July 5th, 2013

To: Regulatory Policy Division
Bureau of Industry and Standards
U.S. Department of Commerce

Re: Comments on RIN 0694-AF87 "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)"

Sirs,

I am writing in my capacity as President and CEO of Altius Space Machines, Inc., a Louisville, Colorado-based spacecraft robotics startup company, and would like to provide comments on your proposed rule regarding how the EAR will regulate spacecraft systems and related items that are being moved from the US Munitions List to the Department of Commerce.

We would like to start by strongly commending the efforts of the Departments of Commerce, State, and Defense in working together to propose more sensible rules for export control of satellites and space technology in general. As a small aerospace startup that is directly affected by export control, we are very pleased with the proposed action to move many items off of Category XV of the munitions list, and instead have those items controlled under the Department of Commerce's Commerce Control List. We agree with the findings of the Section 1248 Report that changing the export control of spacecraft and related technologies that are not of purely military or intelligence application from the ITAR process to the EAR process will significantly benefit the US aerospace industry, at no real harm to the US national security.

We generally approve of your plan to create a new ECCN category for items moved off of the USML, but I would like to provide two comments—one comment praising the proposed method for handling export control rules with regards to spaceflight participants, and one comment suggesting a slightly modified "reasons for control" classification for the proposed ECCN 9x515 category.

Comment Regarding Export Control Handling of Foreign Spaceflight Participants
In the subsection of the proposed rule titled "New ECCN 9E515", a note was provided discussing the policy of the Departments of Commerce, State, and Defense regarding whether licensing was necessary for spaceflight participants on commercial spaceflight vehicles. The note stated that (my emphasis added via underlining):

> "The appendix to the 1248 Report referred to a possible need to control technology required for passenger participation in space travel (e.g., sub-orbital, orbital, lunar, interplanetary or habitat) for space tourism, research or scientific endeavors, or transportation from one point to another for commercial purposes. The Departments of Defense and State have since reviewed such technology and concluded that <u>it is not per se now subject to USML Category XV. There is thus no proposed inclusion of such technology as a general matter in either the proposed USML Category XV or the proposed 9E515.</u> To the extent other technology described in either the proposed USML XV or 9E515 would be released to a foreign person during such activities, then it would be controlled according to the requirements of the relevant paragraph."

Our understanding of this note is that mere participation in a spaceflight by a foreign national would thus not constitute an export, and would thus not require an export license from either the US State Department or from the Department of Commerce. If this understanding is correct, we would like to applaud and commend this common-sense decision on the part of the Departments. We are still concerned by the retention of manned spacecraft on the USML Category XV in proposed paragraph (a)(11), but we will provide comments separately to the State Department's proposed USML Category XV Revision to that effect. As far as this proposed rule goes, Altius is very pleased with how the Department of Commerce is proposing to handle spaceflight passenger participation.

Comment Regarding Proposed Reasons for Control Classifications for the new 9X515 ECCN
The only suggested change Altius would like to provide to this proposed rule, is in regard to the "reasons for control" classifications for the proposed 9X515 ECCN. According to the proposed rule, the new 9X515 items would be controlled using the NS-1, RS-1, MT-1, and AT-1 reasons for control. Under these reasons for control, specifically the first two listed (NS-1 and RS-1) export licenses would still be required for exports to all countries other than Canada.

While Altius agrees that the items covered under the New 9X515 ECCN are items that have "National Security" and "Regional Stability" reasons for control, we feel that the column chosen for the first two reasons of control (NS-1 and RS-1) are overly restrictive, and not consistent with Finding #4 of the Section 1248 report, even with the availability of STA-36 exceptions for ECCNs 9A515 and 9B515. As such Altius suggests that the NS-1 and RS-1 reasons for control should be replaced with NS-2 and RS-2, respectively, for all items moved from the US Munitions List Category XV to the Commerce Control List.

