

48th STUDENT CONFERENCE (E2)
Educational Pico and Nano Satellites (4)

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A 3U CUBESAT FOR MONITORING TERRESTRIAL GAMMA RAY FLASHES: BUS DESIGN AND CONCEPT OF OPERATIONS

Abstract

Rapid Acquisition Atmospheric Detector Satellite (RAADSat) is a 3U CubeSat that its primary mission to study Terrestrial Gamma-ray Flashes (TGFs) associated with thunderstorm and lightning activity. RAADSat, is planned for launch in the first quarter of 2021 from International Space Station (ISS). This satellite is a result of the collaboration between Khalifa University of Science and Technology (KU), and New York University Abu Dhabi (NYUAD) and funded by the UAE Space Agency. The primary mission payload, RAAD, developed by NYUAD students and researchers is the winner of UAE MiniSat competition organized UAE-SA and KU in 2018. RAADSat Bus development and operation is the responsibility of KU students team. This paper describes the bus design and mission analysis for this mission. In its normal operation, RAADSat is expected to generate around 50 MB per day for scientific analysis on ground. This data downlink can be achieved by using S-band transmitter. In addition, multiple ground stations operation is required to maximize the access time for downlink.