Association Connecting Electronics Industries

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September 13, 2011

Regulatory Policy Division
Bureau of Industry and Security
Room 2099B
U.S. Department of Commerce
14th St. and Pennsylvania Ave. NW
Washington, DC 20230
RIN 0694–AF17

**Re: Proposed Revisions to the Export Administration Regulations (EAR): Control of Items the President Determines No Longer Warrant Control Under the United States Munitions List (USML). (Federal Register Docket ID. BIS 2011-0015, RIN 0694–AF17)**

IPC — Association Connecting Electronics Industries appreciates the opportunity to comment on proposed revisions to Export Administration Regulations (EAR) as detailed by the Department of Commerce's federal register notice.

As the global trade association representing all facets of the electronic interconnect industry, IPC wholeheartedly supports efforts to modernize and streamline export control regulations on U.S. goods and services. However, we are concerned that the changes this rulemaking proposes could further undermine the nation's security by unintentionally spurring the release of critical technology vital for the manufacture of printed circuit boards in military equipment. IPC estimates that roughly one-third of printed circuit boards (hereafter printed boards) used for military or defense use are made outside the United States. To better protect national security, IPC has urged the U.S. State Department to bring into conformity the spirit and letter of the law by explicitly requiring the control of printed boards, printed board designs, and associated technical data. (See IPC's comments to the State Department in Appendix A.)

The proposed rulemaking released by the Department of Commerce could exacerbate IPC's concerns by implementing an ambiguous definition of "specially designed" that facilitates the migration of sensitive technologies to the jurisdiction of the EAR and allows for their inappropriate commercial export licensing. Moreover, IPC worries that this definition of "specially designed" will be adopted by the State Department in the context of the USML given President Barack Obama's stated goal of harmonizing the structure and terms of the two export control lists in advance of their eventual consolidation. Accordingly, we urge the Department of Commerce, in finalizing this rule, to coordinate with the State Department on a definition for "specially designed" that ensures the control of printed boards, printed board designs, and associated technical data from International Traffic in Arms Regulations (ITAR) compliant facilities in all technologies related to national security.

Printed boards are essential to a significant number of defense applications, are specifically designed, and are responsible for the specific function of the electronics in each

controlled item. Printed boards, therefore, never constitute generic parts or components that can be secured commercially off the shelf. Their very design reveals critical information about the devices in which they are incorporated. Better government regulation of printed boards specifically designed for items controlled by U.S. export controls, in short, will improve national security by ensuring control of an inherently sensitive element of any military technology and preventing their release to foreign adversaries. Our comments detail our concerns and offer suggestions for clarifying export controls to clearly regulate printed boards and printed board designs in controlled items.

**About IPC – Association Connecting Electronics Industries**

IPC, a U.S. headquartered global trade association, represents all facets of the electronic interconnect industry, including design, printed board manufacturing and printed board assembly. Printed boards and printed board assemblies are used in a variety of electronic devices such as unmanned vehicles, communications equipment, and missile defense systems. IPC is the definitive authority on standards used by the global electronics industry. IPC has more than 3,000 member companies of which 1,900 members are located in the U.S. As a member-driven organization and leading source for industry standards, training, market research and public policy advocacy, IPC supports programs to meet the needs of an estimated $1.7 trillion global electronics industry.

IPC is well qualified to provide comments on and suggestions for the proposed changes to U.S export controls. Many IPC members supply electronics to the military and are experienced using ITAR and EAR as part of their daily business. IPC's standards, specifications, and guidelines developed for printed boards have replaced several U.S. military electronics standards. Nearly all tier-one military original equipment manufacturers (OEMs) are IPC members and active participants in IPC's standards development. These same OEMs and their suppliers use IPC standards in the design of defense electronics. IPC and its members developed a *Best Industry Practices for Intellectual Property (IP) Protection in Printed Board Manufacturing*[1] standard that is used by printed board manufacturers to better protect the IP embedded in printed boards manufactured for commercial, industrial, military and other high-reliability markets. IPC's Department of Defense Task Force, comprising senior level executives from leading North American printed board manufacturers and electronics manufacturing services (EMS) companies that supply the Department of Defense (DoD) with products and technology, provides industry expertise to Congress, the DoD, the Department of State and the Department of Commerce.

