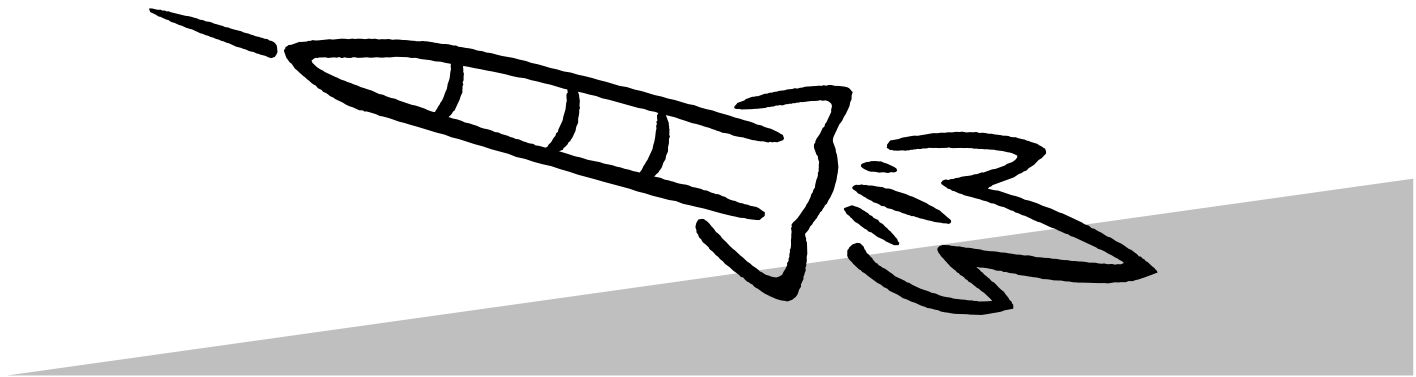


CHAPTER 4

Results & Analysis



Results(1)



- Model Rocket Competition
 - 27th August Passed all the qualifications.
 - 28th August Launched the rocket!

The rocket departed from the launcher successfully, but crashed into the ground without deploying the main parachute.

Though one Can-Sat was released, its parachute was separated from the sat.

The second Can-Sat unit was thrown out by the shock when the rocket smashed into the ground.

We succeeded in withdrawing some data and are analyzing them.



Results(2)



Fins



microSD cards installed in the rocket.
Valid data couldn't be obtained.



Wires



Wreckage of the rocket



Electric parts.

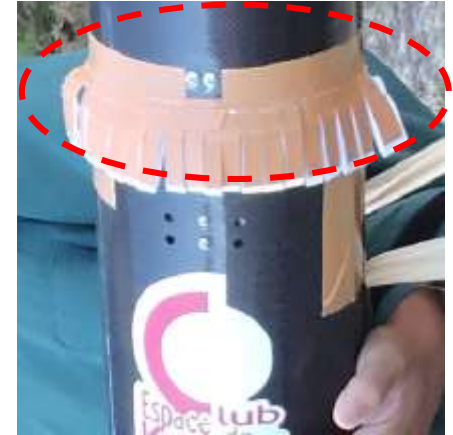
Did the parachute door open in flight?



How Servo Horn looks when the parachute door is open



Servo motor for opening the parachute door was retrieved after the crash



A special fringe above the door



How Servo Horn looks when the parachute door is closed

By checking the retrieved Servo Motor, it is revealed that Servo Horn was operated till an angle to open the parachute door in flight. The possible causes the door didn't open are as follows;

- ① Because the parachute rope and Servo Horn circled in red on the left photos came too close, the parachute door opening mechanism was disturbed.
- ② Because of the incompletely closed parachute door and the fringe above it –we were *recommended* to attach this...–, air might not invade into the door enough to open it in flight.



Just before releasing



Desperate presentation
(Our many thanks to Jerome)



