these exceptions could be difficult to utilize. Mostly companies and universities would need to depend on obtaining dual-use language in the defense contract. However, companies often lack the leverage to request changes to contracts. This is especially true if a company is a subcontractor and the base contract has already been negotiated and closed. We have also been told that contracting officers are instructed to not make ITAR designations via the contract.

The other exception is if a company receives a commodity jurisdiction (CJ) designating the item to fall under EAR. However, no company will invest the time and money needed to develop a commercial application with the uncertainty of a CJ application needed upon completion. Though every product developed in the U.S. could potentially be subject to a CJ application determination, the default designation as written in the proposal would make investment in commercial applications an impractical risk.

Companies therefore could be forced to make the determination of whether accepting DoD funding is worth forfeiting potential revenue from commercial applications. DoD developmental research funding is often pursued for the commercial potential of the underline technology, not for one or two items to be sold to the military. There is no guarantee that Defense funded research will lead to

significant purchase of any product resulting from the research. Therefore forcing companies to draw this line regarding defense funded developmental research could mean that DoD will reduce the pool of companies willing to use their technological expertise to produce an item specifically for a military application.

An example of DoD funded developmental research that turned into the development of items with significant commercial application is the Quantum Cascade Laser (QCL). DoD has generally funded activities to advance certain wavelengths in QCLs. The underlying physics and the technology has now been applied across most wavelengths in the mid-IR, enabling the commercialization of the entire spectrum. As a result, hundreds of lasers have been sold into research institutions where advances are being made by scientist and Nobel prize winners around the world in areas of Life Sciences, Medical diagnostics, and Environmental studies. One of the systems based on this technology recently discovered a previously unknown subclass of renal carcinoma cell cancer by the NIH. The DoD funded this research without ITAR restrictions.

Another example of DoD funded developmental research is specialty laser fibers. Unlike QCL technology, industry has primarily funded the development of this technology. However, as part of a strategy to make the most of the return on investment, some defense funding was accepted via a subcontract to develop a specific defense application. Often companies who have spent considerable dollars on financing developmental research with commercial applicability in mind will also accept a small subcontract (less than 2% of overall investment in research funding) to develop a military application specifically for military purposes. Though it is possible that the commodity developed for military purposes ends with a lucrative defense contract to purchase the specific product, it is by no means a guaranty. Therefore, accepting a subcontract for a military application on privately funded research, such as specialty laser fibers, would no longer be worth the risk of classifying any item developing from the entire developmental research as ITAR moving forward.

SPIE understands that similar developmental research language has been included in most the other categories of the USML as part of the ECR process, and as such it is unlikely that DDTC will change that precedent for Category XII. However, as we move forward we hope to work with DDTC on any issues should they arise with the implementation of this language. One change that we would recommend for this current proposed rule is narrowing the list of affected lasers in Paragraph (b)(7) to specific types of laser systems, as opposed to all lasers as the current language proposes.

Another issue that SPIE knows DDTC has already been made aware of, is the language in Paragraph (c)(1) “Night vision or infrared cameras specially designed for articles in this subchapter;”. SPIE would like to add our voice to those concerned with the placement and wording of this language. Though we know it is DDTC’s intent to allow the items described in (c)(1) to access the Paragraph (b) releases of the “specially designed” criteria, clarity is needed in the regulation itself, not only the preamble, in order to prevent future misinterpretation.

If you require any further information, please contact Jennifer Douris, SPIE Government Affairs Director, at 202-246-7348 or via email at Jenniferd@spie.org.

Sincerely,

Eugene Arthurs
CEO
SPIE, the international society for optics and photonics



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01 April 2016
Ref: TGM-16-008

VIA E-MAIL: DDTCTPublicComments@state.gov

Mr. C. Edward Peartree
Director, Office of Defense Trade Controls Policy
U.S. Department of State
PM/DDTC, SA-1, 12th Floor
2401 E Street, NW
Washington, D.C. 20037

Subject: ITAR Amendment—Category XII Second Proposed

Dear Mr. Peartree:

Sunpower® Inc. (“Sunpower”), a subsidiary of AMETEK, Inc., located in Athens, Ohio, submits these comments in response to the U.S. Department of State’s proposed changes to Category XII of the U.S. Munitions List published at 81 Fed. Reg. 8438 (Feb. 19, 2016) (RIN 1400-AD32). We are delighted that your office took into consideration our concerns that the original proposed USML Cat XII language covering cryocoolers was overly broad, would not establish a “bright line” between military and non-military cryocooler applications, and would fail to capture the specific characteristics of military cryocoolers, such as size, weight, and heat load lift.

The new proposed language in USML Cat XII(e)(14) resolves each of these concerns by limiting cryocoolers subject to the ITAR to only those “specially designed” for defense articles described in the U.S. Munitions List. This approach will definitely help to ensure the continued viability of a dual-use cryocooler manufacturing base in the United States.

Sunpower specifically wishes to thank your colleagues, Sarah Heidema and Rob Monjay, for the attention and courtesy they gave to Sunpower representatives when they met with them on August 20, 2015, to discuss Sunpower’s concerns about the original proposed language. Your office’s willingness to engage so openly with industry and take into account its comments on proposed changes to the ITAR has been a key element in the success of the President’s Export Control Reform Initiative.

If you wish to discuss Sunpower’s comments, please do not hesitate to contact me via telephone at (740) 566-1085 or via e-mail at tom.matros@ametek.com. Sunpower also authorizes Mr. Gary Stanley of Global Legal Services, P.C., in Washington, DC, to discuss our comments with relevant U.S. Government officials. You can reach Mr. Stanley by telephone at (202) 352-3059 and by e-mail at gstanley@glstrade.com.

01 April 2016
Ref: TGM-16-008
Page 2 of 2

Thank you very much for your consideration of our input on this very important matter to our company.

Respectfully submitted,



Tom Matros
Contracts and Export Compliance



March 31, 2016

U.S. Department of State
Washington, D.C. 20522

SUBJECT: ITAR Amendment—Category XII Second Proposed
Published in the Federal Register February 19, 2016

Dear Sirs:

Systron Donner Inertial thanks the Department of State for the opportunity to submit comments for the “Category XII Second Proposed” proposed rule. We support the Department’s objective of establishing a positive United States Munitions List (USML). In response, we provide the following comments for **Category XII – Fire Control, Laser, Imaging, and Guidance and Control Equipment.**

Reference: Paragraph (d) Guidance, navigation, and control systems or end items, as follows:

(1) We recommend separating paragraphs (d)(1)(i), (d)(1)(ii), and (d)(1)(iii) by the word “or” to indicate that the inertial system need only fulfill one of the criteria.

(2) We recommend that for paragraphs (d)(1)(i), (d)(1)(ii), and (d)(1)(iii), it may be instructive to indicate the predominant intended application as follows:

For (d)(1)(i), insert “for airborne applications”

For (d)(1)(ii), insert “for land applications”

For (d)(1)(iii), insert “for maritime applications”

(3) We recommend adding the qualifier “50%” to the term “CEP” used in paragraph (d)(1)(i) and (d)(1)(iii). Some specifications designate CEP as 50% and others designate CEP as 95%. Adding the qualifier would add clarity.

(4) We recommend clarification of the “specified to function” term in paragraph (d)(1)(iv). “Function” could be interpreted that no damage is done to the system while undergoing 25 g acceleration and the system may continue to provide output above 25 g with degraded the accuracy. A commercial system, with insufficient performance above 25 g to be suitable for military applications, could be controlled by (d)(1)(iv). We recommend that paragraph (d)(1)(iv) be changed to reflect both the 25 g criterion and the accuracy required for military applications. For example:

(iv) Specified to provide outputs with gyroscope errors less (better) than 10 deg/hr and accelerometer output error less (better) than 10 mg at linear acceleration levels exceeding 25 g.

The example paragraph (d)(1)(iv) would capture military “tactical guidance” class systems and higher performance systems capable of operating beyond 25 g without the risk of capturing commercial

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systems that are “specified to function” above 25 g but incapable of military application performance above 25 g.

Reference: Paragraph (e) Parts, components, accessories, or attachments as follows:

(5) We recommend that the term “bias” be used in both paragraphs (e)(10) and (e)(11). The term “bias stability” is used for accelerometers in paragraph (e)(10) and “drift stability” is used for gyroscopes in paragraph (e)(11). Gyro “drift” and “drift rate” are older terms that, while still used, are not found as commonly as “gyro bias.” We recommend defining “bias” as the critical parameter for both accelerometers (e)(10) and gyroscopes (e)(11) and then relate “drift,” “drift rate,” and “bias” in the technical note.

(6) We recommended that an adjective or statement be added to clarify that “ROICs” in paragraph (e)(13) and “drive, control, signal...electronics” in paragraph (e)(18) pertain to optical sensors and not to accelerometers and gyroscopes. As currently written, paragraphs (e)(13) and (e)(18) could be interpreted that “ROICs,” and “drive, control, signal...electronics” on commercial accelerometers and gyroscopes are captured on the USML.