## I. Specific Comments

IPC is concerned that the rule's proposed definition of "specially designed" does not clarify the regulation of printed boards and printed board designs in controlled items. In fact, the government's definition of "specially designed" at best perpetuates and at worse exacerbates an ongoing ambiguity about the control of printed boards. While the government's definition may

[1] IPC-1071, *Best Industry Practices for Intellectual Property (IP) Protection in Printed Board Manufacturing* (www.ipc.org/1071)

apply well to other forms of technology, it does not appropriately take into account the unique nature of printed boards. As a result, IPC and its member companies fear that government officials and companies working with controlled printed boards will routinely be forced to make arbitrary judgments about the control of printed boards. Specifically, IPC has two main concerns about the Department of Commerce's proposed rule:

1) The government's proposed definitions for "specially designed" and "component" fail to acknowledge the unique nature of printed boards and, therefore, will not lead to prudent controls of printed boards.
2) The proposed definition of "specially designed" does not meet the government's intent to positively and clearly list items of control.

A consequence of ambiguous rules for printed boards could result in a U.S. adversary gaining access to printed boards during manufacturing and sabotaging defense systems. Embedded within each printed board is a roadmap for the function of the controlled item for which it is specifically designed. Consequently, printed boards can be reverse engineered by adversaries. In short, non-friendly nations could use the printed board designs to militarize commercial items. Clear rules controlling printed board designs can assist in addressing serious national security concerns.

**The government's proposed definitions for "specially designed" and "component" fail to acknowledge the unique nature of printed boards and, therefore, will not lead to prudent controls of printed boards.**

The government's proposed definition of "specially designed" is ambiguous and will result in unclear control of printed boards in controlled end-use items. The definition of "specially designed" does not appreciate the design and role of printed boards in electronics. Printed boards are the central nervous systems of all electronics. By definition, printed boards are custom-made and uniquely designed for the specific function of the electronic items in which they are incorporated. There are no generic off-the-shelf replacements for a specifically designed printed board. Printed boards differ from electronic components that can be acquired commercially off-the-shelf. Printed boards are not only specially designed, but they are specifically designed and should be treated and regulated as such.

In particular, IPC is concerned by the government's definition of component, which is incongruent with the role and design of printed boards. As a result, the government's stated goal to protect national security by clearly defining items regulated by U.S. export controls will not be realized because it relies on a definition of "component" that does not recognize the nature of printed boards. In fact, the government's proposed definition of "component" does not even necessarily or clearly encompass printed boards. IPC has long asserted to the government that printed boards are neither components nor parts. Rather, a printed board is a unique item unto itself. It is exclusively designed to hold and connect specific additional components. The design and placement of the parts which constitute a printed board are dictated precisely by the nature and type of electronic components to be mounted on the board, which are in turn dictated by the specifications of the product into which the printed board assembly is to be incorporated.

The government's attempt to use a one-size-fits-all approach in the proposed definition of "components," we believe, will only create more confusion in the control of printed boards. It appears that the government seeks to regard large tangible items, such as an engine or transmission in an automobile, as major components. In the government's definition, a component is the critical element of the end-item allowing the end-item to operate. However, when applying this similar example to electronics, the size of the critical element determining the function does not come into effect. IPC asserts that a printed board, regardless of size, is a critical element. Without printed boards electronics cease to function.

The government's definitions create confusion because an assembly and component are very different. The government states that "components are also commonly referred to as assemblies. For purposes of this definition an assembly and a component are the same." However, the global electronics industry recognizes a printed board assembly, also called an assembly, as a printed board containing specific electronic components precisely placed within and on the printed board. To compound the confusion, it appears that the government is suggesting that printed board assemblies could constitute a major component and printed boards constitute a minor component. However, the government also proposes to define the term "subassembly" as "a number of parts or components assembled to perform a specific function or functions within a commodity. One example would be printed boards with components mounted thereon. This definition does not include major subsystems such as those composed of a number of subassemblies." Plainly, the proposed definition of component, assembly, and subassembly are incongruent resulting in unclear control of printed boards.

