

January 10, 2019

Richard Ashooh
Assistant Secretary for Export Administration
Bureau of Industry and Security
Department of Commerce
1401 Constitution Ave, NW
Washington, DC 20230

Assistant Secretary Ashooh:

Thank you for the opportunity to provide input as requested in the advanced notice for proposed rulemaking (ANPRM) BIS 2018-0024. SPIE, the international society for optics and photonics, represents both companies and university, industry and government scientists within the optics and photonics community, representing 650 companies and around 19,000 scientists.

Given the time constraints for this Notice, and the broad set of technology areas of concern, we are confining this response to the process of identification and control of emerging technology in general. However, SPIE represents stakeholders in the following areas covered in the ANPRM: Biotechnology (as it relates to microarray technology, optical labeling, optical probes, and associated laser techniques); Artificial intelligence (AI) and machine learning technology (as it relates to image processing and analysis); Position, Navigation, and Timing (PNT) technology (as it relates to optical clocks and optical communications); Systems-on-Chip (SoC) (as these relate to silicon photonics and integrated optics); Quantum information and sensing technology (related to optical entanglement, faint photonics, optical transduction and optical communications), ; Robotics (as related to optical sensing technologies); and Advanced surveillance technologies. Should specific proposed rules move forward covering one of these areas, SPIE stands ready to engage the relevant stakeholders.

Performance Parameters And Applications

Great strides have been made to maintain clear bright lines and remove ambiguity from the U.S. export control regulatory system in recent years. Therefore, as BIS looks to control items deemed “emerging”, it is important that specific performance parameters be set detailing capabilities of a given technology. These capabilities should be established at a threshold where a specific military application is identified or where a specific national security risk has been identified.

It is critical that controls are not placed too early in the development of a given technology area. Requiring utilization of performance parameters and knowledge of applications will assist in making sure controls are not placed too early in the development of a technology, as the technology must have reached a certain level of maturity in order to assess the capabilities of a given item and the applications for which it can be utilized. Blanket control of a general technology area would have a significant negative affect on the growth of that technology. Furthermore, early or far-reaching controls may undermine the development of commercial applications that could drive substantial economic growth. Government and university researchers need industry partners to drive research into applications for consumers. Companies are unlikely to invest in a technology area where export controls

would be assumed for all developed products. Controls of this nature would therefore drive this investment overseas, a significant economic loss for the United States.

Deemed Export Concerns and Fundamental Research

Many of the technologies listed are being driven forward by foreign researchers in the United States working for both U.S. companies and U.S. universities. Should additional controls prevent these researchers from continuing their work, research in the U.S. will be set back in a highly competitive space. Allowing foreign competition to take the lead in many of the areas listed would pose an economic security risk to the United States. If any additional controls are placed in the technologies listed, BIS should consider grandfathering in non-U.S. citizens who are members of current research teams or expediting deemed export licenses with a delayed enactment date for controls to allow for those licenses to be processed. Bulk processing for deemed export licensing should also be a consideration.

SPIE is very grateful that the fundamental research exemption is specifically mentioned in the Notice as still applying in the context of this process of controlling emerging technology. Maintaining this exemption is critically important to continued basic research in the United States, which is the building blocks necessary for all technology development.

Tracking Emerging Technology Development

The community recognizes that tracking the development of emerging technology in order to identify the moment of appropriate maturity for assessing the need for controls is a very difficult task for the U.S. government. SPIE recommends utilizing the Department of Commerce Technical Advisory Committees, expanding them as necessary, and tasking them with regular benchmark reports on a given set of technology areas in coordination with government officials and other relevant stakeholders. SPIE also recommends direct coordination with OSTP in regards to tracking the development of emerging technology.

Foreign Availability and the Wassenaar Arrangement

As is recognized in the notice, foreign availability of a given technology should be a significant factor when considering additional controls, even if a military application or national security concern can be identified. Many of the technologies listed are being aggressively pursued internationally. If controls on a technology will not prevent proliferation, they should not be applied.

Similarly, it is important that any new controls applied through this process by the U.S. government be accepted by Wassenaar member countries. Unilateral controls are not an affective way to prevent proliferation of technology. Though the legislation establishing the requirement to identify and control emerging technology only specifies that changes to controls be proposed to Wassenaar after implementation, SPIE recommends bringing any proposed changes, when posted in the Federal Register, to Wassenaar in the form of a non-paper to discuss the feasibility of adoption by Wassenaar following U.S. adoption. Input from those discussions should be weighed as part of the process of finalizing the proposed controls in the U.S.

Again thank you for the opportunity to comment to this ANPRM. SPIE looks forward to continuing to work with BIS and the other relevant agencies as the process of identifying and controlling emerging technologies moves forward.

Sincerely,

A handwritten signature in black ink that reads "Kent Rochford". The signature is written in a cursive, slightly slanted style.

Kent Rochford
CEO
SPIE, the international society for
optics and photonics