We appreciate the opportunity to comment on the proposed rule.

Sincerely,

A handwritten signature in blue ink that reads "Dean Johnson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Dean Johnson
Technical Advisor
Systron Donner Inertial
djohnson@systron.com

DATE: April 4, 2016

TO: Dennis Krepp, Division Director, Sensors and Aviation Division, Office of National Security and Technology Transfer Controls, Bureau of Industry and Security, Department of Commerce, and Mr. C. Edward Peartree, Director, Office of Defense Trade Controls Policy, Department of State

FROM: The Optical Society (OSA)

RE: Department of Commerce Regulation Identifier Number (RIN) 0694-AF75 /
Department of State RIN 1400-AD32

We are submitting this response to the United States Munitions List (USML) Category XII Proposed Rule Change – an amendment to the International Traffic in Arms Regulations (ITAR) – that was published in the Federal Register on February 19, 2016, on behalf of The Optical Society, a global professional organization for scientists, engineers, students and entrepreneurs who fuel discoveries, shape real-life applications and accelerate achievements in the science of light, and our more than 250 U.S. corporate members. These include global organizations like IBM Corp. as well as manufacturers like Optimax in Rochester, New York, and Beckman Coulter Inc. in Miami, Florida. The US-based optics and photonics market comprises 900 companies that employ more than 125,000 people. We estimate that 90 percent of these are small and mid-size businesses.

The United States Munitions List (USML) Category XII encompasses fire control, range finder, optical and guidance and control equipment that the United States considers critical to national security. The goal of the Category XII proposed rule change was to move dual-use items with both military and commercial applications from the State Department USML list to the less restrictive Commerce Control List (CCL) list, thereby reducing or eliminating confusion regarding the regulations and jurisdictional classifications between the USML and CCL. In July of 2015, we submitted comments to the initial proposed rule published in the Federal Register on May 5, 2015. We are pleased that many of the concerns we originally raised on behalf of our membership have been addressed in this new proposal.

However, there are four primary areas of concern with these export control revisions for the optics and photonics community as proposed: (1) Impact on time to market for regulated products and components, (2) Specifically designed for military use, (3) Cost of compliance, and (4) Enhanced access to government export assistance resources, particularly for small businesses.

(1) Globally, optics and photonics annual revenues amount to more than \$400 billion according to an analysis by OSA Industry Development Associates. The United States maintains a tenuous

leadership role in this marketplace facing significant competition from China, Taiwan, South Korea, Japan and Europe. Anecdotally, the lead time for the Category XII export licenses averages between 30 – 60 days for both Commerce Department Bureau of Industry and Security licensing for dual use technology exports and the Department of State Directorate of Defense Trade Controls on military technology export licensing. This seemingly brief window of time is an opportunity for a competitor to undercut a sale – regardless of product quality and in some instances price. Therefore, this proposed rule has the potential to deter foreign buyers from purchasing US-made components and systems.

(2) One of the issues which has received the greatest input from our constituents is the language that defines broad areas that fall under the protection of the USML simply because they have the Department of Defense as the source of their funding (for example, see ¶ (b) (7) laser systems, (c)(9) Night vision, (d)(6) guidance systems and (e)(23) developmental sensors “funded by the Department of Defense”). This phrase “funded by the Department of Defense” could more effectively be replaced by “specifically designed, modified or configured for military use”. This would more appropriately define the specific defense scope. Since it is taken directly from the current USML, this could remedy a language that is far too broad in its reach and would limit commercial sales of technology.

(3) Compliance is a necessary cost of doing business. However, it shouldn’t be burdensome for small businesses. They face a substantial cost disadvantage when having to deal with export compliance regulations and fees when compared to their larger counterparts, who often have in-house legal counsel and other resources that would be prohibitively expensive for small and mid-size businesses. The industrial sector of The Optical Society membership base is particularly concerned about the loss of potential revenue due to limitations to freely sell technologies that are sold as dual-use or are available from companies based in other countries.

These regulations also impact the academic community, which makes up nearly 60 percent of OSA’s membership. Export Control has been put into place to protect not only the technology, but national security, which should enhance the safety and position of the United States globally. However, these restrictions as such are inconsistent with many mission statements for universities to facilitate international collaboration. The university experience is fundamental to provide a learning environment for all students, staff and faculty members where they are afforded the opportunity to pursue open inquiries, examine critically, and carry out research and teaching in an unrestricted environment. In the optics and photonics fields, that can be a challenge if a professor feels restricted by export control regulations that force them to limit interactions with non-U.S. citizen scientists and graduate students, or potentially face the threat of personal liability for possible violations.

(4) Finally, we recommend that the U.S. government enhance export assistance resources, particularly for small businesses. Once the rules are finalized, we strongly encourage that the U.S. government conduct extensive educational outreach across the country for businesses and universities on export control compliance and licensing requirements. Small companies, especially those without in-house, in-depth export compliance expertise are often challenged to

sell export-controlled products outside of the United States. The new rules have the potential to create confusion and questions in both the academic and industrial facilities. They may also drive up the cost of compliance by forcing these small and medium-sized businesses to contract with subject matter experts to gain an understanding regulations and their impact while mitigating risk. Extensive educational outreach on the new rules will help reduce uncertainty.

It is important for the government to address all of the concerns shared in this public comment period in an expeditious manner. Time is limited to implement a finalized rule change for Category XII before the end of the year. The Optical Society is ready to partner with the federal government to work in a timely manner to ensure the finalization of an acceptable rule change to Category XII before the end of the year.

Sincerely,

A handwritten signature in black ink that reads "Elizabeth A. Rogan". The signature is fluid and cursive, with a long horizontal stroke at the end.

Elizabeth Rogan
CEO, The Optical Society

TOYOTA

Toyota Motor Engineering &
Manufacturing North America
25 Atlantic Avenue
Erlanger, KY 41018-3151

March 28, 2016

C. Edward Peartree
Director
Office of Defense Trade Controls Policy
U.S. Department of State
Directorate of Defense Trade Controls
2401 E Street, NW, SA-1, Room H1200
Washington, DC 20522-0112

RIN: 1400-AD32

Re: Public Submission Concerning Category XII of USML (22 CFR Part 121)

Dear Mr. Peartree,

On behalf of Toyota Motor Engineering & Manufacturing North America, Inc. (“TEMA”), we would like to thank you and the U.S. Department of State, Directorate of Defense Trade Controls (“DDTC”) for addressing the concerns of the automotive industry with regard to the proposed USML Category XII rule change.

The revised rule published on February 19, 2016 adequately addresses TEMA’s concerns regarding the first proposed rule published on May 5, 2015. TEMA was concerned that the first version of the rule would have hindered automotive safety research by placing under ITAR jurisdiction infrared focal plane array (“IRFPA”) technologies intended for automotive safety purposes.

IRFPA and LIDAR technologies are critical to efforts to improve automotive collision avoidance, and the revised rule published on February 19, 2016 helps ensure that these efforts will not be impeded.

If you require additional information, please contact Mr. Corey Stewart, who is authorized to interact with the U.S. government on TEMA’s behalf, as follows:

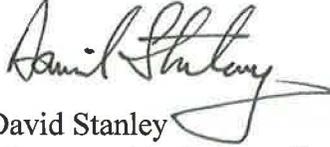
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* * *

Thank you for the opportunity to comment on the proposed rule. Please let us know if we can be of any assistance as you consider this important matter.

Respectfully Submitted,



David Stanley
Manager – Trade Compliance
Logistics Control
Parts Business Management

Comment on DOS_FRDOC_0001-3561

This is a Comment on the **U.S. Department of State (DOS)**
Proposed Rule: **International Traffic in Arms Regulations: U.S. Munitions List Category XII**

For related information, [Open Docket Folder](#) 

Comment Period Closed
Apr 4 2016, at 11:59 PM ET

ID: DOS-2016-0011-0006

Tracking Number: 1k0-8ol9-smxe

Document Information

Date Posted:

Apr 5, 2016

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1400-AD32

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Submitter Information

Submitter Name:

Thomas Kornack

Comment

Twinleaf LLC is a company in New Jersey that makes magnetic field sensors and related components and equipment. Our customers include the US Department of Defense as well as international commercial and academic groups. Most of our work involves laser systems and some of the components we make can be used for navigation.

It is often the case that DoD funded basic research results in a product that is not useful to DoD and not worthy of export protection but nonetheless is of interest to commercial and academic groups working in completely different fields. The proposed rules would strongly suppress our ability to attract commercial development of basic research started by the DoD. The proposed rules would also prevent us from continuing fruitful academic collaborations on promising basic research in these areas with major educational institutions that do not accept export restrictions. This will have the effect of eliminating a large class of extraordinarily productive academic partnerships.



