

Report of the 40 m TAC 19th October 2006. LIGO-T060252-00-R

K.A. Strain for the 40m TAC

October 25, 2006

October 19th 2006 40m TAC telecon minutes

Attending

Bob Taylor, Osamu Miyakawa, Ben Abbott, Rob Ward, Bram Slagmolen, Kirk McKenzie, Sam Waldman, Steve Vass, Rana Adhikari, Alan Weinstein, Hartmut Grote, Guido Müller, Dave Tanner, Ken Strain, Valera Frolov, Kentaro Somiya, Peter Fritschel, Nergis Mavalvala, Most of the material presented may be found on the 40m at:

http://lhocds.ligo-wa.caltech.edu:8000/40m/Long_Term_Plans_@_the_40m

Brief discussion of minutes of previous meeting. Schedule is going to be an important part of this meeting.

Rana presented the main talk (at that time titled Oct06-TAC).

The TAC was asked to comment on the 40m long term plans, including the work more focussed towards Enhanced LIGO - a new feature of the program.

http://lhocds.ligo-wa.caltech.edu:8000/40m/High_Level_Schedule

We considered the high level schedule, and believe it is generally in line with requirements for Enhanced LIGO (essentially consists of testing of DC readout and the OMC), and also the new LSC scheme for Advanced LIGO (subject to uncertainties about how much work will be required to modify the 40m to test the new scheme which is not yet defined). It is possible that the modulation frequencies needed will require the input MC to be removed, and the suspensions used for other purposes. It will be necessary to look carefully at the 40m program as the Advanced LIGO ISC design matures.

There was some discussion of the decision to try the complex modulation approach rather than just continuing with the MZ. Both approaches have problems, but one may work out better than the other in practice. It seems very reasonable to push forward with complex modulation on the 40m as a test for Advanced LIGO. The Advanced LIGO requirements need to be clarified in terms of tolerable level of AM at the intermodulation frequencies, necessary stability etc. (as the ISC design matures). The UF group continues to work on complex modulation (looking at modulation-source noise, how well can intermodulation terms be removed, and how well do they need to be suppressed).

An update on squeezing was not included in the presentation, but the topic was discussed. There is progress on the source, with a few dB of squeezing having been observed on site. Integration tests will be done at some point when it does not disrupt the program too much. At least one short vent is needed to repair some equipment for the squeezing experiment, this is not seen to be very disruptive to other work.