NEW ZEALAND SPACE AGENCY

PERMITTING DECISION SUMMARY

Lysozyme U-Gravity Crystallisation Payload (LUCY)

University of Canterbury

1. LUCY is a scientific experiment from the University of Canterbury conducted by Dr Sarah Kessans. LUCY has received an overseas payload permit.

2. The primary mission and purpose of LUCY is to conduct a protein crystallisation experiment to observe how protein crystals can be grown in small satellites. In previous experiments on the International Space Station, it was observed that protein crystals grown in microgravity can be of a higher quality than those grown on Earth.

3. LUCY is a 0.7U payload being hosted inside Orbital Astronautic Limited's Guardian Alpha payload. Guardian Alpha has also received a payload permit and details can be found on the MBIE website.

4. 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.

5. 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
27 April 2021	210173-PPT	LUCY	University of Canterbury	New Zealand