BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION

**WASHINGTON, D.C. 20554**

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In the Matter of: ) )

Mitigation of Orbital Debris in the )

New Space Age )

) Docket No. FCC-2019-0034-0001

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**COMMENTS OF NICHOLAS YU, J.D. CANDIDATE**

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I am pleased to submit these comments on the Federal Communications Commission’s proposed rulemaking regarding the mitigation of orbital debris in the new space age. I am a first-year law student at Boston College Law School with an interest in the nascent, yet growing space industry, and understand the need for new regulations to adjust to new markets. I write to comment on the inadequacy of the Commission to mitigate orbital debris due to the Commission’s limited jurisdiction and the fact that other organizations are better suited to craft and enforce such regulations. I appreciate your consideration of my recommendations regarding this notice of proposed rulemaking.

**INTRODUCTION**

The Federal Communications Commission (FCC) issued a Notice of Proposed Rulemaking (NPRM), dated February 19, 2019, regarding the mitigation of orbital debris in the new space age. This NPRM was brought forth to target the growing deployment of non-geostationary orbit satellites (NGSOs), which unlike traditional communication satellites, have their own orbits and are prone to collisions.

While I acknowledge the urgency in mitigating orbital debris, I offer the following comments to highlight concerns over the proposed rule:

1. The United Nations, not the FCC, is in the best position to regulate the mitigation of orbital space debris due to their jurisdictional reach.

2. If the FCC implements the regulations as proposed, the FCC would be creating redundant regulations already imposed by the United Nations.

3. The FCC has the means to collaborate with the United Nations in implementing more stringent regulations.

4. If the FCC wishes to implement its own regulations and avoid international collaboration, it should collaborate with other national agencies that have an interest in mitigating orbital debris.

**I. THE FCC IS NOT IN THE BEST POSITION TO REGULATE THE MITIGATION OF ORBITAL SPACE DEBRIS**

The FCC has a legitimate interest in reducing the likelihood of orbital debris colliding with U.S. communication satellites. However, the FCC only has jurisdiction to regulate non-federal satellites seeking access to the U.S. market. Of the 1,957 satellites currently orbiting Earth, 488 of them are U.S. commercial satellites.[[1]](#footnote-1) Assuming each American-registered commercial satellite targets the U.S. market, the FCC has the jurisdiction to regulate less than 25 percent of all satellites currently orbiting Earth. Satellite operators outside the FCC’s reach do not have to abide to its regulations. While the incentive exists for those launching satellites outside of the U.S. to perform their due diligence in picking an orbit that is not occupied, more complex regulations, such as requiring satellites to be maneuverable, would likely go unheeded.

If the amount of debris in the low Earth orbit reaches a breaking point, the potential for collisions becomes so high that one collision will cause a never-ending chain of collisions, known as the Kessler Syndrome.[[2]](#footnote-2) Thus, it is essential for an agency that has jurisdiction over all satellites to impose a rigorous standard. If one satellite does not abide to the guidelines, it could create chaos for the rest.

The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) is in a better position and has greater authority to regulate the satellites orbiting Earth. In contrast to a national agency limited to regulating satellites from its respective nation, COPOUS has 92 members, or countries and, functionally, has a greater reach in implementing regulations to mitigate orbital debris.[[3]](#footnote-3) Eighty-nine percent of all launched satellites have been registered with the United Nations and abide to COPOUS guidelines limiting orbital debris.[[4]](#footnote-4)

While I acknowledge that the United Nations has been complacent in enforcing COPOUS guidelines, they remain the most appropriate enforcer and only need to tighten their reins.

Both the FCC and the United Nations face the same difficulties in enforcing satellites operators to abide to mandated guidelines. For example, U.S. satellites operators have launched communication satellites into space without acquiring licenses from the FCC.[[5]](#footnote-5) Eleven-percent of all satellites orbiting Earth have not been registered with the United Nations.[[6]](#footnote-6)

The United Nations can follow the FCC and condition the granting of satellite licenses upon certain requirements being met, or fine satellite operators for violating guidelines. The United Nations could also block frequencies of satellites that fail to abide to United Nations requirements.[[7]](#footnote-7)

While the FCC can sanction U.S. satellite owners for failing to abide to its regulations, the FCC would run the risk of compromising the U.S. communications industry for no net benefit. Foreign satellite operators do not have to abide to the same heightened level of regulations and orbital debris will continue to be produced by foreign satellites. Rather than setting a high bar for our own satellites and turning a blind eye to foreign satellites, uniform enforcement by the United Nations is needed.

**II. THE FCC IS PROPOSING REDUDANT REGULATIONS**

If the proposed regulations were passed, the FCC would be creating duplicative regulations and burdening themselves with duties the United Nations already fulfills.

