

## ABSTRACT

Rocket payload is a substance carried by rockets, the function may vary, it could be functioned as the rocket's dynamic sensing or for specific mission like meteorology, military, or other usage. The development of rocket payload technology in Indonesia is driven by National Institute of Aerospace and Space (Lembaga Antariksa dan Penerbangan Nasional /LAPAN). Based on that fact, the design of the rocket payload was made. The payload is able to take data from space and then transmit it to the ground segment located in the earth.

The payload works by using sensor to record the attitude of the rocket and recording real-time video recording of the flight. After that, data from the sensor and video from the camera sent to the ground segment using different transmitter.

Based on the system, has generated a rocket payload that can transmit data from sensors monitoring CMPS10 rocket to the ground segment to a distance of 17.75 meters at the condition of LOS (Line Of Sight) or without barrier and 12 meters on the existing conditions of the barrier NLOS (Non Line of Sight). Additionally payload also managed to send video observation / surveillance in LOS conditions up to a distance of 100 meters and 5 meters in NLOS conditions. To obtain the best quality video at a distance of 20 meters in LOS conditions, while over the video quality decreases until it is no longer acceptable by ground segment at a distance of 100 meters.

**Keyword:** payload, surveillance, telemetry, ground segment, LAPAN, rocket payload