



Office of the General Counsel  
78 Armory Road, 98698 Starvalis

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To the attention of:

**Astracommex Regional Satellite Communication Inc.**

115 Neptune Street

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1 March 2021

645 **Subject: Required Actions After AS100 Collision Incident**

Dear Mr. Myskin,

650 Based on the Department of Defense's investigation of the AS100 satellite collision, we have identified both software and hardware deficiencies in the collision avoidance system of the Astra satellites.

655 Regarding the software, the algorithm Astracommex used to predict relies predominantly on data collected by the Space Surveillance Network of Cosmosis. Since the cessation of Cosmosis-Celestria diplomatic relations, Celestria has shut down all of Cosmosis' terrestrial radar operations within Celestria's borders, coupled with subsequent national security regulations prohibiting sensitive data transfer to Cosmosis. These measures have significantly impacted Cosmosis' Space Surveillance Network's accuracy on Celestria related space activities.

660 Regarding the hardware, we find that the onboard sensors of Astra satellites have an error rate from 5% to 10% in detecting and avoiding objects smaller than 20 centimeters approaching from certain angles. This flaw, as our investigation suggests, cannot be rectified with software updates as previously suggested by Astracommex.

665 The heightened risks of collision in space, particularly due to the potential onset of Kessler Syndrome,<sup>17</sup> significantly compromises the safety of Celestria's space operations. The issue is especially pertinent for the Department of Defense's assets operating in 400km altitude orbits, where the risk of satellite collisions presents a national security concern.

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<sup>17</sup> Kessler Syndrome is a scenario in which the density of objects in low Earth orbits (LEO) due to space pollution is numerous enough that collisions between objects could cause a cascade in which each collision generates space debris that increases the likelihood of further collisions.

Moreover, such collisions are a primary source of space debris, i.e., space junk. According to Articles I and II of the National Environmental Protection Act, it is mandatory for governmental agencies to consider the protection of the human environment, including outer space, in their decision-making processes.

In light of these concerns and under the authority of the Celestria National Security Law and the National Environmental Protection Act, the Department of Defense hereby issues the following directives:

- i. **Orbital Adjustments**: All Astra satellites currently in 400km altitude orbits must be relocated to orbits below 350km. This includes repositioning 99 existing satellites (AS100 is not included) and coordinating with the Department of Defense for any future satellite launches adjacent to 400km orbits by Astracommex Regional in Celestria.
- ii. **Suspension of Operations**: All satellite communications within Celestria's territory must be suspended by Astracommex Regional until the orbital adjustments are completed.

Immediate adherence to these instructions is required. Failure to comply will result in legal consequences, including penalties and possible criminal charges. Astracommex has the right to appeal this decision in accordance with Celestria Administrative Law.

Yours sincerely,



Sam Davis