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GNSSAS SATELLITE PROGRAM: DESIGN OF UAE FIRST GNSS RF TECHNOLOGY  
DEMONSTRATOR 6U CUBESAT MISSION

**Abstract**

The National Space Science and Technology Centre, NSSTC, with funding support from the UAE Space Agency, ICT-TRA and UAE University (UAEU), has embarked on United Arab Emirates (UAE) first satellite mission related to Global Navigation Satellite System (GNSS). The Global Navigation Satellite augmentation System (GNSSaS) program was conceived as means for UAE to be actively involved in satellite development associated with communication and satellite navigation technology. The main mission of GNSSaS program is to enhance the geo-position determination using existing GNSS signaling through innovative augmentation techniques. The program is divided into several stages with the first stage is a technology demonstrator satellite called GNSSaS RF signaling technology demonstrator satellite. The GNSSaS RF signaling technology demonstrator satellite is a 6U, 2x3U CubeSat, implemented using the standard CubeSat format. It will be launched in 2021 into a low earth orbit, 500 – 600 km. The satellite includes several payloads, all of which relates in one way or another to GNSS. These include the primary NSSTC developed GNSSaS payload relating to the transmission of the GNSS augmentation signals in both GNSS L and S bands. There are in addition two secondary payloads, one provided by Syrlinks to demonstrate their in orbit GNSS receiver system, another provided by CNES which related to high precision orbital ephemerals determination system using GNSS signals, and finally a secondary payload from UPC, University Polytechnic Catalonia which is an L band based GNSS remote sensing reflectometry experiment and a UHF/VHF signal quality monitoring experiment. This paper will discuss the design process to accommodate the different payloads into the satellite bus system.