April 4, 2016

PUBLIC DOCUMENT

Submitted electronically to DDTCPublicComments@state.gov

U.S. Department of State
PM/DDTC, SA-1, 12th Floor
2401 E Street, NW
Washington, D.C. 20037

ATTN: Mr. C. Edward Peartree, Director, Office of Defense Trade Controls Policy

Subject: RIN 1400-AD32; ITAR Amendment – Category XII Second Proposed

Dear Mr. Peartree:

Umicore USA, Inc. (“Umicore USA”), its parent N.V. Umicore S.A. of Belgium, and its domestic subsidiary Umicore Optics Materials USA Inc. (“UOM”), collectively “Umicore,” respectfully submit these comments in response to the February 19, 2016 notice of proposed rulemaking published by the U.S. Department of State, Directorate of Defense Trade Controls (“DDTC”) concerning optics equipment. See “Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII,” 81 Fed. Reg. 8438 (February 19, 2016).¹

DDTC specifically requested comments on whether this proposed rule would inadvertently control items on the U.S. Munitions List (“USML”) that are in normal commercial use. DDTC also asked the public to identify proposed control criteria that do not clearly describe defense articles or establish a “bright line” between the USML and the Commerce Control List (“CCL”). 81 Fed. Reg. at 8441. As a leading global manufacturer in optics materials and products, Umicore is well-positioned to address these questions.

As currently proposed, the new controls for infrared lenses in USML Category XII(e)(17) would be a step in the wrong direction for export control reform. To be clear, Umicore agrees with the decision to exclude optics blanks from ITAR controls; those unfinished optics products do not provide any unique military advantage. However, the proposed regulation would, for the first time, explicitly add infrared lenses to the USML. Infrared lenses are mechanical, non-sensing components. They are widely available from foreign producers at equivalent or better performance capabilities than U.S. products. They should be entirely subject to Commerce jurisdiction. Further, there is no reason to default to “specially designed” catch-all controls for infrared lenses. It is possible to establish specific parameters indicating clear military application for infrared lenses to be controlled in the proposed ECCN 7A611 on the CCL.

¹ Umicore separately is providing comments on the U.S. Commerce Department’s corresponding proposed rulemaking concerning revisions to the CCL controls on optics products.

Following the below company background, Umicore's comments explain why infrared lenses should not be controlled under the ITAR as well as why the "specially designed" concept does not work for lenses. Umicore also suggest alternative positive control parameters, which could be implemented by the Commerce Department under new 600-series controls.

I. Company Background

Umicore is a multinational materials company headquartered in Belgium, with more than 14,000 employees in 38 countries. Umicore USA, located in Raleigh, North Carolina, is a U.S.-based subsidiary of Umicore. Umicore USA holds UOM, located in Quapaw, Oklahoma, which is the leading U.S. manufacturer of germanium products. The Quapaw facility also performs high volume assembly of infrared imaging products made from GASIR, Umicore's proprietary germanium-based chalcogenide glass. End-use applications for Umicore's infrared optical products include automotive, thermal imaging, security and surveillance, fire-fighting, defense, and many other commercial and dual-use applications.

Through its U.S. subsidiaries, Umicore provides many high tech engineering and manufacturing jobs within the United States. Umicore's U.S. operations compete on a global basis and derive a substantial and growing portion of their revenue from export-based sales. Umicore expects exports from the United States to increase. However, this rulemaking could have a significant impact on the company's incentives to grow its U.S. operations. Umicore's technology is predominantly E.U.-origin, with technology transfers and production capabilities generally provided from the foreign parent to the U.S. operations. If restrictive unilateral controls apply to optics technology and products within U.S. jurisdiction, which do not apply in the E.U. export control regime, companies like Umicore that also have production facilities in Europe may need to reevaluate their United States growth strategies.

II. Infrared Lenses Do Not Belong on the USML

Most infrared optical elements – including those procured by military customers – are, and should remain EAR99. When a military customer orders an infrared lens, including for end uses such as night vision goggles or artillery fire control systems, the customer typically orders the same type of lens that a commercial customer would order. It is common for manufactures in this industry to customize the specific cut, dimensions, and focus properties for their customers (both commercial and military). Except in limited situations,² the lens specifications requested by military customers tend to be within the same range of specifications requested by and available to commercial customers.

² Those limited situations where military customers required customizations that exceed normal commercial parameters lend well to the use of positive parameters for control, as opposed to a "specially designed" catch-all control. Specific examples include:

- average electrical resistivity below 5 Ω /cm at 20°C;
- specially coating for counter-counter measures against electromagnetic interference and other forms of electronic warfare;
- dome shaped contouring "specially designed" for use in missile applications;
- "space qualified" characteristics; or
- "specially designed" to function with cooled thermal imaging systems.

An infrared lens, by itself, is simply a single piece of material through which infrared light can pass. In the case of Umicore's products, lenses are made either of germanium (a natural metal) or chalcogenide glass, which are transparent to infrared light. A lens is cut, shaped, and polished to achieve different types of focus or magnification as the light passes through. It is a mechanical item; it is not electronic, it is not a sensor, and it cannot interpret the light that passes through it. A blank is the unfinished precursor to a lens. In other words, a blank is material that has been sliced to the rough dimensions needed for further working into a lens. A blank has no optical functionality.

Umicore agrees with the rulemaking insofar as it would entirely remove blanks from USML jurisdiction. Umicore similarly urges the U.S. government to remove infrared lenses entirely from USML jurisdiction. EAR99 should continue to be the default control for germanium and chalcogenide infrared optical elements. To the extent that higher control is appropriate for some specific types of infrared lenses, they should be subject to Commerce jurisdiction, under ECCN 7A611.

Infrared lenses are not the “crown jewels”³ of the United States' military technology advantage.⁴ Unlike most items covered under this proposed rulemaking, infrared lenses are not sensors, nor are they systems or equipment containing sensors. They do not fit with the list of other items proposed for control under the new USML Category XII(e) for parts and components – which include technically complex items such as lasers, focal plane arrays, image intensifier tubes, and optical sensors that provide threat warning or tracking. Infrared lenses are passive mechanical elements. There is nothing electronic or sensing about how the lenses work; infrared light waves just pass through them.

The United States does not have a unique military or intelligence advantage with respect to lens technology or production. Umicore's technology and production process used in manufacturing infrared lenses within the United States are E.U.-origin, transferred from the foreign parent to the U.S. operations. It will become easier for foreign-based companies like Umicore to continue to transfer and collaborate on product development with U.S. affiliates, if all lens technology is Commerce controlled.

Moreover, this technology and production capability already is global, with China, Israel, and Russia producing comparable infrared lenses and competing to supply orders placed by thermal imaging customers in the United States and Europe. U.S. production of military grade uncooled infrared optics comprises less than half of the global market for that product segment. Increasing the restrictions on infrared optics could drive the global market away from U.S. producers, as customers easily are able to buy “ITAR-free” optics from foreign sources. This

³ Sec. Gates also described the purpose of export control as enabling the U.S. government “to concentrate on controlling those critical technologies and items – the “Crown Jewels” if you will – that are the basis for maintaining our military technology advantage, especially technologies and items that no foreign company or government can duplicate.” Statement available online at: <http://www.defense.gov/speeches/speech.aspx?speechid=1453>.

⁴ For more information about foreign production of infrared lenses, please see the market information attached as an appendix to these comments (this is an updated version of the information Umicore provided with its comments on the previous rulemaking).

could have a negative effect on the U.S. optics industry, with companies moving optics production (and high tech jobs) overseas.⁵

To the extent that these passive components do require export control, the U.S. government can do so effectively through a 600-series ECCN on the CCL.

III. The “Specially Designed” Concept Does not Work for Lenses – Positive Parameters Are Feasible and Necessary

Umicore emphatically requests the U.S. government to abandon the “specially designed” concept as applied to infrared optical elements. While some commenters in the last round urged the U.S. government to apply that concept to their products,⁶ “specially designed” is uniquely problematic for infrared optical elements and actually will create more classification uncertainty for manufacturers in this particular segment of the industry.

The reason “specially designed” does not work for the infrared optical element industry is that manufacturers, such as Umicore, typically produce most of their products according to customer specification. A manufacturer that receives orders from both commercial and military customers – that have overlapping but unique specifications, such as size, curvature, and fit – will have to perform the “specially designed” analysis for every single order. Many products ordered by military customers have the same general function and capabilities as those ordered by commercial customers. While a lens might be customized for a military end-user, it may not necessarily meet the requirements of “specially designed” – but the manufacturer would have to go through the multi-step “specially designed” analysis for each product to confirm that. For a company that has thousands of unique part numbers due to customized orders, this will be extraordinarily burdensome and will inevitably lead to inconsistencies in classifications across the industry. This industry needs a bright line rule that it can apply in determining whether products are controlled.

There is no need to resort to the “specially designed” catch-all approach in controlling infrared optical elements. Industry-accepted technical criteria are available for distinguishing products that are uniquely military in their application. These criteria are supported by existing commodity jurisdiction (“CJ” rulings) that determine which lenses should be controlled versus those that are EAR99. Most infrared lenses and blanks made of germanium and chalcogenide are, and should remain, EAR99. Providing clear, positive thresholds for control will prevent ambiguity about whether customized products that are currently EAR99 will inadvertently be pulled into higher controls through the “specially designed” concept. Furthermore, use of positive control parameters will better serve the stated policy of export control reform, as described in Commerce Department’s parallel proposed notice of rulemaking, which “seeks to revise the USML to a positive list—one that does not use generic, catch-all controls for items listed.” See 81 Fed. Reg. 8421, 8429 (February 19, 2016).

