

UPDATE # 1 (more info on the RF section)

While I'm building the temperature controllers I am doing some more analysis of the existing RF circuits. Here are measurements of the cavity and feedback loop.

Cavity loss -12.0db @ resonance (Q=7100)

LNA gain from input to sample out +27db (@ -100dbm in), to IF out (+40db)

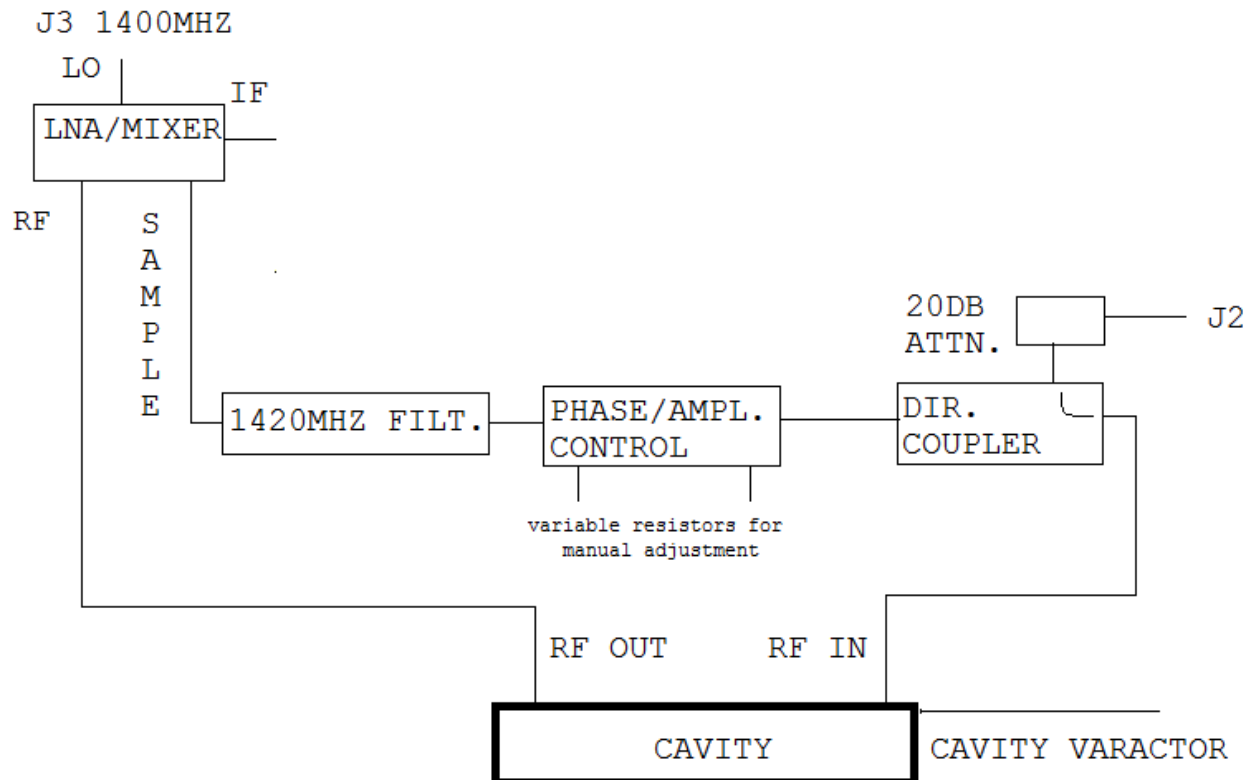
Filter I.L. -1.6db

Phase/amp. Control I.L. variable -1.6 to -30db (Current setting -12.8db)

Estimated loss through coupler and interconnecting cables -1.0db

So the input back into the cavity looks to be -88.4, making it -100.4 after the cavity.

This gives about unity gain with no Hydrogen in the cavity. With Hydrogen the cavity would have maybe 4db of gain above the -12db I.L. so should oscillate!



The amplitude and phase controls are from 20 turn pots and are 0 to +1.68VDC and 0-12.1VDC.