Within the government's definition of component is the definition of a part. IPC believes that the government's definition of a part would not encompass printed boards. Clearly, a printed board is not similar in any way to the examples provided by the government, such as threaded fasteners (e.g., screws, bolts, nuts, nut plates, studs, inserts), other fasteners (e.g., clips, rivets, pins), common hardware (e.g., washers, spacers, insulators, grommets, bushings), springs and wire.

The incongruence between the government's proposed definition of "specially designed" and the electronics industry's accepted definition of component will cause great confusion. Additionally, when applying the accepted industry standard definition of component to the government's specially designed definition, the control of printed boards will remain ambiguous and national security will continue to be at risk.

**The proposed definition of "specially designed" does not meet the government's intent to positively and clearly list items of control.**

The proposed definition of "specially designed" does not achieve the government's goals to clearly define what is and what is not controlled by U.S. export controls. In attempting to use "specially designed" to control articles and items, the government will create more ambiguity in controlling printed boards and printed board designs in items regulated by U.S. export controls.

In the rulemaking, the Department of Commerce, and by extension the Department of State and the Department of Defense, notes that its intent in creating and applying the new

definition of "specially designed" is not to exert more or less control over existing items. Specifically, the Commerce Department states that "through this proposed definition, if an item is 'specially designed' today, it would continue to be 'specially designed' after adoption of this definition. If it is not 'specially designed' today (meaning prior to adoption of the definition included in this rule), it also should not, except in rare cases, become 'specially designed' after adoption of this definition in a final rule.

Because the future Commerce Munitions List (CML) will include items formerly regulated by ITAR, it is important to take into account the current ITAR rules that unclearly control printed boards in ITAR items. Using the proposed definition of "specially designed" will result in future ambiguous control of printed boards in end-use items in the future CML.

The current ITAR rules controlling printed boards and printed board designs in ITAR items are ambiguous. Theoretically, all printed boards in ITAR items should be regulated by "specifically designed" because all printed boards are custom made to perform a singular function. However, because printed boards are not listed explicitly in ITAR, there is confusion amongst the government and industry about the control of printed board designs in ITAR items. Because printed boards are not listed explicitly in ITAR, appropriate controls may be overlooked. This confusion results in the inappropriate sourcing of ITAR-controlled printed boards to non-ITAR compliant facilities. The sourcing of printed boards to non-ITAR compliant manufacturers circumvents ITAR-compliant manufacturers. The circumventing of U.S. manufacturers that are compliant with ITAR degrades U.S. national security.

## II. Recommendations

**The government should ensure that its definitions take into account the unique nature of printed boards. To achieve this goal, the government should consult industry definitions for terms such as "components."**

IPC, and by extension the electronics industry, considers components as a separate part of a printed board assembly that performs a circuit function, e.g., a resistor, a capacitor, a transistor, etc. Components can be purchased globally from sources such as the Internet or catalogs. The definitions of component and assemblies are listed in IPC-T-50H, *Terms and Definitions for Interconnecting and Packaging Electronic Circuits*, the globally recognized standard for terminology related to electronics and electronic interconnections. (See Appendix B for selected definitions from IPC-T-50H.)

The purpose of a printed board is to connect a variety of active components (such as microchips and transistors) and passive components (such as capacitors and fuses) on and within a common base so as to control a system. A printed board is used to mechanically support and electrically connect electronic components using conductive pathways, or traces, etched from copper sheets laminated onto a non-conductive substrate. A typical printed board consists of conductive printed wires attached to a rigid, insulating sheet of glass-fiber-reinforced polymer, or board. The insulating board is often called the substrate. When the substrate is an un-reinforced film, the printed board is called a flex circuit board. A printed board cannot be disassembled and

continue to function as intended. Each printed board contains any number of components, materials, layers, and pathways exclusive for the system.

