



January 28, 2013

Ms. Candace Goforth  
Director, Office of Defense Trade Controls Policy  
Directorate of Defense Trade Controls  
U.S. Department of State  
2201 C Street, NW  
Washington, DC 20520

VIA EMAIL: DDTCResponseTeam@state.gov

**Re: Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XI and Definition for “Equipment” (Federal Register Docket ID. 2012–28477, RIN 1400–AD25)**

Dear Ms. Goforth:

IPC — Association Connecting Electronics Industries® has a long history of cooperation with, and support of, the agencies that develop and implement national security policy. In this vein, IPC has offered its views to the Department of State regarding previously released U.S. Munitions List (USML) category revisions, and it now welcomes the opportunity to comment on proposed revisions to Category XI (Military Electronics).

IPC commends the State Department for its proposed approach to controlling printed circuit boards (PCBs) in the above referenced rulemaking. IPC believes this approach is a significant improvement over the current regulations. IPC specifically supports the State Department’s decision to enumerate PCBs on the USML, along with the level and scope of controls that the draft rule would establish for PCBs in defense electronics. IPC wholeheartedly agrees with the State Department on the need to control, under ITAR, PCBs necessary for ITAR-controlled defense electronics, as PCBs and their design files contain valuable information about the workings of defense electronics for which they are uniquely designed. In order to fully protect defense electronics and the defense articles into which they are integrated, PCBs must be controlled in the same manner as the defense electronics for which they are designed.

IPC, however, is concerned that the rule’s use of “specially designed” as the principal means of controlling PCBs will perpetuate the pervasive defense industry confusion about ITAR’s treatment of PCBs. This confusion will result in the continued unlicensed sourcing of PCBs for defense electronics. IPC believes that this industry confusion stems from the mistaken, but commonly held, view that PCBs are commercial-off-the-shelf components. PCBs, in fact, are always custom designed for the electronics into which they are incorporated. The draft rule’s use of “specially designed” to control PCBs may be interpreted by some in the defense supply

chain to indicate that both specially designed and non-specially designed PCBs exist. In addition, the use of “specially designed” unnecessarily requires manufacturers to make judgments about the applicability of the term’s catch-and-release paragraphs when only one of the elements of the definition of specially designed is applicable to PCBs. The use of “specially designed,” in short, undermines the very clarity that the State Department sought to instill through the enumeration of PCBs on the USML.

IPC urges the State Department to enhance the clarity of ITAR controls on PCBs consistent with the principle that, in determining their ITAR applicability, PCBs generally should follow the electronics for which they are designed. Specifically, IPC recommends that the State Department modify paragraph (c)(2) to explicitly control PCBs, “which, as a result of development, are necessary for defense electronics to function as designed.” Consistent with the State Department’s proposed rule, IPC’s recommended language merely integrates the lone definitional element of “specially designed” that generally applies to PCBs. In addition, IPC believes the State Department should note in its preamble to the final rule that it regards all printed circuit boards uniquely designed for their end function. Clarifying this point will help dispel the false notion of the existence of commercial-off-the-shelf PCBs. Finally, the State Department should clarify that design and digital instructions for printed circuit boards constitute technical data under paragraph (d) of the proposed rule.

## **II. About IPC**

IPC is a U.S.-headquartered global trade association, representing all facets of the electronic interconnect industry, including printed board design, manufacturing and assembly. IPC has more than 3,300 member companies of which 1,900 members are located in the United States. IPC is the definitive authority on standards used by the global electronics industry and is the leading source for training, market research, public policy advocacy and other programs to meet the needs of an estimated \$2.02 trillion global electronics industry.

## **III. Clear Controls on PCBs are Imperative to National Security**

In previous comments to other proposed USML category revisions, IPC has urged the Department of State to establish clear and appropriate controls on PCBs and PCB designs for ITAR items. PCBs are currently regulated in Category XI(c) of the USML as, “[c]omponents, parts ... specifically designed or modified for use with the equipment,” in Category XI(a) and (b), i.e. military electronics. However, PCBs for ITAR items are often sourced from non-ITAR facilities without necessary export licenses because many in the defense manufacturing supply chain are unaware that every PCB is custom designed for the electronic item into which it is incorporated. Because PCBs are not enumerated on the USML, understanding their regulatory status requires an understanding of both ITAR and the unique nature of PCBs.

Each printed circuit board is uniquely designed for the specific function of the electronic item in which it is incorporated; each contains a roadmap for the operation of that item. The manufacture of the printed board requires access to and use of extensive design information for the PCB as well as its electronic components, including embedded antennas, microchips, and other

components. Access to this data exposes a significant portion of the intellectual property of both the printed board and the item for which it is uniquely designed.