According to Finding #4 of the Section 1248 Report (my emphasis added via underlining):

> ***4. Export of space-related items to our allies and closest partners presents a low risk to national security and should be subject to fewer restrictions than exports to other countries.*** Certain North Atlantic Treaty Organization (NATO) allies and other close partners are among the top-tier satellite and space-faring nations. Some western European countries have space-related design, manufacturing, and operational capabilities closest to that of the United States, and it is unlikely that exports of U.S.-origin satellites and related items, including technology, to these countries would result in harm to U.S. national security objectives. Moreover, there is a likelihood that any improvement in their military capabilities would serve to enhance and strengthen our strategic partnership, and the Departments judge that these potential benefits outweigh the low risks associated with export.
>
> NATO Allies and other partners present an unparalleled opportunity for international cooperation in space. France and Italy recently signed agreements to develop the Athena-Fidus telecommunications satellite systems that will share payloads and provide communications services for the governments of both nations as well as NATO Allies. Recently, Europe's Arianespace carried the first *commercially* hosted payload for the U.S. Air Force into geostationary transfer orbit. European nations are in discussions with the U.S. Government on possible cooperation in space exploration and space science.
>
> Direct transfer to our allies and partners of the satellites and related items identified in Finding #2 presents low risk to national security and serves to advance U.S. interests. Continuing to enforce the current regulatory requirements associated with munitions controls on our partners for these satellites and related items places an unneeded administrative burden on transfers that the United States will ultimately approve. To give a sense of scale,

> considering all types of satellites and their associated parts and components, in 2011, DoD reviewed 1,935 licenses involving USML controlled satellite-related parts and components going to the 36 countries identified as "Strategic Partners" for CCL export control purposes. DoD approved 95.7% of these licenses with no additional provisos or restrictions, another 4% were approved with some additional provisos, and a mere 0.3% were denied or returned without action due to insufficient information. Under the CCL, many of these transfers could occur without obtaining a license at all. Neither U.S. regulators nor the U.S. space industrial base should expend personnel, time, or funding when there is no benefit gained or harm avoided. The more flexible controls of the CCL would promote this important cooperation while maintaining sensible controls given the level of foreign availability, trust we place in our partners, and the assessed impact of unauthorized transfer.

Altius agrees strongly with this finding of the Section 1248 report. The technologies and products that are being proposed for transfer from the USML to the Commerce Control List are technologies that are commercially available not only in Canada, but also in other Strategic Partner countries. These other countries have their own export control laws that protect against re-export of these spacecraft technologies to other countries that are less friendly to the United States. While we applaud the fact that the existing proposed rule would at least remove the need for obtaining an export license for exports to Canada, we feel that the same should be true of exports to our NATO Allies and other Strategic Partners. It is important to note that in the above-quoted finding, the Departments of State and Defense actually approved of having these spacecraft technologies handled by the EAR in a way that does not require a license for exporting to NATO Allies and other Strategic Partners. We agree that spending private and government resources on applications that are nearly 100% guaranteed to be approved is not wise.

The current proposed rule offers some relief and partial compliance with Finding #4 by providing an STA-36 (c)(1) exception for items classified under ECCNs 9A515 and 9B515. However, no STA (c)(1) exception is allowed for ECCNs 9D515 or 9E515, covering software and technology related to spacecraft covered in 9A515. We feel this approach falls short of what the Departments of State and Defense outlined in the Section 1248 report. The only advantage of an STA over just listing the item as NS-2/RS-2 is that the consignee acknowledges in writing that the item is covered under the EAR and agrees to not re-export it to countries banned by the EAR. However most if not all of the Strategic Partner countries covered by the STA-Exception already have export controls on these technologies, making such an agreement redundant—the consignee would already be required under the laws of their own country to not re-export them without a proper license.

More importantly, by not including STA (c)(1) exceptions for software or technology covered in ECCNs 9D515 or 9E515, the current approach still stifles collaboration between NATO Allies and Strategic Partners, and also greatly complicates the hiring of foreign experts, and the use of foreign students as interns or student engineers. This will continue to place US aerospace companies, especially small ones, at a disadvantage relative to competitors, even in closely allied countries.

For these reasons, Altius recommends that the best way to solve this problem, in a way that is most consistent with the findings of the Section 1248 Report, is to change the NS-1 and RS-1 reason for control classifications on all items moved from USML Category XV to NS-2 and RS-2. Items that are applicable to missile systems and thus have a MT-1 classification would still require a license for transfer to NATO Allies or Strategic partners, but all other technologies would be able to be transferred without a license, as suggested in Finding #4 of the report. We would also propose leaving the STA (c)(1) exceptions available for **all** of the new 9X515 ECCNs (including 9D515 and 9E515), to enable

collaboration with Argentina and South Korea, which are allowed by the STA exception but require a license under NS-2/RS-2 reasons for control.

A second best solution would be to extend the STA (c)(1) exceptions to ECCNs 9D515 and 9E515, but just changing the reasons of control to NS-2 and RS-2 would accomplish basically the same goal while reducing the amount of unnecessary and redundant paperwork required on both sides.

We feel that this proposed change would be of huge benefit to US aerospace companies and to international collaboration with Strategic Partners with no or minimal negative impact to US national security.

