

# EE CprE 491 – May 20 - 49

## CySat Senior Design Team

### Week 15 Report

November 30 – December 6

Faculty Advisors: Phillip Jones

#### Team Members:

Bryan Friestad — *Team Lead / EPS Lead / OBC Lead*

Ryan Hansen — *SDR Lead*

Chase Kirchner — *Ground Station Lead / CI Testing Lead / UHF Secondary*

Kyle Muehlenthaler — *UHF Lead / Ground Station Secondary*

Talon Stromgren — *GitLab Master / Boost Board Lead / SDR Secondary*

Xiangzhu Yan — *ADCS Lead*

#### Past Week Accomplishments

- OBC: Put the EnduroSat SDK project on GitLab [Bryan]. Ported some code from the discovery board project to the OBC project [Bryan].
- ADCS: Finished (ADCS)TC/TLM functions.
- SDR: Set up Raspberry Pi SDR dummy node. Worked on getting dummy OBC python script and dummy SDR scripts running to simulate respective systems and communicating over UART. Developed working file transfer over UART. Demonstration: <https://drive.google.com/open?id=12eWqYEtfZsrCDxT9htC2e5n-K8B3h4Dk>
- EPS: Wrote a couple functions to read from the EPS over I2C. One that performs a generic read function (all are 2 bytes). Another one that uses the first to perform read command 41 (software version).
- Ground Station: Interface mock-up, determined command support, began working on uart serial receive, started interface (python tkinter)
- UHF: Wrote out some commands to use from the OBC to adjust the UHF Transceiver./Easy use ESTCC commands.
- Boost Board: Finished and sent files to Matt Nelson for ordering.
- Carrier Board: Redesigned with new 10 pin connector. All done besides needing to add test some additional ports to probe.

#### Pending Issues

- Waiting on Matthew to ask EnduroSat for EPS documentation
- Understanding how to send/receive messages to/from UHF antenna via the transceiver

## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours	Attend Gen. Meeting?
Bryan Friestad	Finished base project port for actual OBC. Wrote some code for getting the EPS software version over I2C. Helped Chase determine Ground station commands that should be supported.	10	65	yes
Ryan Hansen	Set up dummy SDR and OBC. Established UART communication. Worked on OBC and SDR conceptual procedural flow. Finished working file transfer over UART.	19	59	No
Chase Kirchner	Interface mock-up, met with Bryan establishing supported ground station commands, STM setup for writing serial uart functions, began serial receive uart, began interface work, python tkinter research	13	45	no
Kyle Muehlenthaler	Wrote out commands for the UHF system	9	46	no
Talon Stromgren	Finished boost board, carrier board updated, and almost done.	8	54	no
Xiangzhu Yan	Finished (ADCS)TC/TLM functions.	13	53	no

## Plans for Coming Week

- Bryan Friestad: Test requesting Software version from EPS via I2C. If that works well, starting writing other EPS read functions. Otherwise, debug.
- Ryan Hansen: Develop code on Dev OBC for SDR communication. Test dummy SDR communicating with Dev OBC. Maybe replace Dev OBC with real OBC and test communication.
- Chase Kirchner: Ground station interface work and finish up serial receive uart. Meet with Ryan, Bryan, and Kyle for ground station UART communication
- Kyle Muehlenthaler: Test communication with ground station.
- Talon Stromgren: Finish carrier board
- Xiangzhu Yan: CubeADCS Health Check by CubeSupport. Start a new gitlab branch for detumbling process, magnetometer deployment, etc.