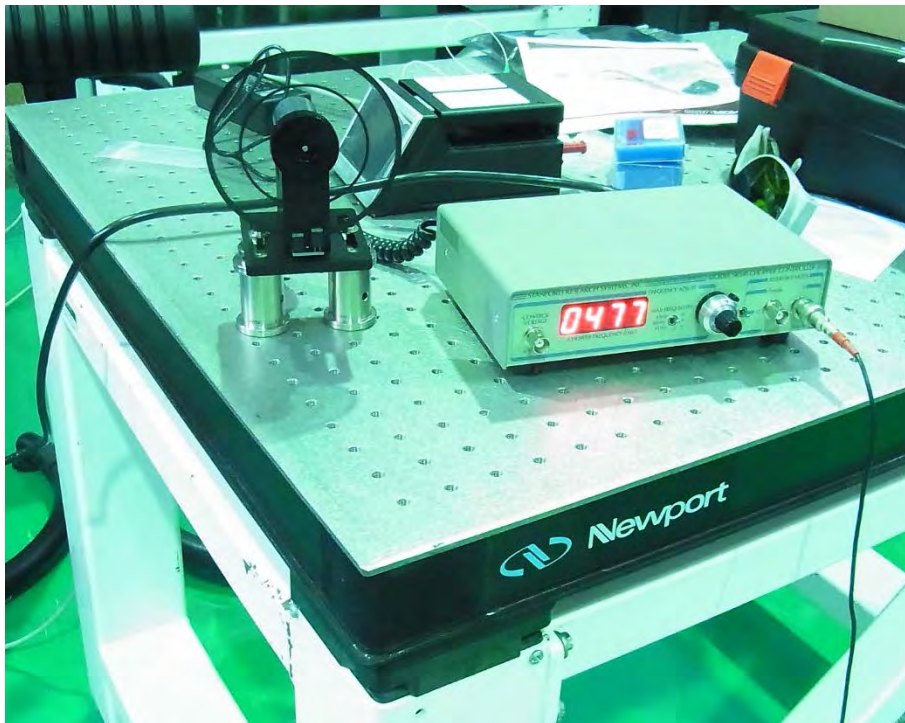


# Checking of Optical Chopper: SR540

April 1st, 2016  
Daisuke Tatsumi

Manual claimed in his report that a replaced (new) optical chopper has some problems.



Before sending back it to the seller or manufacturer, I checked the chopper.

**[CONCLUSION]**  
**The chopper has no problems and works well.**

Picture 1:  
Optical chopper  
Stanford Research Systems  
SR540

Manuel

Peak at 400Hz (network freq noise)



Picture 1:

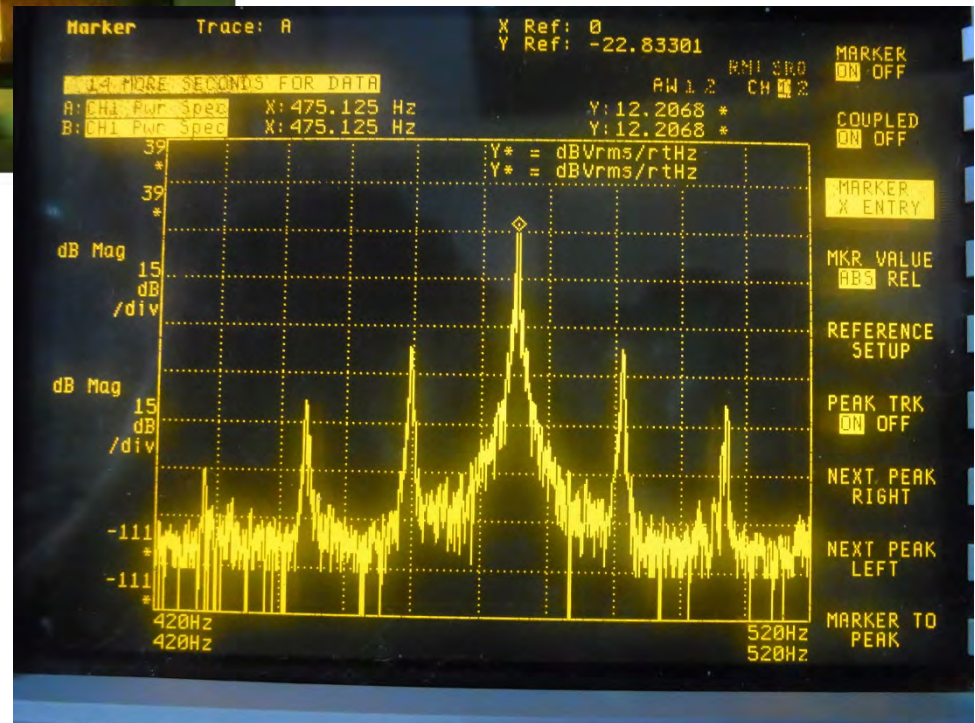
From Manuel's report chopping frequency is not stable.

Picture 2:

Spectrum of chopper output signal.

This spectrum is different from Manuel's one obviously.

