



PERMITTING DECISION SUMMARY

SN3, SN5, SN6, and SN7

**National Aeronautics and Space Administration & Massachusetts Institute of Technology
Lincoln Laboratory**

1. The National Aeronautics and Space Administration (NASA) is the U.S. civil space program. The NASA Langley Research Center is located in Hampton, Virginia, and works to improve aviation, expand understanding of Earth's atmosphere and develop technology for space exploration.
2. The Massachusetts Institute of Technology Lincoln Laboratory (MIT LL) is a research and development centre focused on applying advanced technologies to U.S. national security issues.
3. TROPICS (Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Smallsats) consists of four 3U CubeSats intended for Low Earth Orbit and is part of NASA's Earth System Science Pathfinder Program. The TROPICS constellation targets the formation and evolution of tropical cyclones, including hurricanes. The constellation will launch in pairs on two separate rockets.
4. The TROPICS satellites work in concert to provide microwave observations of a storm's precipitation, temperature, and humidity at a frequency of about once per hour. MIT LL was contracted by NASA to develop the CubeSats and oversee the mission.
5. Payloads are permitted in line with the [Outer Space and High-altitude Activities Act 2017](#) and the [Outer Space and High-altitude Activities \(Licences and Permits\) Regulations 2017](#).
6. Each payload has been approved by the Minister for Economic Development, on advice from officials across agencies. When approving payloads, the Minister needs to be satisfied that:
 - a. The applicant has taken and will continue to take all reasonable steps to safely manage the operation of the payload;
 - b. The proposed operation of the payload is consistent with New Zealand's international obligations; and
 - c. The applicant has an orbital debris mitigation plan that meets prescribed requirements.
 - d. Despite being satisfied of these matters, the Minister may nevertheless decline a permit if he is not satisfied that the proposed operation of the payload is in New Zealand's national interest.

Date Granted	Authorisation Number	Payload Name	Owner or Operator	Country of Origin
24 April 2023	230221-PPT	SN3, SN5, SN6, and SN7	NASA	U.S.