The FCC proposes that post-mission satellites should be safely disposed and asks for public input on which method of disposal is the most appropriate. However, all satellite operators already have to abide to the United Nations’ disposal regulations. The United Nations requires all post-mission satellites to be removed from orbit in a safe, controlled fashion—either retrieval or re-entry.[[8]](#footnote-8) If that is not possible, the United Nations requires satellites to be launched into orbits that are less populated.[[9]](#footnote-9)

The FCC also proposes that non-U.S. satellites that engage in limited transmission with U.S. stations provide disclosures to the FCC, such as whether those satellites have satisfied their respective nation’s licensing authority. However, it is uncertain what the FCC can accomplish with that information. The FCC should not be designated as the main database for all satellite information, as the United Nations already fulfills this role. All United Nations members must register their satellites with the United Nations Office of Outer Space Affairs, which approves for compliance with United Nations regulations and provides an online database to track all registered satellites.[[10]](#footnote-10) The concerns the FCC has with non-U.S. satellites interfering with U.S. communication satellites is valid, yet is unnecessary with the function of the United Nations.

**III. The FCC Has the means to collaborate with the United Nations in implementing more stringent regulations**

The FCC has the opportunity to collaborate with the United Nations in drafting international guidelines on orbital debris mitigation. In creating international guidelines, COPOUS relies on information provided to them by groups within the United Nations, such as the International Telecommunication Union (ITU), and nongovernmental bodies, such as the Inter-Agency Space Debris Coordination Committee (IADC).[[11]](#footnote-11)

The IADC is composed of well-established space agencies, such our National Aeronautics and Space Administration (NASA), Russia’s Roscosmos State Space Corporation, and the European Space Agency.[[12]](#footnote-12) The FCC can forward their concerns and proposals to NASA as one means to getting its voice heard. As a member of IADC, NASA meets with COPOUS annually, providing an indirect forum for the FCC to propose revisions to international orbital mitigation policies.[[13]](#footnote-13)

As another means of participating in international discussions, the FCC participates in the World Communication Conference, a treaty-level forum organized by the ITU.[[14]](#footnote-14) The FCC has the ability to raise its concerns in front of the diverse membership of the ITU, composed of delegates from the United Nations, foreign telecommunication agencies, and private industries in the telecommunication industry.[[15]](#footnote-15) In preparation for the upcoming World Communication Conference in October of 2019, the FCC has already created a working group focused on space issues. While the working group has been tasked to discuss the allocation of satellite frequencies at the conference, the working group could also advocate for stringent orbital debris regulations to attendees.[[16]](#footnote-16) Additionally, in both these forums, the FCC can advocate for the United Nations to impose sanctions for satellite operators that fail to adhere to their guidelines.

**IV. THE FCC SHOULD COLLABORATE WITH OTHER NATIONAL AGENCIES**

If the FCC wishes to implement its own guidelines in isolation from the international community, the FCC should be collaborating with agencies that have overlapping interests, in addition to agencies that have the insight and experience in regulating orbital debris.

The White House has recognized the concerns with space congestion and the increased risk of orbital collisions. In an attempt to address those concerns, President Trump signed the National Space Traffic Management Policy on June 18, 2018.[[17]](#footnote-17) The proposal specifically requests several agencies, including the National Aeronautics and Space Administration (NASA), Secretary of State, Defense, Commerce, Transportation, and the FCC, to update the U.S. Orbital Debris Mitigation Standard Practices, which regulates all government-operated satellites.[[18]](#footnote-18) All government-operated satellites are bound by these guidelines, which are more comprehensive than those imposed on non-governmental satellites. These guidelines have only been shared with the commercial industry to encourage voluntary compliance.[[19]](#footnote-19)

The regulations that bind government satellites parallel the regulations the FCC’s wishes to impose on U.S. commercial satellites. The government guidelines impose stringent regulations to limit orbital waste from satellites.[[20]](#footnote-20) For example, post-mission satellites must be disposed through atmospheric reentry, orbital changes, or direct retrieval.[[21]](#footnote-21) Tethering systems, such as harpoons, are also recognized under these guidelines but are reviewed on a case-by-case basis.[[22]](#footnote-22) All these enumerated practices are raised in the FCC’s proposed rulemaking.

Rather than developing rules independently, the FCC has the forum to collaborate with agencies that have extensive knowledge on space, satellites, and orbital debris. The FCC should run through their proposals with other agencies to receive feedback on the feasibility of their regulations. Additionally, these agencies will likely revise the U.S. Orbital Debris Mitigation Standard Practices to reflect a greater urgency for orbital debris mitigation. This peer-reviewed guideline would be a model for the FCC to impose on satellites encompassed within their jurisdictional reach. Effectively, the FCC can implement strict guidelines by benefiting from the expertise of other agencies without having to conduct independent research.

**CONCLUSION**

I am supportive of these initiatives to mitigate orbital debris, but I believe the FCC cannot do this alone. The FCC’s proposed rule would only target a percentage of the satellites that orbit the Earth. The FCC should be proposing their rules to an international agency that is capable of enforcing these regulations upon all satellites. If the FCC does not wish to participate in reforming debris mitigation policies on an international level, the FCC should be collaborating with other national agencies that have a stake in space rather than developing rules in isolation.

Respectfully submitted,

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April 25, 2019 Boston College Law School

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