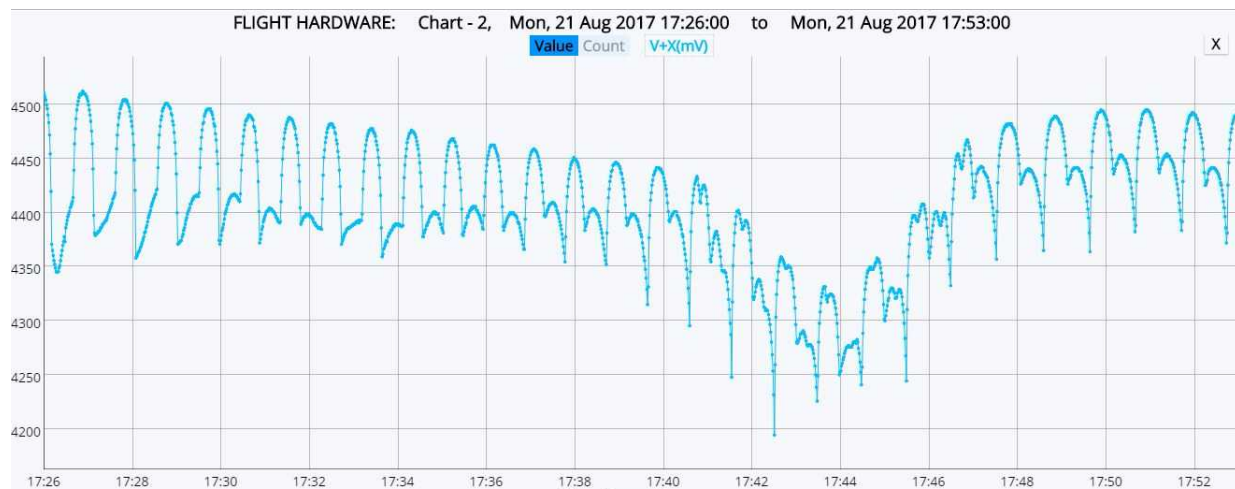


CSUNSat1 “SEES” THE GREAT ECLIPSE

Northridge, August 21, 2017

California State University Northridge’s first satellite, CSUNSat1, joined millions of Americans in observing the Great Eclipse on August 21st. The shoebox-sized satellite passed through the path of the moon’s shadow as both raced across the United States. CSUNSat1, orbiting at 7.6 kilometers per second or a blistering 16,700 mph, overtook the total eclipse shadow poking along at 1,700 mph over Wyoming.

Sensors registered a pronounced drop in voltage from the solar cells that power the spacecraft along with a fall in temperature of several degrees. The telemetry shown below was downlinked later in the day as CSUNSat1 passed over its ground station on the CSUN campus.



Solar Cell Data from CSUNSat1 During Eclipse

The ripples in voltage data are from the spacecraft spinning at one revolution per minute. Normally the data is a smooth series of double humps as the solar cells alternate between seeing the sun and then rotate to see the reflected sunlight from the Earth’s clouds and oceans. The drop in voltage shows both the sun being blocked by the moon as well as the ground and clouds darkened by the moon’s shadow.

CSUNSat1 has completed its NASA funded primary mission, successfully flight testing a new, low-temperature energy storage system for the JPL. The system will allow future spacecraft to operate at the extreme low temperatures of deep space as they explore the distant planets. Currently, the CSUNSat1 team is using the satellite to study the space environment and on-orbit operations.

The spacecraft was designed and built by 70 undergraduate and graduate students led by Professors Sharlene Katz and James Flynn of the Department of Electrical and Computer Engineering. It was launched in April and deployed in mid-May from the International Space Station.