

901913 - Demonstrating high-speed communication with a submerged AUV

Week 52

1. Brent Roman
 - a. Confirmed modems work in our test tank. Tweaked gstreamer pipeline parameters to improve video stability over internet – at the cost of increased latency.

Week 50

1. Brent Roman
 - a. Sustained data transfer at 19KB/s between Waveglider and modem hung 2m below it in test tank
 - b. Demoed smooth 15fps 640x480 video from LRAUV below Waveglider in test tank
 - c. Next steps are to pot cable to mount modem permanently in LRAUV
 - d. Combined LRAUV<->Waveglider test deployment in January 2022.

Week 49

1. Brent Roman
 - a. Demonstrated streaming video from LRAUV camera over internet cellular network
 - i. Ready for test of Waveglider in the test tank late this week

Week 48

1. Brent Roman
 - a. Transferred @10kB/s within the test tank between two laptops alongside
 - b. Kudos to James McClure for quickly potting cables from Brett Hobson's drawings
 - c. Verified with Chris Wahl that Waveglider modem cable is properly wired and ready to pot.

Week 46

1. Brent Roman
 - a. Tested modems in bucket and MBARI test tank.
 - i. Unfortunately, they will not work in either scenario due to reverberations
 - ii. Working with Brett and Chris Wahl to sink a modem in the tank to test vertical channel

Week 45

1. Brent Roman
 - a. Pair of modems have arrived
 - b. Having cabling made by EE techs
 - c. Hope to do some in tank tests late this week

Week 43

1. Brent Roman
 - a. OceanComm has confirmed that they will be shipping us a pair of H150 modems by Friday.

Week 41

1. Brent Roman
 - a. OceanComm has committed to delivering MBARI deployable modems by 9/1

Week 40

1. Brent Roman
 - a. Preparing board bullets

Week 39

1. Brent Roman
 - a. Got word from OceanComm that the H150 modem will not be ITAR (great news!)

Week 38

1. Brent Roman
 - a. Modems reportedly assigned EAR export regs -- no more ITAR headaches!

Week 34

1. Brent Roman
 - a. Chris Wahl mounted high speed cell modem on WG-Tiny
 - i. Delivered upload rates >400KB/s within 7 miles of shore
 - ii. M1 comms are spotty, but 250KB/s when available

Week 33

1. Brent Roman
 - a. WG Tiny is touring the Monterey Bay with the USB cell modem we intend to use for modem test
 - i. Uploading data on this cell link at 700KB/s to 1.5MB/s

Week 31

1. Brent Roman
 - a. Configured LTE router to serve video on the public internet inside a Wireguard tunnel

Week 30

1. Brent Roman
 - a. Gave Chris Wahl parts for high-speed cellular "hotspot" link to WaveGlider
 - b. Bret Hobson and Chris Wahl are working with OceanComm on modem wiring

Week 29

1. Brent Roman
 - a. Met with LRAUV and Waveglider folks to plan integration modem integration
 - i. Shooting for deployment in early October
 - b. OceanComm to deliver modem pair mid August

Week 27

1. Brent Roman
 - a. Pinging Badwolf to learn how to adjust video encoding for low bandwidth links

Week 26

1. Brent Roman
 - a. Managed to transmit hires video at 5 frame/second via H150 acoustic modems in LRAUV lab

Week 25

1. Brent Roman
 - a. Linux large TCP windows were not compatible with these ethernet modems
 - i. Reducing the TCP window size and MTU yields solid 20 Kb/s TCP throughput

Week 23

1. Brent Roman
 - a. Finally received modem electronics and dummy load
 - b. Installed in the corner of B137 near roll up door
 - c. Modems should emulate an ethernet bridge
 - i. But they do it imperfectly. Need to investigate TCP tuning parameters.

Week 20

1. Brent Roman
 - a. Still stuck in ITAR Limbo...

Week 19

1. Brent Roman
 - a. Still squabbling over the loan agreement and arranging to receive equipment

Week 18

1. Brent Roman
 - a. Agreements in place (I think)

Week 17

1. Brent Roman
 - a. Got an acceptable loan agreement from OceanComm
 - b. How a couple options for where we can secure the ITAR equipment at MBARI
 - c. OceanComm says they are ready to ship!
 - d. Waiting on signatures from MBARI side.

Week 16

1. Brent Roman
 - a. Continuing to wrestle equipment loan agreement and NDA

Week 15

1. Brent Roman
 - a. Waiting for docs from OceanComm...

Week 14

1. Brent Roman

- a. Working with MBARI legal and OceanComm on loan of, possibly ITAR restricted, modems

Week 12

- 1. Brent Roman
 - a. Still in ITAR limbo. Oceancomm themselves are not yet sure how modems should be classified
 - b. Suggested we leave the modem at Oceancomm for now, but provide MBARI net access to it.

Week 10

- 1. Brent Roman
 - a. Working through ITAR/EAR classification issues with OceanComm modems

Week 9

- 1. Brent Roman
 - a. Learned that Oceancomm's modems will likely have to be treated at ITAR :-(

Week 8

- 1. Brent Roman
 - a. Arranging delivery of a pair of modem board sets and dummy load
 - i. Dealing with ITAR

Week 7

- 1. Brent Roman
 - a. Working through details of equipment loan agreement

Week 2

- 1. Brent Roman
 - a. Working with James Younce and Brett Hobson to determine whether Oceancomm's existing modem housing can fit into our LRAUV

Week 1

- 1. Brent Roman
 - a. Working with Oceancomm to validate modem mechanical designs