As an example of the significant information contained in printed circuit boards, consider the Joint Counter Radio-Controlled Improvised Explosive Device (“RCIED”) Electronic Warfare (“JCREW”). JCREW jammer systems are used to prevent remote detonation of improvised explosive devices (IEDs). These systems are high-power, modular, programmable, multiband radio frequency jammers that deny enemy use of selected portions of the radio frequency spectrum. Three printed circuit boards help determine the frequency and range capability of JCREW systems. Access to these PCBs and their designs could lead to an understanding of the system architecture and how to circumvent the jammers. Protection of these printed circuit boards and their designs are critical to the functioning of the JCREW and the welfare of our troops.

This example, as well as others that IPC provided in its Category VIII comments (attached), reaffirm the need for strong and clear export controls on PCBs and their designs for ITAR-controlled defense electronics. The sourcing of PCBs for ITAR electronics from non-ITAR facilities, exposes U.S. military electronics to possible sabotage and reverse engineering, undermining U.S. military supremacy. In order to fully protect defense electronics under ITAR, PCBs must be controlled in the same manner as the defense electronics for which they are designed.

#### **IV. Proposed Rule**

##### **A. Printed Circuit Boards**

IPC commends the State Department for its thoughtful and greatly improved approach to the regulation of PCBs in paragraph (c)(2) of the proposed rule for Category XI:

*“Printed circuit boards or patterned multichip modules for which the layout is ‘specially designed’ for defense articles in this subchapter.”*

Given the history of industry confusion about ITAR’s treatment of PCBs, IPC agrees with the State Department’s decision to enumerate PCBs on the USML. The explicit enumeration of PCBs is the most effective and appropriate method of clarifying the regulation of PCBs and reducing the widespread confusion that has led to the unlicensed sharing of PCB design data with non-ITAR facilities. Moreover, the enumeration of printed boards is consistent with the State Department’s own stated goal of establishing a “positive control list” to more clearly delineate between ITAR and non-ITAR covered items.

More broadly, IPC strongly supports, in concept, the export controls on PCBs that paragraph (c)(2) would put in place. This support is based upon IPC’s understanding that paragraph (c)(2) employs “specially designed” in order to narrowly control, under ITAR, PCBs necessary for defense electronics to function as designed. IPC agrees that this level and scope of control are necessary to safeguard defense articles critical to U.S. national security.

However, the rule's use of "specially designed" as the principal means of controlling PCBs will perpetuate confusion about ITAR's treatment of PCBs, resulting in the continued unlicensed sourcing of PCBs for defense electronics. While "specially designed" is a legal term that will be defined on the ITAR, it is likely to be misinterpreted as implying the existence of non-specially designed PCBs, especially given its placement in paragraph (c)(2) as a modifier to PCB layouts. Commercial-off-the-shelf PCBs, of course, do not exist; all PCBs are custom designed. The mistaken belief in non-custom designed PCBs could lead a manufacturer and exporter to disregard the controls on PCBs.

In addition, the use of "specially designed" will require exporters to connect the dots between what is stated in the Category XI and "specially designed" rules, adding confusion to what should be a clear and focused articulation of controls on PCBs. For example, it is IPC's understanding that Paragraph (c)(2) of the Category XI rule does not constitute a "catch-all" paragraph, and therefore, the releases from "specially designed" do not apply to PCBs. While IPC understands this intent, we are concerned that many manufacturers may be confused by this reference and mistakenly consider PCBs to be released from ITAR control under paragraph (b) of the Department's proposed definition for "specially designed."

## **B. Printed Circuit Board Designs**

IPC also understands that the proposed rule controls technical data related to printed boards for covered defense articles under paragraph (d):

*(d) Technical data (see§ 120.10 of this subchapter) and defense services (see§ 120.9 of this subchapter) directly related to the defense articles enumerated in paragraphs (a) through (c) of this category and classified technical data directly related to items controlled in CCL ECCN 9E620 and defense services using the classified technical data. (See§ 125.4 of this subchapter for exemptions.) (MT for technical data and defense services related to articles designated as such.)*

Although not specifically stated, IPC appreciates that paragraph (d) would include the design and digital instructions necessary to manufacture a printed circuit board for an ITAR listed item. IPC supports such ITAR coverage for this highly sensitive information, but we believe the proposed rule does not clearly affirm that digital designs and instructions for PCBs constitute technical data under paragraph (d). Confusion on this point has led to unlicensed sourcing of PCBs for ITAR items from non-ITAR facilities under current law.