**The government should appreciate the nature and role of printed boards in electronics and regulate them accordingly by affirmatively listing them as a controlled item in ITAR and the future CML.**

IPC recommends enumerating printed boards in ITAR to ensure national security. Because a printed board contains vital information about the military electronics for which it is designed, printed boards in military electronics must be carefully regulated. A logical solution to clarify the control of printed boards is to explicitly enumerate printed boards, printed board designs, and associated technical data incorporated in all controlled items in ITAR and the future CML.

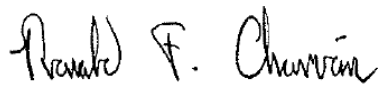
The enumeration of printed boards will clarify the applicability of ITAR or the CML to all printed boards designed for ITAR- or CML-controlled items. It is expected that enumeration of printed boards in ITAR and the CML will increase compliance and improve national security by clearly identifying the requirement to manufacture printed boards for ITAR and CML controlled items at ITAR- and CML-compliant facilities.

**Conclusion**

IPC supports efforts to modernize and streamline export control regulations on U.S. goods and services. However, our nation's security could be placed at risk by unintentionally allowing the release of critical technology vital for the manufacture of printed boards in military equipment. IPC is troubled by the Commerce Department's proposed ambiguous definition of "specially designed" that, if implemented in its current form, could facilitate the inappropriate release of sensitive printed board designs. In order to prevent the release of detailed design elements for controlled items, the government should control printed boards that are specifically designed for controlled items by explicitly enumerating printed boards in ITAR and the CML respectfully. By controlling printed boards specifically designed for controlled items, the government will appropriately identify printed boards that need to be controlled for national security purposes.

IPC appreciates the opportunity to comment on the proposed changes to the U.S. export controls. Please feel free to contact Ron Chamrin, IPC manager of government relations, for additional information or further assistance, at ronchamrin@ipc.org or +1 703-522-3964.

Sincerely,



Ron Chamrin
Manager, Government Relations

## APPENDIX A

**IPC-Association Connecting Electronics Industries Comments, Advance notice of proposed rulemaking: Revisions to the Unites States Munitions List (Federal Register Doc 2010-76935 Public Notice 7257, RIN 1400–AC68), February 8, 2011**

February 8, 2011

PM/DDTC, SA–1, 12th Floor
Directorate of Defense Trade Controls
Office of Defense Trade Controls Policy
ATTN: Positive List
Bureau of Political Military Affairs
U.S. Department of State
Washington, DC 20522–0112

**RE: Advance notice of proposed rulemaking: Revisions to the Unites States Munitions List (Federal Register Doc 2010-76935 Public Notice 7257, RIN 1400–AC68)**

IPC — Association Connecting Electronics Industries® appreciates the opportunity to comment on the Department of State's (State Department) **Advanced notice of proposed rulemaking for Revisions to the United States Munitions List.** IPC supports the State Department's goal of reforming the United States Munitions List (USML) to clearly describe what is subject to the jurisdiction of the International Traffic in Arms Regulations (ITAR), how defense articles are identified by tier, and what current defense articles do not fall within the scope of any of the tiers. Printed circuit boards (hereafter printed boards) are essential to a significant number of defense applications regulated by ITAR and are specifically designed for specific functionality in each USML item. Each printed board contains a roadmap on the operation of the USML item for which it is specifically designed. The State Department should control printed boards in USML items because the information contained within these specifically designed printed boards is unique and extremely valuable. Similarly, printed board assemblies, which are printed boards with specific components precisely placed within and/or on a printed board, are essential to the functioning of military electronics. The State Department should regulate printed boards and printed board assemblies specifically designed for USML items under ITAR.

**About IPC – Association Connecting Electronics Industries**

IPC, a U.S. headquartered global trade association, represents all facets of the electronic interconnect industry, including design, printed board manufacturing and printed board assembly. Printed boards and printed board assemblies are used in a variety of electronic devices such as unmanned vehicles, communications equipment, and missile defense systems. IPC has over 1,700 member companies located in the U.S.

