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November 10, 2014

Mr. Dennis Krepp
Office of National Security and Technology Transfer Controls
Bureau of Industry and Security
U.S. Department of Commerce
14th Street and Pennsylvania Avenue, NW
Washington, DC 20330

Subject: **Revisions to the Export Administration Regulations (EAR): Control of Spacecraft Systems and Related Items the President Determines No Longer Warrant Control Under the United States Munitions List (USML) RIN 0694-AF87**

Reference: **Federal Register/ Vol. 79, No. 92/ Tuesday, May 13, 2014/ Rules and Regulations**

Dear Mr. Krepp,

The Boeing Company ("Boeing") appreciates the opportunity to provide additional comments on the newly-created ECCN 9x515 series of the Commerce Control List ("CCL") covering spacecraft and related items, and the Bureau of Industry and Security's ("BIS") continued engagement with industry during the export control reform process. We reaffirm our commitment to assist BIS and the U.S. Government in the reform process by providing comments to this and other proposed or interim final rules.

Boeing welcomes the movement of most commercial spacecraft and related parts and components to the CCL. This change will enhance U.S. space leadership and competitiveness while still protecting technologies that are critical to national security. After evaluating the Interim Final Rule, Boeing recommends adjustments to provide regulatory clarity and promote consistent interpretations across the space industry.

Comments

1) Clarification relating to satellite processing activities at launch site

Current EAR Text

ECCN 9A515 under List of Items Controlled:

> *Related Controls*: Spacecraft, launch vehicles and related articles that are enumerated in the USML, and technical data (including "software") directly related thereto, and all services (including training) directly related to the integration of any satellite or spacecraft to a launch vehicle, including both planning and onsite support, or furnishing any assistance (including training) in the launch failure analysis or investigation for items in 9A515.a, are "subject to the ITAR." (*underlining added*)

Discussion

When a satellite arrives at the launch site, it is set up, readiness tests are conducted to validate that there has been no damage during transit, and it is fueled. These onsite support activities and associated technology transfer remain EAR controlled because they are not directly related to the integration of the satellite to the launch vehicle. Additional activities also take place at the launch site that are directly related to integration, and they would require ITAR authorization. We believe the language above clearly supports this interpretation. For the sake of consistent understanding across industry and regulatory agencies, we seek confirmation of this position.

2) **Clarification of technology related to transfer orbit operation, deployments, and in-orbit test**

Current EAR Text

EAR Part 772 definition of "production":

> *"Production"*. (General Technology Note) (All Categories)-- Means all production stages, such as: product engineering, manufacture, integration, assembly (mounting), inspection, testing, quality assurance. (*underlining added*)

ECCN 9E515.a:

> a. "Technology" "required" for the "development," "production," installation, repair (including on-orbit anomaly resolution and analysis beyond established procedures), overhaul or refurbishing of commodities controlled by ECCN 9A515 (except 9A515.b, .d, or .e), 9B515, or "software" controlled by 9D515.a.

Discussion

Some activities performed during satellite production in the factory are repeated at the launch site to assure there was no damage during transport and to validate the proper functioning of all systems. Satellite contracts can provide for title transfer at varying points in time, e.g. upon intentional ignition of the launch vehicle, upon shipment to the launch site, or after in-orbit test. As a result, it is unclear whether technology related to transfer orbit operation, deployments, and in-orbit test of a commercial communications satellite is considered "production", by virtue of the underlined text in the "production" definition above, or 'operation' and/or 'maintenance (checking)', which is associated with 'post' production "use"-type technology. BIS specifically excluded 'operation' and 'maintenance (checking)' from 9E515.a. If technology associated with these activities is not controlled by ECCN 9E515.a, it would be classified as EAR 99. In-orbit test, procedures, and data are often identical to the test, procedures, and data performed in the factory. Similarly, on-orbit test procedures can also be operations procedures performed by the customer after hand over. Typical on-orbit test activities verify the satellite is continuing to perform as it did during production testing or is producing acceptable results where the satellite has been reconfigured for on station operations.

Recommendation

Add a ***Note*** to 9E515.a which states that ***Transfer orbit operation, deployments, and in-orbit test of a commercial communications satellite are excluded from 9E515.a***

3) Clarification of source code

Current EAR Text

ECCN 9D515.b:

> b. "Source code" that:
> b.1. Contains the algorithms or control principles (e.g., for clock management), precise orbit determination (e.g., for ephemeris or pseudo range analysis), signal construct (e.g., pseudo-random noise (PRN) antispoofing) "specially designed" for items controlled by ECCN 9A515;
> b.2. Is "specially designed" for the integration, operation, or control of items controlled by ECCN 9A515;
> b.3. Contains algorithms or modules "specially designed" for system, subsystem, component, part, or accessory calibration, manipulation, or control of items controlled by ECCN 9A515;
> b.4. Is "specially designed" for data assemblage, extrapolation, or manipulation of items controlled by ECCN 9A515;

b.5. Contains the algorithms or control laws "specially designed" for attitude, position, or flight control of items controlled in ECCN 9A515; or
b.6. Is "specially designed" for built-in test and diagnostics for items controlled by ECCN 9A515.

Discussion

The text of subparagraph b.2 above overlaps with the descriptions in subparagraphs b.1, b.3, b.4, b.5, and b.6 because attributes of b.2 in relation to integration, operation, and control are found in the other subparagraphs. Overlap is especially true for b.6 because ground test procedures often use the same software as on-orbit operations procedures as discussed above.

Recommendation

Delete subparagraph b.2 because the critical software is already covered by the remaining subparagraphs. Alternatively, narrow the software covered to exclude related activities that are done in both the factory and launch setting.

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 christopher.e.haave@boeing.com.

Sincerely,

Christopher E. Haave
Director, Global Trade Controls