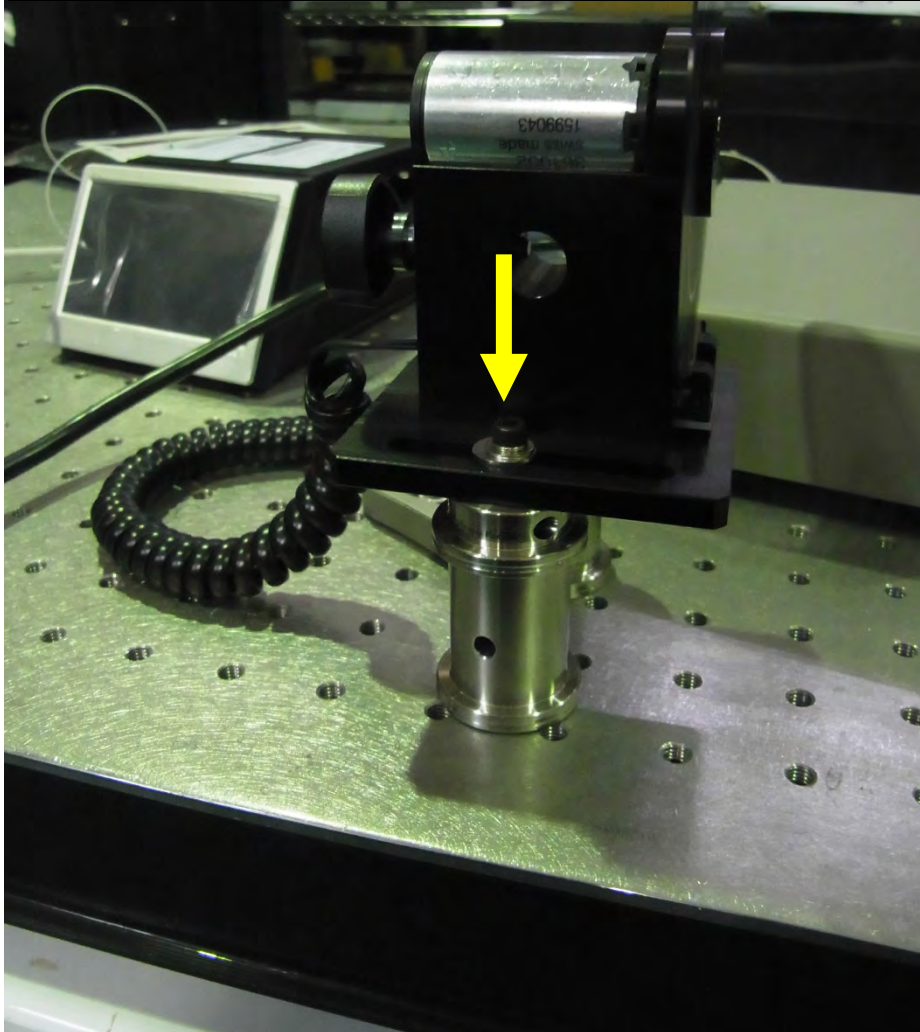
Both x-axis set same 100 Hz range.



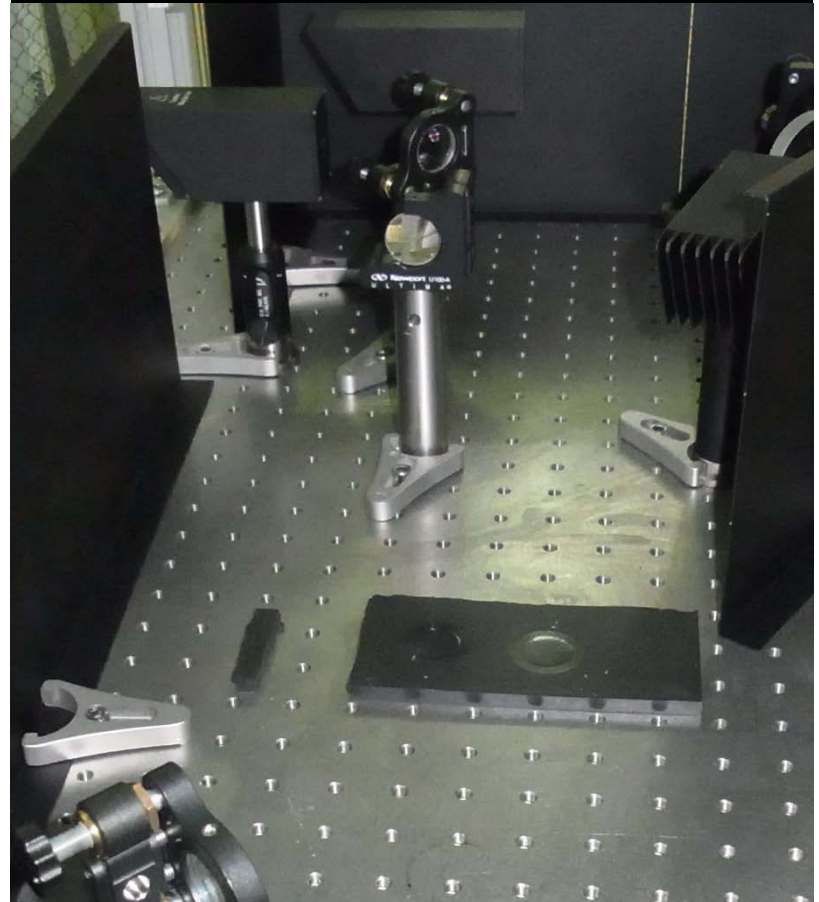
Reasons are expected as follows;

a) I put the chopper on optical table directly.

b) One leg was not fixed tightly.



On absorption measurement bench the chopper put on the rubber sheet to reduce the environmental noises.



Spectrum of 16 seconds data



Spectrum of 16 seconds data with 20 times averaging. (320 sec in total)  
Shift of rotational frequency makes the peak wider.

Catalogue spec. for long-term drift is  $<2\%$ . Therefore, an expected drift is less than  $475 \text{ Hz} \times 2\% = 9.5 \text{ Hz}$ .  
This amount of drift is acceptable.