⁵ As stated by former Secretary of Defense Robert Gates, in launching the export control reform initiative: “Multinational companies can move production offshore, eroding our defense industrial base, undermining our control regimes in the process, and not to mention losing American jobs. Some European satellite manufacturers even market their products as being not subject to U.S. export controls, thus drawing overseas not only potential customers, but some of the best scientists and engineers as well.” See *id.*

⁶ However, several commenters, including Umicore, instead proposed alternate positive control parameters.

IV. Umicore's Proposed Alternate Control Thresholds for Lenses

Umicore proposes the following thresholds for the control of infrared lenses, including those made of germanium, chalcogenide, or other materials, that are unique to military requirements. These criteria are consistent with existing CJ rulings that previously have established parameters for USML control of infrared lenses (versus EAR99), as well as current and foreseeable industry practice. Umicore urges the U.S. government to move the control of infrared lenses to the Commerce Department, and the following positive criteria should apply under ECCN 7A611.

- Average electrical resistivity below 5 Ω /cm at 20°C (this would, in practice, apply to germanium but not to chalcogenide, since chalcogenide is naturally highly resistive);
- Specially coated for counter-counter measures against electromagnetic interference and other forms of electronic warfare;
- Dome shaped contouring “specially designed” for use in missile applications;
- “Space qualified”; or
- “Specially designed” to function with cooled thermal imaging systems.

Any infrared lenses that do not meet the above criteria should be EAR99. The below chart sets forth these proposed control thresholds.

	Infrared Lenses
USML Cat. XII	None (eliminate “specially designed” lenses as proposed)
ECCN 7A611	<ul style="list-style-type: none"> • Lenses with resistivity below 5 Ω /cm at 20°C (relevant only to germanium); • Lenses specially coated for counter-counter measures against electromagnetic interference and other forms of electronic warfare; • Lenses with dome shaped contouring “specially designed” for use in missile applications; • Lenses that are “space qualified”; and • Lenses “specially designed” to function with cooled thermal imaging systems.
EAR99	<ul style="list-style-type: none"> • Default for lenses of any material not captured under positive controls in ECCN 7A611. • All other infrared lenses that do not meet the ECCN 7A611 criteria are EAR99.

Umicore greatly appreciates this opportunity to provide comments on this proposed rulemaking. Should the State Department require any further information, the undersigned may be contacted at: thomas.mckelvey@am.umicore.com or at (919)-874-2127.

Respectfully submitted,



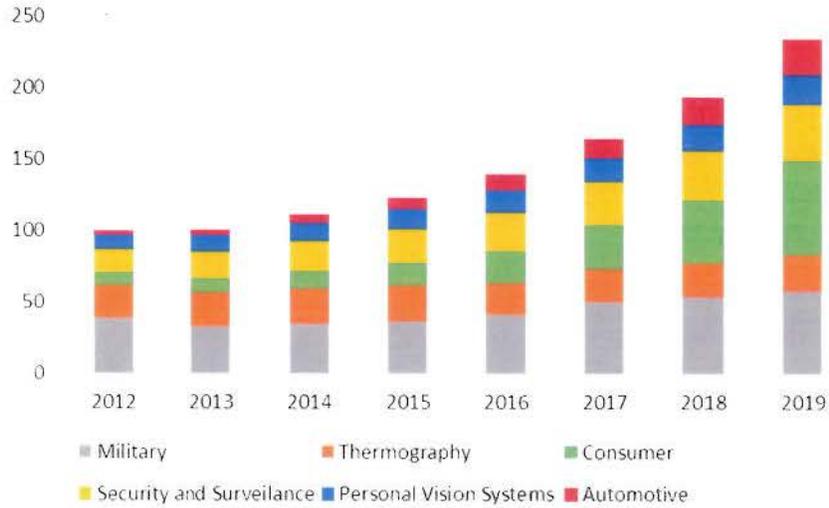
Thomas R. McKelvey
Umicore USA Inc.
Regional Trade Compliance Manager

Enclosure:

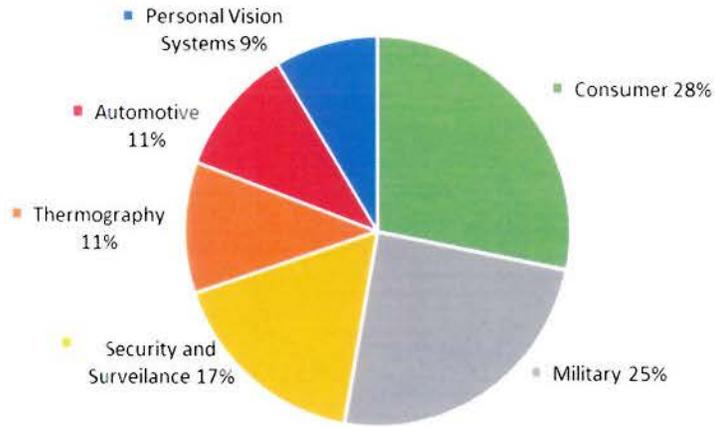
- Appendix with world market information

APPENDIX

Worldmarket Optics for Uncooled IR (MUSD)

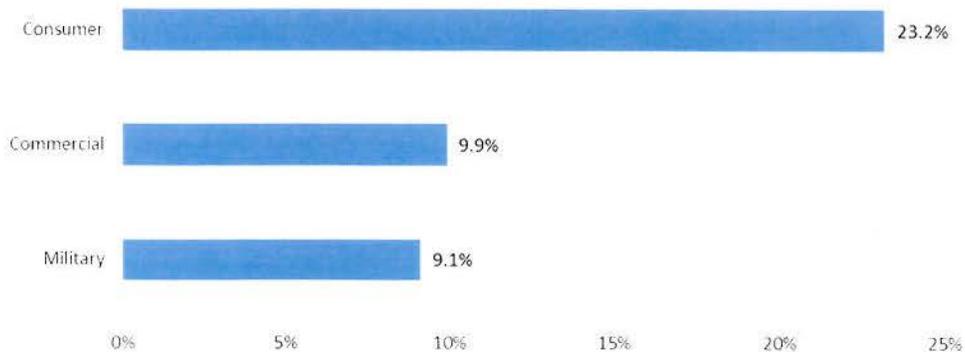


Share 2019 of total 234MUSD market



MUSD = \$ U.S. dollars, in millions
CAGR = cumulated annual growth rate

CAGR 13-19



Examples of Foreign Optics Producers

Demonstrated technology and production capabilities equivalent to or exceeding U.S. industry.

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12 micron pixels or smaller.....	10
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Examples of Foreign Infrared Lens Products

Focal Length Greater than 100mm

Shalom EO - Israel

IR Lenses for 640x480-25um LWIR uncooled FPA Detectors

No.	Module	Focal length (mm)	F#	Field of View (H x V)	Focus Mechanism	Flange Back Dist (mm)	Mechanical Connector
9	2120F1.0	120	1.0	7.6°x5.7°	Motorized	20	M54x1
10	3123F0.8	123	0.8	7.4°x5.6°	Motorized	20	2.325" -12TPI
11	2150F1.0	150	1.0	6.1°x4.6°	Motorized	20	M54x1
12	3180F1.2	180	1.2	5.1°x3.8°	Motorized	14.8	Flange
13	2200F1.3	200	1.3	4.6°x3.4°	Motorized	20	2.325" -12TPI
14	3275F1.4	275	1.4	3.3°x2.5°	Motorized	20	2.325" -12TPI

<http://www.shalomeo.com/product/thermal-imaging/ir-lenses-for-uncooled-thermal-imaging-cameras/lens-for-640x480-25um-fpa-19.html>

Dual FOV and Zoom Lenses for 640x480-17um LWIR uncooled FPA Detectors

No.	Module	Focal Length (mm)	F#	Field of View (H x V)	Focus Mechanism	Flange Back Dist (mm)	Mechanical Connector
1	DF-22.6F0.9-114.5F1.0 Double FOV	22.6	0.9	24°x18°	Motorized	32	flange
		115	1.0	4.8°x3.6°			
2	DF-44F1.0-132F1.1 Double FOV	44	1.0	12.5°x9.4°	Motorized	15	M45x1
		132	1.1	4.2°x3.1°			
3	DF-42/0.82-107/1.0 Double FOV	42	0.82	13°x9.8°	Motorized	30	flange
		107	1.0	5.1°x3.9°			
4	DF-51/1.1-153/1.2 Double FOV	51	1.1	10.8°x8.1°	Motorized	15	M45x1
		153	1.2	3.6°x2.7°			
5	DF-25/0.9-75/1.0 Double FOV	25	0.9	21.7°x16.4°	Motorized	19.67	2.325" - 12TPI
		75	1.0	7.3°x5.5°			
6	DF-50/0.9-150/1.0 Double FOV	50	0.9	11°x8.2°	Motorized	28	flange
		150	1.0	3.7°x2.7°			
7	DF-35/0.9-140/1.0 Double FOV	35	0.9	15.6°x11.7°	Motorized	13.5	flange
		140	1.0	3.9°x2.9°			
8	Zoom-25/0.95-75/0.95 continuous	25~75	0.95	8.3°~24.6° x 6.2°~18.5°	Motorized	20	flange
9	Zoom-20/1.1-60/1.1 continuous	20~60	1.1	10.4°~30.4° x 7.8°~23.1°	Motorized	20	M54x1
10	Zoom-53/0.8-105/0.94 continuous	25~75	0.8 ~ 0.94	5.9°~11.7° x 4.4°~8.8°	Motorized	20	M54x1

