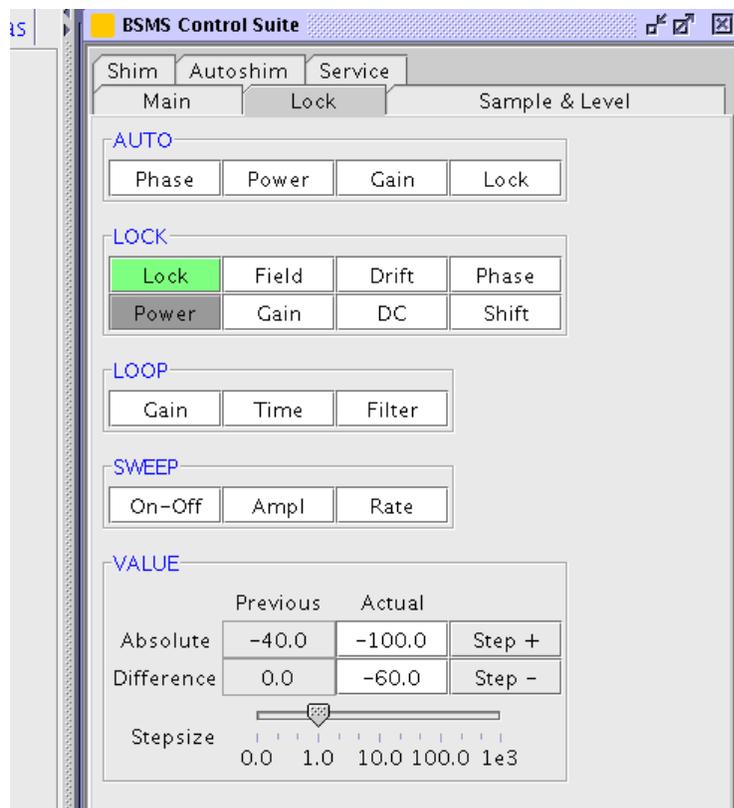


How to observe ^2H NMR

1. Looking for a ^2H label:

If looking for deuterium label it is ok to use a deuterated solvent (If you are trying to observe natural abundance ^2H , see (2) below). Lock and shim like normal. Run a Proton experiment to check the quality of your shimming. Type rpar DEUT all [enter]. Type edasp [enter] and check that NUC1 is ^2H and that NUC2 is ^1H . Type bsmsdisp [enter] and click the lock button to open the lock menu. Click the 'lock power' button and enter -100 as a value into the box (see Figure). You should observe a diminished signal after doing this. Turn off the lock by clicking the green button.

Close the lock window. Type rga. On non-atma probes, type wobbb [enter] and acqu [enter], otherwise, type atma. Look at the card under the probe and set the sliders to the value shown on the card (you may have to do some fine tuning). Finally, open the NMR Console cabinet and find the L-TX 300 Board (Bottom Right) **CAUTION: FIND RUSS IF YOU ARE UNCERTAIN**



WHAT TO DO HERE. Use the special wrench located on top of the cabinet to unscrew the cable connected to the ^2H -TR J4 lug. Set ns to 16 and type zz. Process like normal.

2. Natural Abundance ^2H Observe:

If you are trying to observe natural abundance ^2H you **do not want to use a deuterated solvent** or it will obscure any peaks of interest. Due to the extremely low natural abundance, and the need to run the experiment unlocked, it is imperative to have as concentrated a sample as possible (neat, if it is a liquid). From a proton experiment, Type bsmsdisp [enter] and click the lock button to open the lock menu. Click the 'lock power' button and enter -100 as a value

into the box (see Figure). You should observe a diminished signal after doing this. Turn off the lock by clicking the green button. Close the lock window. Type rga. Type td [enter] and change this to 15k. Type gs [enter] and acqu [enter]. You will observe an fid. You need to shim z and z2 such that you maximize the signal of the fid (you cannot shim as you are not locked on deuterium). When you are finished, type stop and click the return button. Type rga [enter] and type ns [enter] and set it to 1. Type zz. Look at the proton spectrum of your compound to determine whether or not you are shimmed well enough (you can make some changes to your shims and see how the change in the fid affects the quality of the spectrum). Once you are satisfied, type iexpno [enter], and type rpar DEUT all. Type edasp and check that NUC1 is 2H and that NUC2 is 1H. On non-atma probes, type wobbb [enter] and acqu [enter], otherwise, type atma. Look at the card under the probe and set the sliders to the value shown on the card (you may have to do some fine tuning). Finally, open the NMR Console cabinet and find the L-TX 300 Board (Bottom Right) **CAUTION: FIND RUSS IF YOU ARE UNCERTAIN WHAT TO DO HERE.** Use the special wrench located on top of the cabinet to unscrew the cable connected to the 2H-TR J4 lug. Set ns to 1024, and confirm that the addition of d1 and AQ is ~6-10 seconds. Type zz to begin the experiment. Process like normal.