



Open Research Institute, Inc.  
#1873 3525 Del Mar Heights Road  
San Diego, CA 92130  
USA  
ori@openresearch.institute

1 November 2021

Via Electronic Filing Through ULS

Marlene H. Dortch, Secretary  
Federal Communications Commission  
45 L Street, NE  
Washington DC, 20554

Regarding Notice of Ex Parte Presentation concerning *Mitigation of Orbital Debris in the New Space Age* (International Bureau Docket number 18-313)

Dear Ms. Dortch:

On 28 October 2021, Open Research Institute, Inc. (ORI) met via teleconference with staff from the Office of Engineering Technology (OET), the International Satellite Bureau (IB), and the Wireless Telecommunications Bureau (WTB) regarding Open Source approaches to Debris Mitigation rules-compliant orbits and activities for the Amateur Radio Satellite Service.

From OET  
Anthony Serafini, Experimental Licensing Branch Chief  
Jamison Prime, Associate Chief

From IB  
Karl Kensinger, Division Chief

Joseph Hill, Engineering  
Melissa Velez, Branch Chief Policy  
Samuel Karty, Engineering  
Sankar Persaud, Engineering

From WTB  
Thomas Derenge, Deputy Chief, Mobility Division  
Joshua Smith, Mobility Division  
Erin McGrath, Legal Advisor

From ORI  
Michelle Thompson, CEO  
Anshul Makkar, Senior Engineer  
Daryl Hunter, Amateur Radio Extra Class License KJ4KK  
David Siddall, ARRL Washington Counsel  
Dick Norton, ARRL Director, Southwestern Division

ORI is a non-profit research and development organization which provides all of its work to the general public under the principles of Open Source and Open Access to Research.

A paper from ORI was shared with the participants. “Open Research Institute Minimum Viable Product Amateur Radio Satellite Service” discusses the design philosophy behind current open source amateur satellite efforts, summarizes amateur satellite history, identifies requirements, makes some assertions about orbits, and proposes two types of orbits. A slide deck was used to organize the work and was used as a reference during the meeting.

The paper and the slide deck are included in this Ex Parte filing and can be found at [https://github.com/phase4ground/documents/tree/master/Regulatory/MVP\\_FCC\\_Presentation](https://github.com/phase4ground/documents/tree/master/Regulatory/MVP_FCC_Presentation)

There were three goals for this meeting.

First, to obtain guidance on orbits. Debris Mitigation rules introduce new requirements, additional complexity, and additional expense. Innovative or experimental solutions to technical challenges are something that the Amateur Radio Satellite Service provides as part of its basis and purpose (§97.1 (a-e)). Guidance on two proposed orbits that comply with Debris Mitigation rules was sought and was obtained.

Second, to emphasize the necessity for microwave band spectrum for the survival of modern amateur radio and amateur satellite work. Without microwave allocations suitable for space, including space-to-space links, innovative and experimental missions will not be feasible.

Amateur microwave frequencies are critical for amateur satellite success in the New Space Age. The bulk of this conversation was deferred.

Third, to present recent successful regulatory work that explicitly states that open source satellite designs are free of both ITAR and EAR. These results are useful not only for the Amateur Radio Satellite Service, but also for a broad category of commercial satellite work. Leveraging open source work allows satellite companies to avoid “reinventing the wheel” internally for parts of a design that do not serve to differentiate their products. Quality open source solutions can increase interoperability, safety, and reliability, and can lower costs. These regulatory results make it more likely for amateur satellites to fully comply with Debris Mitigation rules. By using an Open Source framework, international amateur teams can work together in the open, instead of having to comply with restrictive ITAR/EAR rules intended for commercial entities. In order to take advantage of the public domain carve-outs in ITAR/EAR, designs must be published as they are created and must be freely available to the general public. All of the regulatory documents can be found at <https://github.com/phase4ground/documents/tree/master/Regulatory>

This meeting was necessary in order to continue to organize teams and raise funds for international amateur satellite efforts. The meeting resolved several areas of concern and confusion, and the guidance will be followed. Open Research Institute greatly appreciates the enthusiasm, generosity, and expertise shared with us at this meeting.

Sincerely,

Michelle Thompson, CEO Open Research Institute, Inc.

cc:

Anthony Serafini

Jamison Prime

Karl Kensinger

Joseph Hill

Melissa Velez

Samuel Karty

Sankar Persaud

Thomas Derenge

Joshua Smith

Erin McGrath

Anshul Makkar

Daryl Hunter

David Siddall  
Dick Norton