IPC is well qualified to provide comments and suggestions to the proposed changes in the USML. Many IPC members supply electronics to the military and are experienced using the USML and ITAR as part of their daily business. IPC's standards, specifications, and guidelines developed for printed boards have replaced several U.S. military electronics standards. Nearly all tier-one military original equipment manufacturers (OEMs) are IPC members and active

participants in IPC's standards development. These same OEMs and their suppliers use IPC standards in the design of defense electronics. IPC and its members recently developed and released a *Best Industry Practices for Intellectual Property (IP) Protection in Printed Board Manufacturing*[2] standard that will be used by printed board manufacturers to better protect the IP embedded in printed boards manufactured for commercial, industrial, military and other high-reliability markets. IPC's Department of Defense (DoD) Task Force, comprising senior level executives from leading North American printed board manufacturers and electronics manufacturing services (EMS) companies that supply the DoD with products and technology, provides industry expertise to Congress and the DoD Office of Industrial Policy.

## I. Description of Printed Boards and Electronics Assemblies

A printed board is the foundation of all electronics. Printed boards are custom-made and uniquely designed for each individual product. A printed board assembly, also called an assembly, is a printed board containing specific components precisely placed within and on the printed board. Printed boards and printed board assemblies are critical for all electronics from the simplest toy to the most complex satellite. For example, printed board assemblies are vital to an AN/PRC hand held radio, a M1A1 Abrams Tank, the EA-18G Growler, the F-35 Lightning, and a Geosynchronous Orbiting Satellite. Printed boards and assemblies are also essential in commercial items such as an electric screwdriver, a garage door remote, a pace maker, and prosthetic limbs. Without printed boards and printed board assemblies, electronics would not function.

The purpose of a printed board is to connect a variety of active components (such as microchips and transistors) and passive components (such as capacitors and fuses) into a printed board assembly that controls a system. A printed board is used to mechanically support and electrically connect electronic components using conductive pathways, or traces, etched from copper sheets laminated onto a non-conductive substrate. A typical printed board consists of conductive printed wires attached to a rigid, insulating sheet of glass-fiber-reinforced polymer, or board. The insulating board is often called the substrate. When the substrate is an un-reinforced film, the circuit board is called a flex circuit. Each printed board contains any number of components, materials, layers, and pathways exclusive for the system.

Each printed board is specially designed and built to the specifications of the product. The size of a printed board can range from very small, such as a printed board for an accelerometer smaller than a dime, to extremely large, such as flex circuits found in Navy Carriers that are well over 50 feet long. Printed boards can also be a structural element that supports the entire system. A printed board can be manufactured to function in nearly all environments. Unlike components, there is no catalog from which to choose a generic printed board. One cannot acquire a printed board off the shelf because each board is uniquely designed for a specific piece of electronics. It is because of a printed board's unique specific design that a printed board can only be designed and manufactured as a custom product.

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[2] IPC- 1071: Best Industry Practices for Intellectual Property (IP) Protection in Printed Board Manufacturing (www.ipc.org/1071)

## II. Printed Boards and Electronics Assemblies for Defense Use

Specialized printed board and printed board assemblies are essential to the function of this country's superior weaponry. Printed boards and assemblies for defense applications demand the highest manufacturing precision and must meet a wide range of performance requirements. The manufacture of printed boards and assemblies for military electronics relies on a very complex and multifaceted supply chain. Printed boards and assemblies are critical for our nations' military.

Precision and accurate functionality are necessary for printed boards and printed board assemblies for defense use. Complex military systems, such as spaced based radar and radar systems in fighter jets, contain printed boards and electronics assemblies that are critical to the functionality of the military system. Many of the system improvements and upgrades maintaining U.S. military superiority are changes in the electrical, material, and interconnections within the printed board and printed board assembly. In complex and highly technical systems, printed boards provide precise microscopic interconnections integrating complex designs at all dimensions and all physical, electrical, mechanical, and chemical limitations. Exact and accurate manufacture of a printed board and printed board assembly is critical for the successful function of a military item.