## **V. Recommendations**

IPC urges the State Department to take advantage of the opportunity afforded by export control reform to further clarify controls on PCBs consistent with the principle that, in determining their ITAR applicability, PCBs generally should follow the electronics for which they are designed. Accordingly, IPC is proposing alternative language which it believes more clearly expresses this underlying principle. With respect to Category XI, IPC recommends the following:

**1. Modify paragraph (c)(2) to control “Printed circuit boards and patterned multichip modules which, as a result of development, are necessary for defense electronics to function as designed, other than printed circuit boards determined to be subject to the EAR as a result of a commodity jurisdiction determination.”**

Explicitly and clearly enumerating PCBs on the USML is both the most effective means of controlling PCBs and the most consistent with the State Department’s own stated goal of establishing a “positive control list.” For this reason, IPC strongly recommends that the State Department retain PCBs on the USML as an enumerated item and clarify paragraph (c)(2) by replacing the reference to “specially designed” with its applicable definitional elements. Specifically articulating only the definitional elements that apply to PCBs in paragraph (c)(2) will maintain the intended level of control in a clearer and unambiguous manner.

IPC believes that the applicable definitional element for PCBs is paragraph (a)(2) of the proposed definition for “specially designed,” which captures parts and components “necessary for an enumerated defense article to function as designed.” This definitional element should be integrated into the language of Category XI in order to avoid confusion that would certainly result from the use of the complete definition of “specially designed.” The use of “specially designed” would unnecessarily require exporters to independently determine the applicability of paragraphs (a)(1) and (a)(3), and to analyze correctly that paragraph (b) does not apply. In contrast, IPC’s recommended language more clearly describes the PCBs the State Department seeks to control.

IPC also proposes the use of “as a result of development” in order to integrate the design element that the State Department sought to capture through the term “layout.” Included in its definition for “specially designed,” “development” is defined by the State Department as “related to all stages prior to serial production, such as: design, design research, design analyses, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into a product, configuration design, integration design, layouts.” IPC is concerned that the use of “layout” may introduce another layer of complexity on an issue that has already confused industry.

In addition, IPC’s proposed language employs the term “defense electronics” to clearly distinguish between defense electronics and the defense articles into which those electronics are incorporated. IPC believes this language will avoid unintentionally capturing under ITAR PCBs that were developed for dual-use electronics and which are incorporated into ITAR-controlled defense articles.

Finally, IPC includes language exempting PCBs “determined to be subject to the EAR as a result of a commodity jurisdiction determination.” This clause is designed to ensure that Category XI does not unintentionally capture under ITAR PCBs that do not merit ITAR control. Moreover, IPC would support alternative frameworks that would allow exporters to secure timely consideration of PCBs that they believe do not warrant ITAR control.

**2. Clarify in the preamble or a note to the final rule that the State Department regards all PCBs, by the very nature, to be custom designed for their electronics.**

Given the widespread lack of knowledge that all PCBs are custom designed for the electronic items into which they are incorporated, the State Department should take steps to address the underlying confusion that has led to the misapplication of the current law. In addition to providing enumeration of PCBs on the USML, the Department of State is encouraged to provide additional, explicit clarification of the unique nature of PCBs. Exporters and manufacturers must understand that all PCBs are uniquely designed for their relevant electronic products.

**3. Confirm that the design and digital instructions for PCBs constitute technical data under paragraph (d).**

IPC recommends that, in responding to public comments in the final rule, the State Department should clarify that PCB designs and digital instructions are subject to the USML when the electronic item for which the PCB has been designed is enumerated on the USML. Such a clarification is necessary given that design information is shared whenever manufacturing data is sent to a manufacturer. Otherwise, manufacturers may assume that export controls do not apply to the manufacture of items not destined for export.

**VI. Conclusion**

IPC supports the State Department's goal of reforming the USML to clearly describe what items the list covers. In this vein, IPC endorses the State Department's decision to enumerate printed circuit boards in Category XI, but expresses concern that the use of "specially designed" in controlling printed boards could undermine the State Department's efforts to draw a bright line between what is and is not controlled. IPC recommends that the State Department clarify controls on PCBs by modifying paragraph (c)(2) of the rule to clearly enumerate PCBs "which, as a result of development, are necessary for defense electronics to function as designed..."

Thank you again for the opportunity to comment on the proposed amendments to USML Category XI. If IPC can offer additional information or assistance, please contact Fern Abrams at [FernAbrams@ipc.org](mailto:FernAbrams@ipc.org) or (703) 522-0225.

Sincerely,



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Director, Government Relations and Environmental Policy