CANSAT in the air

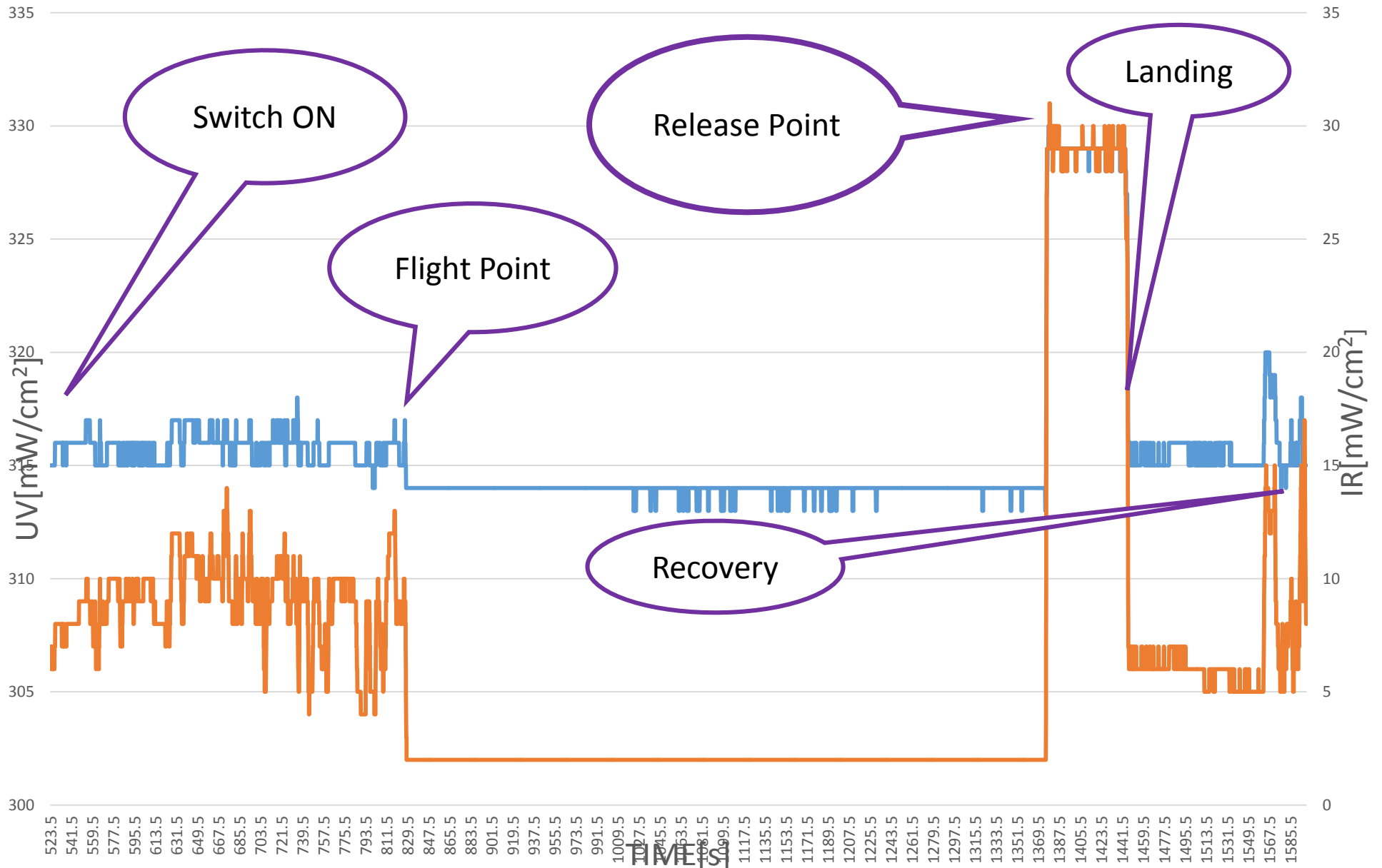


We are Great Winner!!!

CANSAT result



UV and IR



Problems(Cansats)

Our programming for the Lux sensor was insufficient and we couldn't work on time. The latter was especially because of our lack of experience.

We regret most that we were not able to have a test with a finished CanSat beforehand in Japan.

- What we gained from this CanSat project

We understood how important to draw up a plan as well to build a CanSat itself.

We felt keenly how important to communicate in English especially because our opportunities to talk with foreign engineers through the OIT man-made satellite project will be increasing in future.

This was our first experience outside Japan! We do hope that it would be a good prior exercise for our future!!

Thank you, C'Space!

Improvement for the next project

- Rocket

- Sub-battery was not so effective to improve the reliability of the power supply system, because if the power is confirmed to work normally, it will hardly go down through the launching sequence.
- Mechanical structure, including parachute ejection and CanSat ejection etc. should have been enough certified before assembling the system. For this purpose, enough experience of the mechanisms using small rockets, and 3D computer-aided-design system should be utilized in designing the mechanisms.
- The electric system was split into too many small subsystems. It increased the difficulty of the developing and assembling the whole system. There were too many wires and too much complexity of the communication between the subsystems.
- The ideal way to split the system is to have a basic mission domain (parachute release and flight profile) and an expansion mission domain. In developing the basic mission, the same basic design must be *basically* kept, but it must be *gradually* sophisticated at the same time. Therefore we have to find our own basic design through many small experiences. Only after sophisticating the basic mission enough, we can challenge the new and difficult missions as the expansion missions without much risk.
- The frame structure made the space for the parachute too small and made it difficult to design the parachute ejection mechanism. That is, three frame structure was not required in all the part of the rocket. It was enough to install the frame structure in order to specify the mechanical interface between the rocket and the expansion missions, and to make it easy to assemble the rocket. We have to reconsider how to install the frame structure in future.
- We will reconsider the size of a rocket on designing the rocket of the constitution with the basic mission and expansion mission.

- CanSat

information sharing and the management of the schedule

Sponsors