Printed boards for military use are highly sophisticated. Fundamental factors for printed boards in defense applications include reliability, ruggedness, speed, density, and frequency. Embedded in military electronics may be a mix of components capable of broadcasting analog and digital signals on a common substrate. This technology creates unique design configurations. Military electronics also utilize new laminate materials with lower dielectric constants and better signal integrity. Increasing complexity of circuitry requires more functionality in less space resulting in incorporating high density interconnect (HDI) technology into DoD specific electronics. The printed boards and technologies required for military use have become very complex.

Electronics companies supplying the military are supported by an extremely complex, multi-layered network of companies and suppliers. Contributors to a final electronics product include designers, material suppliers, printed board manufacturers, EMS companies, and original equipment manufacturers (OEMs). For example, a U.S. Navy Submarine is made up of millions of individual pieces and parts, almost all of which are end products from various manufacturers in the supply chain. A printed board manufacturer provides a specifically designed board to an EMS company that assembles a printed board assembly. This assembly is put into an electronics system that is then incorporated into an air supply station. The electronics system ultimately manages the life sustaining air supply to the entire submarine. Many different companies at numerous levels in the supply chain contribute to a final military electronics product.

## III. Comments

### A. Printed Boards and Printed Board Assemblies for USML Items Should be Regulated Under ITAR

Printed boards in USML items must be regulated under ITAR to ensure that the valuable information designed into printed boards is not released. Printed boards and assemblies are not commodities. The form and function of a printed board can provide critical information about the larger systems of which it is a part. Printed boards in USML items must be regulated under ITAR to ensure that the valuable information found in printed boards is not released.

### B. How to Positively List Printed Boards in the USML

Although the State Department requests specific and detailed characteristics to enable positive USML listing criteria, this is not possible for printed boards. Printed boards for other applications, such as those in sophisticated commercial products, may have the same materials and underlying manufacturing technology as printed boards for USML items. Therefore, it is not possible to describe appropriate controls based on precise descriptions, characteristics or technical parameters.

IPC recommends that all printed boards specifically designed for USML be regulated under ITAR. Every printed board is specifically designed to enable electronics in USML items to function. Embedded within this specific design is a roadmap for the function of the USML item for which it is specifically designed. By controlling printed boards specifically designed for USML items, the State Department will appropriately identify printed boards that need to be controlled for national security purposes.

### C. Clarifying the USML will Improve National Security

Failure to control printed boards could result in a breach of national security. This potential problem was highlighted by the National Research Council's Committee on Manufacturing Trends in Printed Circuit Board Technology report[3] which stated that, "A potential vulnerability of exporting military designs may allow others to gain a technology advantage or to match perceived U.S. advantage."

The USML's lack of clarity has resulted in potential release of critical technology contained in printed boards and assemblies designed for USML items. We have observed an increase in the frequency of requests for proposals containing identical unique printed board design specifications labeled as ITAR and non-ITAR. Critical technology is released when printed boards for an ITAR regulated item are sourced from non-ITAR regulated manufacturers. Clarifying the USML is important to prevent release of ITAR technology, items, and manufacturing instructions.

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[3] Linkages: Manufacturing Trends in Electronics Interconnect Technology, Committee on Manufacturing Trends in Printed Circuit Technology, National Research Council, 2005

A potential future consequence of the lack of clarity provided by the current USML is the possible risk of the unavailability of secure facilities to meet future DoD specific printed board requirements. The sourcing of ITAR printed boards to non-ITAR regulated facilities circumvents domestic printed board manufacturers that are fully compliant with ITAR. Ultimately, the availability of secure manufacturing capacity and capability is significantly diminished. Clearly defining printed boards in the USML is needed to improve national security.

## D. Comments on ITAR Part 121.1 Category XI –Military [and Space] Electronics

IPC is pleased to offer specific comments on the proposed structure within Category XI of the USML. IPC is providing comments solely on Groups A and E, which are relevant to printed boards and printed board assemblies.