<http://www.shalomeo.com/product/thermal-imaging/ir-lenses-for-uncooled-thermal-imaging-cameras/double-fov-and-zoom-ir-lenses-2.html>

Sunny Ningbo – China

F(Mm)	F#	Sensor	T 8-12	Field of View (°)	Focus
130	1.2	640*480 17μm	>84%	4.8(H)×3.6(V)	∞~10m
200	1.4	640*480 17μm	>84%	3.1(H)×2.3(V)	∞~20m
150	1	640*480 17μm	>84%	4.1(H)×3.1(V)	∞~40m

<http://www.sunnyoptical.com/en/009002008/p324.html>

Wavelength – Singapore

Part No.	Focal Length(mm)	F/#	Detector	Wavelength	Focus Type
Infra-LW1501.0-17	150	1.0	640x480, 17um	8um-14um	Manual Focus
Infra-LW1501.2-17V2	150	1.2	640x480, 17um	8um-14um	Manual Focus
Infra-LW1501.4-17	150	1.4	640x480, 17μm	8um-14um	Manual Focus
Infra-LW1502.0-17	150	2.0	640x480, 17um	8um-14um	Manual Focus

<http://www.wavelength-tech.com/IR-Optics/LWIRInfraLens.jsp>

Resolve Optics – United Kingdom

Focal Length	F/Number	Focus Type	Spectral Range
120	1.2	Fixed	8-14um

<http://www.resolveoptics.com/ir-lens-320-000.html>

Tamron – Japan

Detector Size	Standard	Model No.	Focal Length	F number	Max object distance (m)
17μm pixel pitch VGA (640×480)	M34 Screw	LVZ3X3516N/A	35-105mm (3x zoom)	F/1.6	3,083



<http://www.tamron.biz/en/data/thermal/index.html>

12 micron pixels or smaller

Ophir - Israel

Focal Length	F/Number	Focus Type	Sensor Compatibility	Part Number
140mm	1.4	Fixed	1024X768 pixels,12μ pitch	65182
150mm	1.0	Motorized	1024X768 pixels,12μ pitch	65043
210mm	1.4	Motorized	1024X768 pixels,12μ pitch	65070

<http://www.ophiropt.com/infrared-optics/catalog-infrared-lenses/lenses-for-uncooled-cameras>

United Technologies Corporation
1101 Pennsylvania Avenue, N.W.
10th Floor
Washington, D.C. 20004-2545



Submitted Via Email

April 4, 2016

Mr. C. Edward Peartree
Director, Office of Defense Trade Controls Policy
PM/DDTC, SA-1, 12th Floor
Bureau of Political Military Affairs
U.S. Department of State
Washington, D.C. 20522-0112

Attn: Regulatory Change, USML Category XII Second Proposed

Re: Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XII (81 Fed. Reg. 8438, February 19, 2016)

Dear Mr. Peartree:

United Technologies Corporation (“UTC”)¹ appreciates the opportunity to submit these comments on the implementation of Export Control Reform (“ECR”) with respect to fire control, laser, imaging, and guidance and control equipment. UTC strongly supports the Administration’s goals of creating a positive, transparent, and predictable structure within the categories of the U.S. Munitions List (“USML”), and continually aligning this structure and associated export control policies with changing technological and market conditions.

At the outset of ECR, the Directorate of Defense Trade Controls (“DDTC”) stated their intent that the USML should only control those items providing a critical military or intelligence advantage and releasing items that do not warrant USML controls. This principle was reconfirmed in the DDTC’s proposed rule issued on February 19, 2016 (“Proposed Rule”). UTC has completed a thorough review of the Proposed Rule and the corresponding changes in the Commerce Department’s companion proposed rule (“Proposed Rules”) and believes that they are largely consistent with the aforementioned principle as the revisions, in most cases, only control items that provide a critical military advantage to the United States and release commercial, dual-use, and less-sensitive military items to the Export Administration Regulations (“EAR”).

¹ UTC is a global, diversified corporation based in Farmington, Connecticut, supplying high technology products and services to the aerospace and building systems industries. UTC’s companies are industry leaders, among them Pratt & Whitney, Otis, UTC Aerospace Systems, UTC Climate, Controls & Security, and United Technologies Research Center.

UTC's comments focus on positive improvements to Category XII as well as suggestions for continued improvement to the draft regulatory language that may enhance U.S. manufacturers' and exporters' understanding of the new language and ability to accurately classify items in USML Category XII.

I. Specially Designed Criteria for Category XII – Fire Control, Laser, Imaging, and Guidance and Control Equipment

A. Blending Positive Control Parameters and Design Intent

UTC commends the Departments of State, Commerce and Defense for a balanced approach in using positive control parameters to establish clear jurisdictional bright-lines for defense articles when feasible and strategically applying “specially designed” criteria to control certain articles based on the design intent of manufacturers when positive controls would have otherwise captured commercial and dual-use commodities. This is the single most important change from the first proposed rule. This change significantly limits the use of non-military performance parameters for control and, as a result, largely avoids capturing on the USML items currently in production that are in normal commercial use and available worldwide from non-U.S. manufacturers (e.g., one-dimensional linear arrays and infrared cameras, infrared imaging systems, infrared focal plane arrays, and read-out integrated circuits).

B. Note to Category XII - Specially Designed for Military End User

The new Note to Category XII defines the term “military end user” for the first time in the International Traffic in Arms Regulations (“ITAR”) and provides guidance on determining whether an item is specially designed for a military end user. The new military end user definition and criteria is used only in Category XII(b)(6) and (c)(2)(iii). Although similar to ITAR §120.41, the new definition supplants the established specially designed criteria and introduces uncertainty and confusion for U.S. manufacturers trying to accurately classify items. Further, it is not clear why the established specially designed criteria cannot be used for these subparagraphs to ensure consistency throughout the USML.

To eliminate potential confusion associated with the introduction of a new phrase (i.e. ‘specially designed for a military end user’), UTC recommends that the DDTC simply use specially designed as defined in ITAR §120.41. To account for the industry concerns articulated in the Proposed Rule, UTC recommends that DDTC add a note to Category XII(b)(6) and (c)(2)(iii) stating that the performance characteristic for purposes of ITAR §120.41(a)(1) is that the item is designed for a military end user, as defined in the Note to Category XII. UTC also recommends that the Note to Category XII(b)(6) and (c)(2)(iii) state that items captured by ITAR §120.41(a)(1) can be released under ITAR §120.41(b).

If this recommendation is not accepted, UTC requests that DDTC clarify in the Note to Category XII that the term “military end user” should be used as the performance characteristic under the ‘catch’ in ITAR §120.41(a)(1). Further, UTC requests that DDTC confirm that all ‘releases’ in ITAR §120.41(b) are available if an item is captured in ITAR §120.41(a).

Additionally, UTC requests clarification on the following points.

1. Note to Category XII - Military End User Definition and Border Management/Security

The new, local Category XII definition of “military end user” includes the national armed services (i.e., army, navy, marines, air force, or coast guard), national guard, national police, government intelligence or reconnaissance organizations, or any person or entity whose actions or functions are intended to support military end uses. Although this definition is consistent with the Department of Commerce’s definition for military end user in the EAR, UTC notes that it is not clear whether or not border management/security agencies (e.g., like the U.S. Department of Homeland Security, Customs and Border Protection (“DHS/CBP”)) are included within this definition. If border management/security agencies are included in this definition it may negatively impact the development of commodities for DHS/CBP and/or international strategic trade and border management/security initiatives between the United States and partner countries (e.g., Export Control and Related Border Security (“EXBS”) Program² and DHS/CBP International Initiatives³). For example, manufacturers may be reluctant to develop emerging technologies or provide equipment for DHS/CBP as it may impact export jurisdiction and classification and, therefore, the ability to effectively market these non-critical items outside the United States.

UTC requests that the DDTC clarify whether or not border management/security agencies are intended to be captured by the new definition of military end user in the Note to Category XII.

2. Note to Category XII - Contemporaneous Documentation

The new, local definition of military end user requires manufacturers to prove an item was not developed for a military end user through contemporaneous documentation. As stated in the Proposed Rule, if contemporaneous documentation cannot support design intent, then use by a military end user establishes that an item is specially designed for a military end user. The Proposed Rule does not state that, in the absence of contemporaneous documentation, use by a commercial/civil end user establishes that an item is not specially designed for a military end user.

