

ASTRA – Conjunction Notification Response Plan

Following on conversations between ASTRA, experimental license applicant for a satellite submitted through ELS, file number 0867-EX-CN-2021, and the FCC's International Bureau on February 18, 2022, ASTRA is submitting this supplemental statement regarding its conjunction warning response plans.

ASTRA has developed the experimental RROCI satellite which is set to launch later this year. The satellite was designed for weather monitoring with the goal of delivering higher quality weather information to pilots who may be operating in inclement weather circumstances.

ASTRA's RROCI satellite has some propulsion built in. ASTRA will respond to conjunction warnings promptly and properly to avoid or mitigate the risks of on-orbit collisions. The list below outlines some of the steps that ASTRA is taking to ensure that there are no risks to the space community from the proposed operations.

1. Upon receipt of a conjunction warning, ASTRA will strictly follow the FCC's rules. It has also developed a compliance plan set out below.

ASTRA has reviewed 47 C.F.R. Section 5.64 (b)(4)(i)(E):

(E) The space station operator must certify that upon receipt of a space situational awareness conjunction warning, the operator will review and take all possible steps to assess the collision risk, and will mitigate the collision risk if necessary. As appropriate, steps to assess and mitigate the collision risk should include, but are not limited to: contacting the operator of any active spacecraft involved in such a warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying space station attitude and/or operations.

To ensure proper compliance with this regulatory provision, ASTRA has appointed Erik Stromberg as its conjunction warning leader within the company. Upon receipt of a conjunction warning, Erik Stromberg will begin the review process. That process includes:

- Review of ASTRA's ephemeris data, and share that data as necessary
- Compare that data to the information in the conjunction warning
- Determine the time and distance parameters that will allow for a response to the conjunction warning
- Contact the operator of any other spacecraft involved in the conjunction warning

- Determine, collaboratively, if ASTRA can and should engage its propulsion system to avoid any potential conjunction, or if the other operator is better positioned technically to make a course correction, and through that communication with the other involved parties ensure that the conjunction warning gets a proper and thorough and prompt response.
- Respond to the entity sending the conjunction warning to provide the agreed upon solution and show that the solution has been adopted.
- Note the process and procedure in ASTRA's logs.

2. ASTRA has also secured a copy of NASA's latest manual on this subject:

NASA Spacecraft Conjunction Assessment and Collision Avoidance Best Practices Handbook¹

To bolster the company's conjunction warning response plans, copies of this handbook have been provided to all of the ASTRA employees who are working on the RROCI project, and they will all have reviewed it carefully prior to RROCI's launch.

3. ASTRA will provide to the FCC, NASA, and the 18th Space Squadron a primary and secondary contact for conjunction warnings.

¹ Handbook downloaded from:

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwio87SGybT2AhWwct8KHcHgACUQFnoECAQQAQ&url=https%3A%2F%2Fnttrs.nasa.gov%2Fapi%2F citations%2F20100005139%2Fdownloads%2F20100005139.pdf&usg=AOvVaw0gglxypXf9Kyh-cKE0qK5j> March 7, 2022, the Manual was published by NASA December 2020, the document number is: NASA/SP-20205011318