### 1. Group A

The proposed definition for Group A is:

*"Equipment, Assemblies, and Components" means any tangible item that falls within the scope of any one of the defined terms in ITAR § 121.8 – i.e., "end-item," "accessory," "attachment," "associated equipment," "component," or "part" – or "commodity," as defined in EAR § 772.1, and is not "test, inspection, or production equipment," as defined for Group B, or "materials," as defined for Group C.*[4]

The State Department should ensure that printed boards and printed board assemblies specifically designed for a USML item are controlled under ITAR in Group A. Printed boards and printed board assemblies are specifically designed for their unique function and are not commodities.

The following example demonstrates how items should be considered for Category XI:

An electronics item may be regulated as a *command and control system*. Printed boards are specifically designed for their function in items in this USML category. Consequently, the printed boards and electronics assemblies specifically designed for this USML military item should be positively identified in the USML in Group A.

### 2. Group E

The proposed definition for Group E is:

[4] RIN 1400-AC68

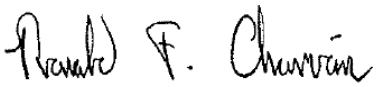
> *"Technology" means, when reviewing items that are or should be on the USML, "technical data" as defined in ITAR § 120.10(a)(1). "Technology" means, when reviewing items that are or should be on the CCL, "technology" as defined in EAR § 772.1. "Technology" does not include any information that falls within the scope of "public domain," as defined in ITAR § 120.11, or is outside the scope of the EAR or "publicly available," as referenced in EAR §§ 734.3(b)(2) and (b)(3), respectively.* [5]

The USML should positively identify technology for printed board designs, data, and directions on the manufacture of printed boards for end-use items regulated by ITAR in Group E. For example, a missile used by the U.S. Air Force contains many printed boards. There is no ambiguity to the intent of this missile, it is clearly a military item. Because printed boards for this missile must be specifically designed, any printed boards and associated designs, data, and assembly directions for printed boards specifically designed for this missile should be listed in the USML. Any data, directions, or designs for integrating the printed board in to the end-use USML controlled item should also be controlled by ITAR.

**Conclusion**

IPC supports the State Department's goal of reforming the USML to clearly describe what is subject to the jurisdiction of ITAR, how defense articles are identified by tier, and what current defense articles do not fall within the scope of any of the tiers. In order to prevent the release of detailed design elements for USML items, the State Department should control printed boards that are specifically designed for USML items. IPC appreciates the opportunity to comment on the advanced proposed changes to the USML. Please feel free to contact Ron Chamrin, IPC manager of government relations for additional information or further assistance at ronchamrin@ipc.org or +1 703-522-3964.

Sincerely,



Ron Chamrin
Manager, Government Relations

[5] RIN 1400-AC68

# APPENDIX B

## Selected Definitions from IPC-T-50H, Terms and Definitions for Interconnecting and Packaging Electronic Circuits, July 2008

**Component 30.0236**
An individual part or combination of parts that, when together, perform a design function(s). (See also ‘‘Discrete Component.’’)

**Discrete Component 30.0392**
A separate part of a printed board assembly that performs a circuit function, e.g., a resistor, a capacitor, a transistor, etc.

**Printed Circuit 60.0912**
A conductive pattern that is composed of printed components, printed wiring, discrete wiring, or a combination thereof, that is formed in a predetermined arrangement on a common base. (This is also a generic term that is used to describe a printed board that is produced by any of a number of techniques.)

**Printed Board 60.1485**
The general term for completely processed printed circuit and printed wiring configurations. (This includes single-sided, double-sided and multilayer boards with rigid, flexible, and rigid-flex base materials.)

**Printed Circuit Board 60.1487**
Printed board that provides both point-to-point connections and printed components in a predetermined arrangement on a common base. (See also ‘‘Printed Wiring Board.’’)

**Printed Circuit Board Assembly 80.0913**
An assembly that uses a printed circuit board for component mounting and interconnecting purposes.

**Printed Board Assembly 80.0911**
The generic term for an assembly that uses a printed board for component mounting and interconnecting purposes.