

^2H NMR

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Special Note:

This experiment involves setting acquisition parameters that could potentially damage the probe. Please do not attempt to set up this experiment without first walking through it with Justin or Sarah.

Also this experiment is only calibrated on Florence (the walkup 400 MHz spectrometer in Malott 3002). Do **not** attempt to set up this experiment on another spectrometer.

^2H NMR – what is the same and what is different?

Acquiring a ^2H NMR spectrum is just like acquiring any other nuclei. The major difference is that ^2H NMR uses the same circuitry as the lock. Therefore we can't simultaneously lock the instrument and pulse/acquire on the ^2H channel.

How to set up ^2H NMR in Topspin:

#1) Load your sample, lock, shim and acquire a 1D ^1H NMR spectrum. It is always valuable to record a 1D ^1H to check the quality of your sample. Furthermore, the 1D ^1H spectrum is an efficient way to assess the shimming.

#2) Create a new experiment by typing "edc" in the Topspin command line. I recommend incrementing the experno by one, although you can do whatever you prefer. Choose "ZG2H" for the experiment. Type getprosol to load in probe-specific acquisition parameters.

#3) Check for proper configuration of the spectrometer using the command 'edasp'. The output should resemble Fig. 1.

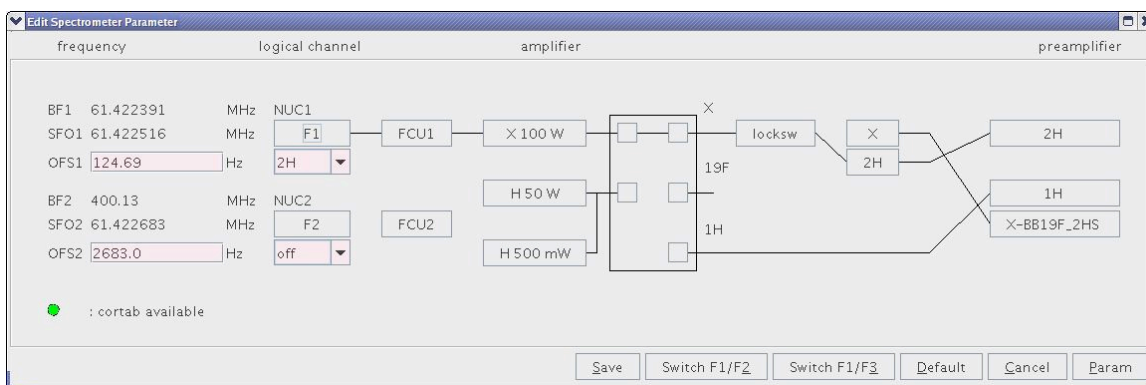


Figure 1. Spectrometer configuration for ^2H NMR.

Please check the following parameters to make sure they are properly loaded.

p1	187 μ s
pl1	3 dB
TD	16284
d1	2 s

To check type the parameter name in the Topspin command line. Type rga to set the receiver gain. Notice that the lock will automatically shut off and the lock button on the BSMS keyboard will blink. In theory, the spectrometer should re-lock once the acquisition is complete, but this doesn't always happen.

#4) Enter an appropriate ns. Check the total experiment time using the command expt. Type zg to start the experiment.

#5) When you are finished turn off the lock and spins. Eject your sample.