ISX CubeSat Description

Ionospheric Scintillation eXplorer (ISX) – Cal Poly, SLO – 3U

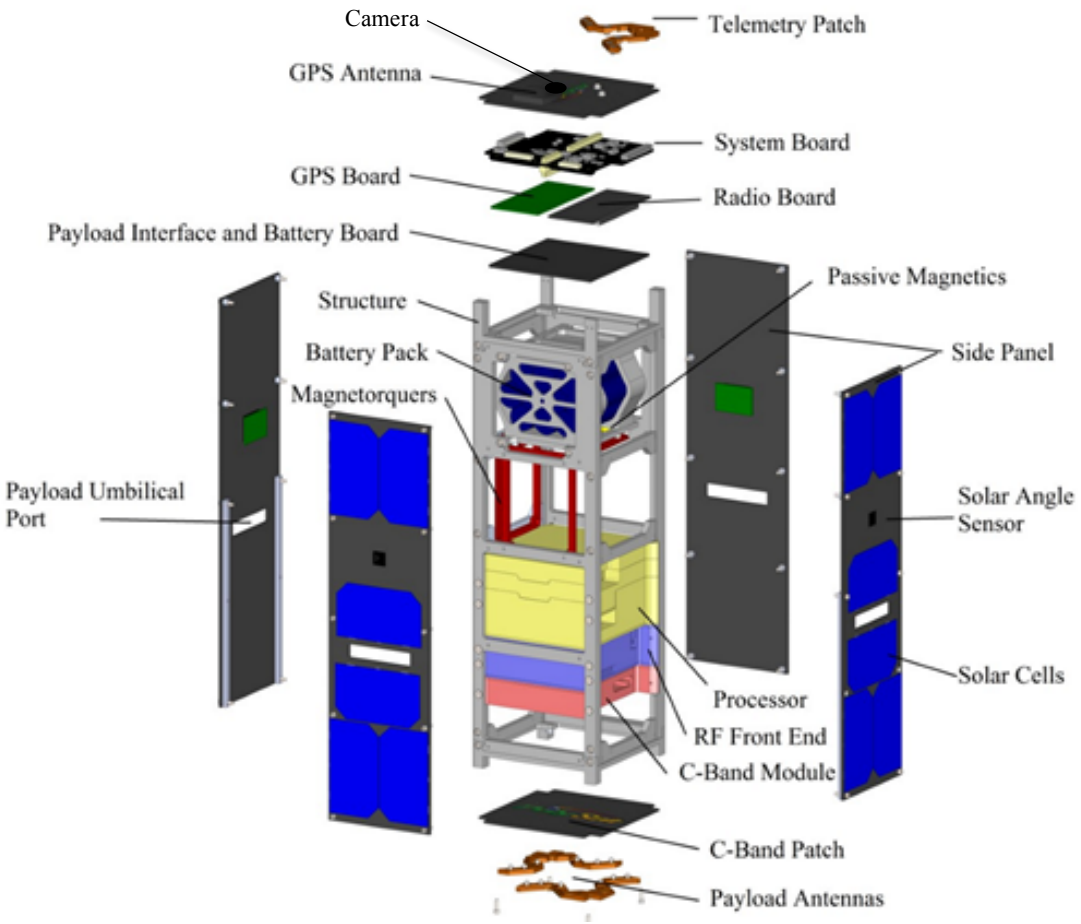

Figure 1: _ISX_ Expanded View

The Ionospheric Scintillation eXplorer (ISX) is a satellite developed by undergraduate and graduate students as part of the PolySat research group in collaboration with SRI. The satellite is sponsored by NSF. ISX will measure the scintillation of disrupts in ionospheric plasma tubules using DTV signals. ISX will study the multi-frequency radio wave propagation properties of intermediate-to-large scale ionospheric structures of Equatorial Spread F that cause rapid phase and amplitude fluctuation of transionospheric signals.

Upon deployment from the PPOD, ISX will power on. Approximately 15 minutes later, the antenna will deploy. 115 minutes after antenna deployment, the beacon will be activated and the satellite will be available to acquire with the ground station. Acquisition

and verification of the correct orientation and rates of the satellite will take place one week into the mission. The payload will then start taking data for one year.

The structure is made of 6061-T6 Aluminum. The antenna is made of NiTi. The antenna route is made of Delrin. It contains standard commercial off the shelf (COTS) materials, electrical components, PCBs, and solar cells.

There are no pressure vessels, hazardous or exotic materials.

The electrical power storage system consists of nine 3.7V 2600mAh Lithium-Ion 18650 batteries, model LR1865SK, with over-charge/current protection circuitry. There are three strings in parallel, with each string consisting of three batteries in series. UL Listing information is as follows BB*CV2.MH48285*.