As legacy products may have limited or no contemporaneous documentation related to design intent, UTC recommends that the DDTC reconsider the absence of contemporaneous documentation and use by a military end user as substantive proof of a manufacture’s design intent. Instead, UTC recommends that, in the absence of contemporaneous documentation, the DDTC allow industry to consider all end-users in determining design intent. For example, if a commodity is used *only* by a military end user, the commodity should be considered specially

² Please see the following site for the U.S. Department of State’s EXBS Program: <http://www.state.gov/strategictrade/>.

³ Please see the following site for the DHS/CBP international initiatives: <http://www.cbp.gov/border-security/international-initiatives>.

designed for a military end user. If a commodity is used by only commercial/civil end users or both commercial/civil and military end users, the commodity should not be considered specially designed for a military end user.

UTC also notes that the Note to Category XII does not define what types of contemporaneous documentation satisfy this requirement. UTC recommends that the DDTC modify the new Note to Category XII to explain that contemporaneous documents may include concept design information, marketing plans, declaration in patent applications, or contracts. This revision is consistent with Note 1 to §120.41(b)(4) and (5).

II. Department of Defense Funding and Related USML Controls

The Proposed Rule will control developmental lasers or laser systems (Category XII(b)(7)) and electro-optical, infrared or terahertz systems (Category XII(c)(9)), when those items are funded by Department of Defense (“DOD”) contracts or other funding authorization. The fact that DOD funds are used for development of these items is not alone indicative of a critical military advantage. As such, UTC believes the proposed controls are inconsistent with the DDTC’s stated principle to control only those items that provide a critical military advantage.

The Proposed Rule, in Note 1 to paragraph (b)(7) and Note 1 to paragraph (c)(9), does release these items from USML control if the DOD contract or other funding authorization indicates that they are being developed for both civil and military applications. While this release is appropriate, UTC does not believe that it is sufficient.

As the contracting process is often complex and time-constrained, industry proposed changes to contracting and/or funding authorization documents, such as language indicating that an item is being developed for both civil and military applications, is not always deemed substantive and, therefore, not always included. Under the Proposed Rule, failure to have this language included within the DOD contract and/or funding authorization will subject items designed for both civil and military applications to USML control.

To avoid the unnecessary control of items that do not provide a critical military advantage, UTC recommends the following:

- Modify section (c) of Note 1 to paragraph (b)(7) and section (c) of Note 1 to paragraph (c)(9) to allow U.S. manufacturer use of additional contemporaneous documentation that may not be part of the official contract (e.g., e-mail correspondence between DOD contracting officer and the manufacturer, concept design information, marketing plans, and declaration in patent applications) to establish design intent; or
- Add section (d) to Note 1 to paragraph (b)(7) to release lasers and laser systems, and section (d) to Note 1 to paragraph (c)(9) to release electro-optical, infrared or terahertz systems, that would be released under ITAR §120.41(b)(4) and (5) (i.e., documentation demonstrating dual use or general purpose intent)

In addition to the recommendations above, UTC also recommends that the DDTC work with the DOD on the implications of Note 1 to paragraph XII(c)(9). Specifically, UTC recommends that the DDTC stress the importance of DOD contracting officers working with U.S. industry to include language regarding systems being developed for both civil and military applications, when applicable, in contracts or other funding authorizations.

UTC believes that these recommendations will ensure that only lasers and laser systems and electro-optical, infrared or terahertz systems providing a critical military advantage will be controlled on the USML.

III. USML Category XII(c) – Night Vision, Infrared, or Terahertz Imaging Systems or End Items

A. Amend or Move USML Category XII(c)(1)

Category XII(c)(1) controls night vision or infrared cameras specially designed for defense articles. DDTC's explanatory language in the Proposed Rule states that a camera, as defined in the Note to paragraph (c)(1), is eligible for paragraph (b) of specially designed in §120.41 because cameras are considered components. UTC agrees that night vision and infrared cameras should be controlled as components; however, the Note to paragraph (c)(1) does not include language stating night vision or infrared cameras should be considered components. Further, the (c)(1) camera controls are enumerated in a section for systems and end items, not components. If adopted as-is, the proposed control language seemingly does not allow manufacturers to use paragraph (b) of specially designed in §120.41 and contradicts DDTC's explanation for modification and control in Category XII(c)(1).

UTC requests that the DDTC move the proposed control to Category XII(e), which controls parts, components, accessories, or attachments. This move is consistent with the structure of Category XII (i.e., controlling components in Category XII(e)). If this recommendation is not accepted, the DDTC should consider amending language in Category XII(c)(1) or the Note to paragraph (c)(1) to clearly state that night vision and infrared cameras are components and eligible for release from the USML through application of ITAR §120.41(b).

B. Amend USML Category XII(c)(4)

Category XII(c)(4)(i)-(ii) captures infrared search and track ("IRST") systems that incorporate or are specially designed to incorporate an infrared focal plane array and imaging camera with a peak response within the wavelength range exceeding 3 microns or greater and maintain positional or angular state of a target through time. This may capture aerial commercial systems used for infrared detection and quantification of hydrocarbon gas leaks (e.g., methane) since imaging the infrared gas absorption can occur within the wavelength range exceeding 3 microns.⁴

⁴ Please see following site for guidebook on gas detection: <http://www.flir.com/ogi/display/?id=67179>. This is directly related to handheld products but highlights why infrared is used for gas detection.

UTC recommends moving XII(c)(4)(i)-(ii) under Category XII(c)(5). If this recommendation is accepted, Category XII(c)(5) will control the systems identified Category XII(c)(4) that provide a critical military advantage while releasing those that do not.

C. Clarify the Term ‘Imaging System’ in USML Category XII(c)(5)

UTC requests that DDTC provide a note to paragraph XII(c)(5) that defines ‘imaging system’ to assist U.S. manufactures with the classification of defense articles that incorporate infrared detectors but may not necessarily use the detectors to capture video or pictures. As an example, UTC manufacturers advanced threat warning systems that detect, prioritize in order of lethality, and characterize laser rangefinders, laser designators and laser beam-riding missile threats. It is not clear to UTC whether this type of system is enumerated in the revised Category XII language or is better suited in another USML category (e.g., Category XI(a)(4)(i)). A local definition for imaging system will clarify and help U.S. manufacturers with accurate export classifications.

D. Amend USML Category XII(c)(5)(iii)

Category XII(c)(5)(iii) proposes to control multispectral imaging systems if they classify or identify military or intelligence targets or characteristics. As military or intelligence targets or characteristics are not defined or limited in scope, the proposed control will likely capture multispectral imaging systems are used for commercial applications, such as precision agriculture, pharmaceutical, plastic recycling, and geological classification.⁵ For example, identification of spectral signatures of elements (e.g., OH, CH, CO, NH) and their combinations could be useful for classifying military or intelligence characteristics like traces of explosives or other materials; however, it is also necessary for the aforementioned commercial applications.

UTC recommends that the DDTC incorporate specially designed criteria into Category XII(c)(5)(iii) so that multispectral imaging systems designed for commercial or dual-use applications are not inadvertently captured.

E. Clarify USML Category XII(c)(5)(vi)

Category XII(c)(5)(vi) will control infrared imaging systems incorporating mechanisms to reduce signature without defining what kind of signature or what level of signature reduction is controlled. As the proposed revision is not limited to systems specially designed to incorporate mechanisms to reduce signature, this entry is even broader than USML paragraph XIII(j)(2). The result of the proposed revision will be an inadvertent control of commercial systems. For example, a commercial infrared imaging system incorporating insulation that provides audible noise reduction or flat black paint to reduce reflections could be captured, as noise reduction and reflection reduction could be considered signature reduction. As a second example, a commercial infrared imaging system incorporating thermal insulation to provide

⁵ Please see the following site for description of hyperspectral imaging, list of key domestic and foreign manufacturers, and commercial applications: <http://www.azom.com/article.aspx?ArticleID=8495>.

internal temperature stabilization that unintentionally results in a thermal signature closer to the background may be controlled, as this could be considered signature reduction.

To avoid capturing commercial infrared imaging systems, UTC requests that the DDTC specifically enumerate what kind of signature and what level of signature reduction is captured in Category XII(c)(5)(vi). Alternatively, UTC recommends that the DDTC incorporate “specially designed” into Category XII(c)(5)(vi).

F. Gimbaled Infrared Systems’ Controls in USML Category XII(c)(5)(viii)

The revised control parameters for gimbaled infrared imaging systems in USML Category XII(c)(5)(viii)(a)-(b) are a significant improvement from the first proposed rule. Gimbaled infrared imaging systems are used to fit a wide range of applications for manned and unmanned systems, providing real-time imagery for ISR, law enforcement, civil search and rescue, aerial firefighting, aerial surveying, infrastructure inspection, pipeline and utility surveillance, mapping, and atmospheric sciences. UTC appreciates that DDTC recognized that not all gimbaled infrared imaging systems are defense articles.

