

February 26, 2021

Mr. Matthew Borman, Acting Assistant Secretary
Bureau of Industry and Security
U.S. Department of Commerce
Room 3886C
1401 Constitution Ave., NW
Washington, DC 20230

Re: Request for BIS to Publish a Request for Comments in a Notification of Inquiry as Part of an Effort to Update and Improve Category 3 of the Commerce Control List and Related EAR Provisions

Dear Mr. Borman:

On behalf of the Semiconductor Industry Association (SIA), I am writing to ask that BIS publish in a Notification of Inquiry a Request for Comments about how Category 3 of the Commerce Control and related provisions in the Export Administration Regulations (EAR) could be updated, corrected, and otherwise refreshed. We realize that most of the entries that are in Category 3 are subject to multilateral controls and cannot be changed without the consensus of the applicable regime. Nonetheless, the requested NOI would be an excellent formal tool for BIS to gather information and commentary from industry the government may not have for it to consider when preparing interagency-cleared submissions to the regimes to update the control lists.

We highlight Category 3 in particular because it includes items that, akin to Moore's Law, evolve and change more quickly than most of the other types of items in the CCL. Also, the control parameters for the items in Category 3 are largely based on specific, quantifiable technical characteristics rather than broad catch-all phrases, which makes the category vulnerable to becoming out of date quickly unless regularly refreshed to reflect new technologies and new national security threats. There has never been an effort to seek comments on the whole category. Given this and how central Category 3 items are to many of the current national security and foreign policy discussions, there is a particular urgency to beginning such an update effort early in the new administration.

The following are a small number of examples of Category 3 items that could potentially benefit from additional industry input and government analysis of updates to improve the purpose of the controls with limited unintended consequences:

- **Compound semiconductors:** The controls on **compound semiconductors** were originally imposed to address concerns regarding their use in space and military applications. Compound semiconductors have, however, become common in terrestrial commercial applications such as 5G telecommunications, photonics for data transmission, and low power applications such as cellphone chargers and voltage regulators. We believe that BIS should work with industry to develop additional parameters to distinguish between compound semiconductors that are important for sensitive military, space, and other applications and those that are now common to widespread commercial applications that are not sensitive – effectively to identify specific parameters to differentiate various applications in which compound semiconductor materials are utilized in today in the commercial market. For example, one approach worthy of industry comment and government analysis would be to make it so that integrated circuits containing

compound semiconductor materials on a silicon (including silicon on insulator (“SOI”)) substrate are not “manufactured from,” “based upon” nor “based on” a “compound semiconductor” for purposes Category 3 controls.

- Radiation-hardened semiconductors:** ECCN 3A001.a.1 contains controls on **semiconductors if they were “designed or rated” to meet specific radiation-hardened characteristics**. When the control was written, such characteristics indicated that the application would likely be for a space, military, or missile application. Given the natural reduction in feature sizes due to the advancement of moores law, many types of integrated circuits that were not originally created for reasons related to such applications could get caught by these controls as they also are inherently radiation resistant due to their small feature size. Thus, we are interested in seeking regulation changes so that export controls be triggered only when there is clear “design intent” for space, military, or missile applications to surpass thresholds.
- Semiconductors with space/military applications:** We are confident that there are more objective ways to address the policy concerns pertaining to military, space, and missile applications without having unintended consequences on benign commercial terrestrial and space applications. (We are assuming that BIS plans to publish the previous administration’s proposed changes to the 9x515 entries. We will provide comments on ECCNs 9A515.d and .e in response to those notices).
- Semiconductors that can withstand extreme temperatures:** ECCN 3A001.a.2 controls certain types of **integrated circuits that can withstand extreme temperatures**. The entry carves out integrated circuits for automotive and railway applications. We believe, however, that there are additional examples of similar commercial applications for such integrated circuits that should be carved out for the same reasons.
- Specially designed software definition:** Although the EAR’s definition of “specially designed” works very well in determining the classification status of parts and components, it is not well suited for use with determining the classification status of software. Indeed, it seems as if the definition’s impact on software was an afterthought when it was drafted. In particular, the category (b) carve-outs in the definition of “specially designed,” and the examples BIS uses to describe them, do not cleanly fit the common ways in which software and software products are created and distributed. This issue has direct relevance to our request to refresh Category 3 because Electronic Design Automation (EDA) described in 3D991 is used in the development of every type of integrated circuit, from memory to logic to application specific integrated circuits. The applications for integrated circuits cross most product types, process technology nodes, and industries. The software is, however, in most cases completely agnostic to the final product. For the sake of preventing unintended over-controls on such EDA software, we recommend that BIS get industry comments on how “specially designed” could be modified to better apply to software and software products without otherwise changing the essence of the definition.
- MMIC Power Amplifiers:** Many companies would like to suggest an update of the 3A001.b.2 controls on MMIC power amplifiers to take into account the upcoming commercial market applications using frequencies greater than 90GHz, which today require a license for a peak saturated power output greater than 0.1 nW (-70 dBm). This is especially important for 5G FR2 frequency bands that operate at up to 52.6GHz. The 3GPP consortium is reviewing frequency spectrum up to 95GHz as part of the FR4 frequency bands for release 18, subject to the FCC

NPRM. Moreover, 3GPP FR4 spectrum preliminarily defined in release 18 extends up to 114.25GHz. These developments should be reflected in the export control parameters to prevent unintended over- and under-controls of such MMICs.

These are but a few of the examples we know of where the purpose of the EAR could be enhanced with an effort to update and refresh Category 3 and related EAR provisions. We appreciate BIS's attention to the matter and stand ready to be a resource as it regularly reviews the effectiveness of the EAR's semiconductor-related provisions in order to implement the policies in the Export Control Reform Act of 2018.

If you have any questions, please do not hesitate to contact me or Erik Pederson at 202-446-1713 or epederson@semiconductors.org.

Sincerely yours,



John Neuffer
President and CEO