Altius would like to provide two specific areas where making this change would benefit Altius and other small aerospace employers:

- **Easier Hiring of or Consulting with Foreign Experts:** Removing the licensing requirement for spacecraft and spacecraft technologies covered under the CCL would make it easier for companies like Altius to either hire or use as consultants foreign experts in specific spacecraft technologies. Currently, there are many areas of commercial space technology such as the design of smallsats using COTS electronics hardware where non-US entities have significant experience (the UTIAS Spaceflight Lab in Toronto and Surrey Satellite Technologies in the UK are two examples) that could be better leveraged by US companies if an export license were not required. Even when the net flow of information is into the United States, discussion of technical problems almost always requires a two-way exchange of information that under the current ITAR laws has required an export license to really be effective and to avoid risk of prosecution for the US entity. This stifles the flow of information into the US, especially for small firms like Altius that often can't afford the cost and time delay associated with procuring an export license for situations like this, making the US aerospace industry less competitive. The lack of an STA (c)(1) exception for 9D515 and 9E515 means that a license would still be needed for something like this. Changing the reasons for control from NS-1/RS-1 to NS-2/RS-2 would make it easier for Altius and other small aerospace companies to benefit from the technological expertise of our Strategic Partners, enabling us to produce better products, move new technologies into production faster, and reduce unnecessary duplication and waste in research and development.
- **Foreign Graduate Students/Interns:** The requirement to get export licenses to involve foreigners in an aerospace research and development project make it very hard for small companies to take advantage of the 57% of engineering graduate students in the US that are foreign-nationals, either in industry-academia joint developments or as interns or student-engineers. For example; Altius and my former employer, Masten Space Systems, have had to, on multiple occasions, turn-away foreign students who we otherwise would have benefited from being able to hire as employees, interns, or student engineers. The cost and time delay associated in procuring a TAA for utilizing such individuals would have been prohibitive. It is a waste of taxpayer funds to subsidize training foreign-born students in aerospace at our Universities, allow them to be involved in fundamental research into aerospace technologies, and then making it almost impossible for them to be employed by US aerospace companies. This situation forces them to take their talent and US-subsidized education and return home and compete with the United States. By relaxing the reasons of control for these technologies

from NS-1/RS-1 to NS-2/RS-2 this would mean that a large fraction of these students could now be used directly in current active aerospace projects, as interns, or as student-engineers without requiring a case-by-case license. The current proposed rule, because it does not include an STA (c)(1) exception for space technology or software (proposed ECCNs 9D515 and 9E515) would still require a license for each time a university or company needed to involve a foreign-born student in a project where that required sharing technical data or technology related to spacecraft development or manufacture. Admittedly we have heard that the Department of Commerce license process is much easier and quicker than the ITAR TAA process, so the most likely net result would be a drastic increase in the number of licenses the Commerce Department would need to process (likely several times more frequently than the applications for exporting actual hardware that were estimated in the proposed rule) for students that wouldn't need a license if an NS-2/RS-2 reason for control were used or if an STA (c)(1) exception were available for all of the new 9X515 ECCNs. By making it easier for universities and industries to utilize foreign students from Strategic Partner nations for aerospace R&D beyond just fundamental research, these students would be much more likely to stay in the US, strengthening our industry instead of going home to compete against it.

By removing those barriers for close allies and Strategic Partners and by changing the reasons for control from NS-1/RS-1 to NS-2/RS-2, the US government would enable much more effective international collaboration in the aerospace sector. The uniquely strong entrepreneurial environment in the US would mean that a significant portion of the economic benefit of such collaborations would be captured directly by US organizations. Additionally, in many cases foreign experts would be likely to relocate to the US where the opportunities for entrepreneurial space are much stronger than in Europe, Japan, or other Strategic Partners. The current proposed rule would still require licenses for each time such a non-US expert wanted to work with a US firm—this is a restriction that none of our allies would impose on them, so even under the current proposed rule, they would be much more likely to work with our partners instead of us. Having these experts here strengthening US companies instead of competing against them can greatly help US national security.

Conclusions

While I spent a significant portion of this letter discussing a proposed change to the overall rule, I still wanted to reiterate the fact that the overall proposed rule is a huge step in the right direction and will be very beneficial to aerospace companies in the US, particularly small ones.

Thank you for the opportunity to submit these comments to your proposed rule, and hope that you consider them thoroughly in your evaluations of the comments you receive on of this Notice of Proposed Rule Making.

Respectfully,

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