UTC previously commented that the use of root-mean-square (“RMS”) stabilization should not be used as the only military performance discriminator and recommended that controls should be defined by functions that are peculiarly military functions (e.g., laser target designator payloads compatible with laser guided munitions, integration of weapons systems, and implementing counter measures). Additionally, measuring and certifying RMS stabilization may differ from manufacturer to manufacturer and may result in inconsistent jurisdictional analysis by manufacturers and U.S. systems integrators importing foreign-made gimbaled infrared imaging systems.

UTC recognizes why the DDTC proposes to control larger gimbaled infrared imaging systems (e.g., turret with a ball diameter of 15 inches or greater) with lower (better) RMS stability as defense articles. Although this revised language may still capture some commercial or dual use systems, and comparable foreign systems already meet or exceed these performance parameters, UTC believes that the Proposed Rule largely addresses concerns raised in response to the DDTC’s 2015 proposed rule. While the Proposed Rule language will capture some commercial and dual use items, the revisions should allow UTC’s dual-use gimbaled infrared imaging systems smaller than 15 inches and not specially designed for defense articles to transition to the Commerce Control List (“CCL”) without requiring a Commodity Jurisdiction determination. As such, UTC agrees with the revision in the Proposed Rule.

IV. USML Category XII(d)(1)-(3) – Guidance, Navigation and Control Systems

The positive controls developed by the DDTC in Category XII(d)(1)-(3) for guidance, navigation, global navigation satellite system (“GNSS”) receiving equipment, and GNSS anti-jam systems accurately capture defense articles. These entries are consistent with multilateral export control regimes and provide a “bright line” for jurisdiction determination. UTC agrees with this revision in the Proposed Rule.

V. USML Category XII(e) – Parts, Components, Accessories, or Attachments

UTC strongly supports the DDTC's effort to develop a revised, positive list for parts, components, accessories, and attachments in Category XII(e). A positive Category XII(e) specifically enumerates items for control and allows less-sensitive items to transition to the EAR.

A. Positive Changes for Infrared Focal Plane Arrays in USML Category XII(e)(4)

Infrared Focal Plane Arrays ("IRFPAs") can be used for both commercial and military applications and should be controlled on the EAR as a dual use commodity. The new, proposed USML control for IRFPAs is a significant improvement from the control language in the first proposed rule as it will limit USML control of IFRPAs to those that are unique to defense articles. UTC agrees with the revision in the Proposed Rule.

B. Optical Sensor Controls in USML Category XII(e)(12)

Category XII(e)(12) controls optical sensors having a spectral filter specially designed for systems or equipment controlled in Category XI(a)(4) or optical sensor assemblies that provide threat warning or tracking for systems or equipment controlled in Category XI(a)(4). It is not clear why a part or component of a Category XI(a)(4) system is specifically enumerated in Category XII.

UTC recommends that the DDTC relocate this control parameter to Category XI(c) or add a note to Category XI(a)(4) that notifies reviewers that specially designed optical sensors or optical sensor assemblies for systems or equipment in Category XI(a)(4) are controlled in Category XII(e)(12).

C. Positive Changes for Readout Integrated Circuits in USML Category XII(e)(13)

As with IRFPAs, Readout Integrated Circuits ("ROICs") also can be used in and/or for commercial and military applications, and should be controlled on the EAR as a dual use commodity. The new proposed USML control for ROICs is another significant improvement as it will limit USML control of ROICs to those that are specially designed for defense articles. UTC agrees with the revisions in the Proposed Rule.

D. Potential Duplicative Control Parameter in USML Category XII(e)(18)

Category XII(e)(18) controls drive, control, signal, or image processing electronics specially designed for defense articles controlled in Category XII. These functions are typically processed on populated circuit card assemblies ("CCAs"). Printed circuit boards ("PCBs") and populated CCAs that are specially designed for defense articles are enumerated in Category XI(c)(2). The result may be that populated CCAs specially designed for defense articles in Category XII may be captured by two separate paragraphs within the USML (i.e., XI(c)(2) and XII(e)(18)).

UTC requests that the DDTC clarify whether or not populated CCAs related to drive, control, signal, or image processing and specially designed for defense articles in Category XII should be controlled in Category XII(e)(18) or Category XI(c)(2).

VI. USML Category XII Effectivity Date

For past updates to the USML categories, the DDTC has provided a 180-day transition period between the publication of the final rule for each revised USML category and the effective date of the transition to the CCL for items that will undergo a change in export jurisdiction. This period is to allow U.S. license holders time to review their current authorizations and prepare for the transition to the new ECCNs. UTC recommends that for USML Category XII, DDTC provide a 365-day transition period.

The existing USML Category XII has five commodity paragraphs and one technical data paragraph. The proposed USML Category XII still has only five commodity paragraphs, but there are now eighty-one subparagraphs. UTC's experience of the last three years of ECR is the number and magnitude of tasks required to fully transition a USML Category is significantly greater than just the review of authorizations. Prior to reviewing the authorization, all commodities and their associated technical data must be reviewed for proper classification. For example, parts and components specifically designed or modified for items in the existing Category XII had only one paragraph – Category XII(e). The proposed rule will have twenty-three subparagraphs (XII(e)(1)-(e)(23)). Regardless of any scope change, items will require review, re-classification, and re-identification. Prior to any re-classification effort, reviewers will require training, and that will require updates to engineering and business process documentation and training material. IT systems will have to be updated to accommodate longer entries (e.g., a USML XII(c) entry may now become XII(c)(5)(viii)). Lastly, a longer period will allow industry to submit and receive back Commodity Jurisdiction requests.

* * *

For additional information, please contact the undersigned at (202) 336-7467, peter.jordan@utc.com, or Michael Wetzel at (609) 333-8331, michael.wetzel@utas.utc.com.

Sincerely,



Peter S. Jordan
Director, Senior International Trade Counsel
United Technologies Corporation



Office of the Vice Chancellor
for Research and Graduate Education
UNIVERSITY OF WISCONSIN-MADISON

April 4, 2016

Office of Defense Trade Controls Policy
Department of State
Washington, DC
By email to DDTCTPublicComments@state.gov

RE: ITAR Amendment--Category XII Second Proposed

Dear Sirs/Madams:

Please accept the following comments from the University of Wisconsin-Madison (UW-Madison) in response to the Department of State Proposed Rule for Revisions to *ITAR-Categories XII*. As one of the largest public research institutions in the United States, with approximately a billion dollars in annual research expenditures, a broad research portfolio, a strong international presence, and a large number of international students, staff and visitors, UW-Madison believes it is critical that export control laws strike an appropriate balance between the free interchange of scholarly information and the advancement of science, and the protection of national security and economic competitiveness. We appreciate and support the efforts of the Departments of State and Commerce to reform the export control rules, and there have been a number of positive outcomes from this process. However, it is important that this progress continue, and UW-Madison is concerned that certain provisions in the above-referenced proposed rules represent a reversal of the overall positive trend of export control reform.

Please allow us to identify the items in the above-referenced proposed rules that are of most concern.

General Comments

- 1) We appreciate the additional clarity these proposed regulations provide compared to the rule proposed in 2015 for Category XII. However, there are still some areas of concern as noted below.
- 2) The inclusion of the phrase “specially designed for a military end user” helps address concerns regarding off-the-shelf (commercial) items used with controlled articles. However, there are many situations when off-the-shelf items do not meet the specifications required for scientific instrumentation developed at universities. To meet these specifications, custom-made items need to be developed for use with controlled articles for civilian end uses. Therefore, we would recommend that the use of “specially designed for a military end user” be extended to ensure that custom-made items used in conjunction with controlled articles for civilian end uses are not ITAR controlled.
- 3) This revision of Category XII contains the phrases “specially designed for articles in this subchapter” and “specially designed for articles in this category”. We feel these phrases are overly broad, may be confusing when applied to academic instrumentation, and will “catch” many items designed for civilian use. However, there will be no contingency to “release” items as currently written. Therefore, we would recommend that these statements be replaced with “specially designed for a military end user” throughout Category XII.
- 4) Moving parts and components from Category XII (a)-(d) to XII (e) helps eliminate confusion found in the previous version.
- 5) We would recommend adding a definition for “military end use” to this category.

University of Wisconsin – Madison
Comments to Proposed ITAR Category XII

Comments on ITAR XII (b)(6)

The inclusion of the phrase “specially designed for a military end user” removes the concern that meteorological LiDARs could be controlled under Category XII.

Comments on ITAR XII (b)(7), (c)(9), (d)(6) and (e)(23)

These four subparagraphs state that any equipment developed under Department of Defense (DOD) funding are controlled under Category XII (except as noted in the applicable Notes).

