**UNIT TESTING OF ONEWIRE LIBRARY AND UART LIBRARY**
**REVISION 1.0**

**UART LIBRARY TESTING**

The module located in /src/firmware/UART_LIBRARY is a module for controlling input and output from Arduino/AVR devices used in the project. It has functionality for relaying individual bytes from the Arduino, as well as storing the data in a buffer(s) to send in larger batches.

Testing was conducted with CoolTerm serial communicator and an Arduino Mega. In the Arduino's programming, strings were printed using the UART printf function, which were then received by CoolTerm. If the beginning and received strings are identical, that was the desired result. To test a buffer, small buffer sizes were used.

Equivalence Classes used:

The size of the buffer is an equivalence class-- it can be assumed that the buffer will perform the same with a large size (up to the size of free, addressable program memory) as well as a small size.

**ONEWIRE LIBRARY TESTING**

The module located in /src/firmware/One_Wire_Library is a driver for the ds18b20 temperature sensor. It provides functionality for sending temperature data, receiving configuration data, as well as the implementation of a custom floating point function.

Testing was conducted by sending data to the sensor through the UART library. Then, using serial communication software, (in this case, CoolTerm was used) the output of the sensor was analyzed to see if the data received matched the intended result. Secondly, corner cases were used to simulate temperatures beyond the specification of the sensor.

Equivalence Classes passed into the sensor:
Any valid temperature reading will return a valid result; any invalid data will return -9999.99.