Design Methodology and Analysis
Outlines design method and analysis conducted

Various design methods were implemented to validate designs stated in literature review.

Battery Management
- Voltage divider equations to determine required resistor values

Power Distribution
- Feedback resistor values were calculated and output voltages were validated

Microcontroller & Communication
- LTspice was used to simulate-CM transceiver. Kiel-MCS was considered as a simulation tool however, software was out of scope for the purpose of this report.

Sensors
- Two test cases were examined: water present and no water present. Software simulations were completed in LTspice.

Simulation and Results
Outlines design method and analysis conducted

Testing was divided into two steps: subsystem testing and system level integration tests. Once each subsystem test was completed, circuits were combined and tested interoperability. Testing was completed in LTspice and sample outputs for the four major subsections are presented below.

References

Discussion and Recommendation
- All subsections passed simulation tests and results obtained were as expected when compared with calculated theoretical values.
- 5V external supply test was above expected values by ~ 3mV; however it is not significant enough to affect other subsystems.
- For future work, a PCB layout and Gerber files should be produced and manufactured.
- Firmware and comprehensive testing with other components of the AUV should be completed.