- 1) This presumes that all items funded by the DOD under this category are for military end use. This seems overly broad and dismisses the possibility that an item funded by the DOD could be dual use or even EAR99.
- 2) These subparagraphs do not address dual funding for projects at universities. There are circumstances when a researcher receives award money from multiple funding sources (such as the DOD, U.S. Geological Survey, National Science Foundation and Department of Energy) to conduct portions of the same research. Although the notes for (b)(7), (c)(9), (d)(6) and (e)(23) attempt to address this by stating “This paragraph does not control {items}.... (c) identified in the relevant Department of Defense contract or other funding authorization as being developed for both civil and military applications”, many awards to universities do not identify whether the items subject to the award are being developed for civilian or military applications or both. This can create confusion at universities in determining whether a particular line of research funded by DOD and a non-military funding source (such as NSF) is controlled under ITAR or not.

If not clarified, the proposed wording of these subparagraphs will negatively impact research conducted at universities. Lasers, electro-optical/infrared systems, navigation systems, optics, imaging electronics and other parts/components not developed for a military end use should not be controlled under ITAR, even if their development was funded by the Department of Defense.

Request for Wording Changes to ITAR XII (b)(7), (c)(9), (d)(6) and (e)(23)

We recommend that the phrase “.... funded by the Department of Defense....” be replaced in each of these subparagraphs by “....specially designed for a military end use.”

Comments on ITAR XII (e)(14)

There are circumstances where IRFPAs controlled under Category XII are used for scientific/research purposes, such as in astronomical telescopes. In this case, the dewar and cooling system may be commercial off-the-shelf items or specially designed for use with this IRFPA. Regardless, their end use is definitively non-military. Controlling a dewar and cooling system specially designed for use with an IRFPA within an astronomical telescope would not appear to serve any national security interests. Also, in the case where the dewar and cooling system are specially designed, one could state that they are specially designed for use in a specific telescope rather than specially designed for use with an IRFPA, and, therefore, should not be controlled under Category XII.

Request for Wording Changes to ITAR XII (e)(14)

We recommend replacing “specially designed for articles in this subchapter other than Category XV, and specially designed parts and components therefore;” with “specially designed for a military end use” in this subparagraph to clarify this concern.

Comments on ITAR XII (e)(14)

The phrase “....specially designed for articles in this subchapter other than Category XV....” is unclear. Does this mean that IDCAs specially designed for articles under Category XV are not controlled under the USML or that they are controlled under Category XV (or elsewhere)?

University of Wisconsin – Madison
Comments to Proposed ITAR Category XII

Request for note to be added to ITAR XII (e)(14)

We recommend that either:

- A note be added to address whether IDCAs specially designed for articles in Category XV are controlled under Category XV, elsewhere in the USML or the applicable ECCN under the EAR, or
- The phrase be changed to “specially designed for a military end use” as noted for the previous comment.

Comments on ITAR XII (e)(17)

The phrase “...specially designed for articles controlled in this category” is very useful in removing Category XII control from off-the-shelf optics used in conjunction with an IRFPA. However, in many scientific applications these optics, treatments and coatings will be specially designed and produced for use with the controlled IRFPA. These can be very specialized components made by only a few vendors worldwide.

For example, an infrared telescope is a very complex instrument that can utilize multiple lenses, mirrors, beam splitters, filters, gratings, etalons, coatings and treatments. Each one of these items has a specific purpose in the optical chain of the telescope and must be built to very specific requirements. This may require that an academic institution utilize multiple vendors to create the lenses, mirrors and beam splitters, other vendors for the gratings and filters, and other vendors yet for the coatings and treatments. In some instances, these components are designed by the academic institution, vendor or a collaboration of the two. Also, these vendors may be domestic or foreign.

This subparagraph would require that academic institutions making non-military, scientific instrumentation (such as an infrared telescope) get export licenses to share the technology (design) of these optics with foreign vendors or potentially domestic vendors using foreign staff. This could add a significant burden to the management of information regarding these optics and potentially limit the institution’s ability to procure optics from a foreign vendor with no derived benefit to national security.

Comments on ITAR XII (e)(18)

In similar fashion to proposed Category XII (e)(17), “... specially designed for articles controlled in this category” is very useful in removing Category XII control from off-the-shelf electronics used in conjunction with an IRFPA, but would maintain control over electronics that were specially designed for use with an ITAR controlled IRFPA. It is very likely the control, signal and image processing electronics and software used with an IRFPA in a scientific instrument (such as an infrared telescope) will be specially designed for that application, thus requiring control under Category XII (e).

Comments on ITAR XII (e)(17) and (e)(18)

If one combines the impact of proposed Categories XII (e)(17) and (e)(18) for an infrared telescope using an IRFPA as its detector, the entire image chain of the telescope could be controlled under ITAR XII (e) from the first lens through which the infrared radiation passes to the entire signal processing chain used to create the usable IR images. We do not believe that this is the intent of these two subparagraphs, nor do we see any national security benefit from these two subparagraphs when applied to non-military end uses. Also, the licensing requirements for a complex telescope could create a huge burden to the developer of that instrument when one considers that: (a) many of these instruments are located internationally, (b) many of the parts may be sourced from international vendors, (c) development is likely over multiple years, and (d) different subsystems (optics, dewar/cooling, signal processing and image processing) would be developed at different times in the project. Therefore, multiple licenses would need to be submitted to address the various controlled subsystems.

University of Wisconsin – Madison
Comments to Proposed ITAR Category XII

It can be difficult to find a company to make custom optical elements for such a scientific device when considering process capabilities (of the company to make a specific element), quality considerations, overall cost and delivery schedules. In some instances, the best candidate may be a foreign vendor. An export license would be required to export the design specification as technical data for the manufacture of these components and would increase Agency and project workload, solely because these elements are to be used with an IRFPA.

Also, domestic vendors that produce such optical elements may need to review their staffing to determine whether a license is required for any foreign persons working within their facility. Alternatively, they may decide that they will not supply optics for equipment that contains ITAR components due to the overhead costs in supporting that activity. Any of these scenarios could compromise a research organization's ability to procure high quality optical elements. This issue also would increase the regulatory burden on the research project, vendor and Agency with no likely national security benefit.

Request for Wording Changes to ITAR XII (e)(17) and (e)(18)

We recommend replacing “specially designed for articles controlled in this category” with “specially designed for a military end use” in these subparagraphs to clarify this concern.

Recommendation for Additional Wording to ITAR XII (e)

Because the concerns in XII (e)(14), (17) and (18) are similar, we would recommend changing the first sentence in XII (e) from “Parts, components, accessories, or attachments, as follows:” to “Parts, components, accessories, or attachments, specially designed for a military end use, as follows:”. This would address our concerns regarding “specially designed” items when used for civilian applications throughout XII (e) and allow the authors to remove the redundant text found in a number of these subparagraphs.

Comments on Note to Category XII

The note at the end of the proposed rules makes a strong attempt to define when an item is specially designed for a military end use/user.

- 1) However, the design intent of a potentially controlled item may be unclear to the purchaser of that item, particularly when the item is being used in non-military instrumentation. Therefore in the situation when the supplier is not forthcoming with the design intent of the item, it may be very difficult for the purchaser to determine whether the item was specially designed for a military end use, specially designed for a non-military end use or dual use.
- 2) The phrase “... any person or entity whose actions or functions are intended to support military end uses” is very broad and could lead to significant misinterpretation. This could be read to include contractors and suppliers to military end users as well as universities that provide research, analysis, design and development services. We do not consider persons or entities that support military end users to be military end users themselves (support and end use are mutually exclusive roles). Therefore, we recommend removing this phrase.
- 3) It may be extremely difficult to find “documents contemporaneous with the development” of an item that could be controlled under Category XII. The definition of contemporaneous is “existing or occurring in the same period of time”. This would indicate that the documentation needed to determine whether an item was developed for civilian or military end use would need to have been created at the time the item was developed. Although this may be appropriate for items developed within the last few years, universities may need to purchase parts, components and instruments that were developed decades earlier. In these instances, it is unlikely that such contemporaneous documentation exists or that the original developer will provide it to a purchaser. This requirement would place these items (that may have been developed for civilian use) under ITAR control because a purchaser cannot provide documentation contemporaneous with the development of the item.

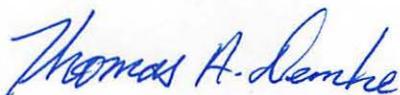
University of Wisconsin – Madison
Comments to Proposed ITAR Category XII

Request for Wording Changes to Note to Category XII

We recommend that the proposed text for Note to Category XII be changed to: “For purposes of determining whether an item (i.e., system, end item, part, component, accessory, attachment, or software) is specially designed for a military end user, a “military end user” means the national armed services (army, navy, marine, air force, coast guard), national guard, national police, or government intelligence or reconnaissance organizations. A system or end item is not specially designed for a military end user if the item was developed with knowledge that it is or would be for use by both military end users and non-military end users, or if the item was or is being developed with no knowledge for use by a particular end user. In such instances, that knowledge must be documented.”

The University of Wisconsin-Madison appreciates the opportunity to provide the Department of State with the above comments on the revisions to *ITAR-Category XII*. Please consider our comments in conjunction with the comments from other universities and university organizations.

Sincerely,



Thomas A. Demke
Export Control Officer



Dan Uhlrich
Associate Vice Chancellor for Research Policy