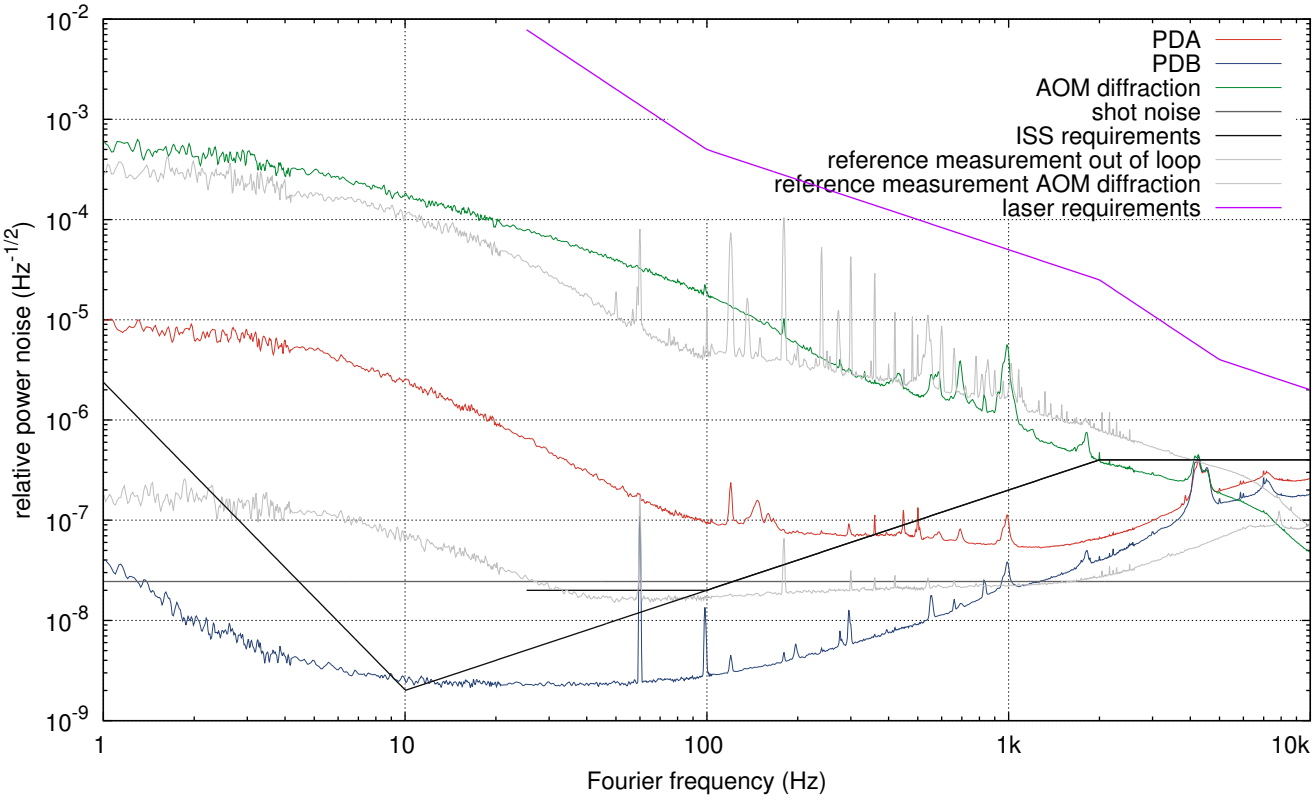
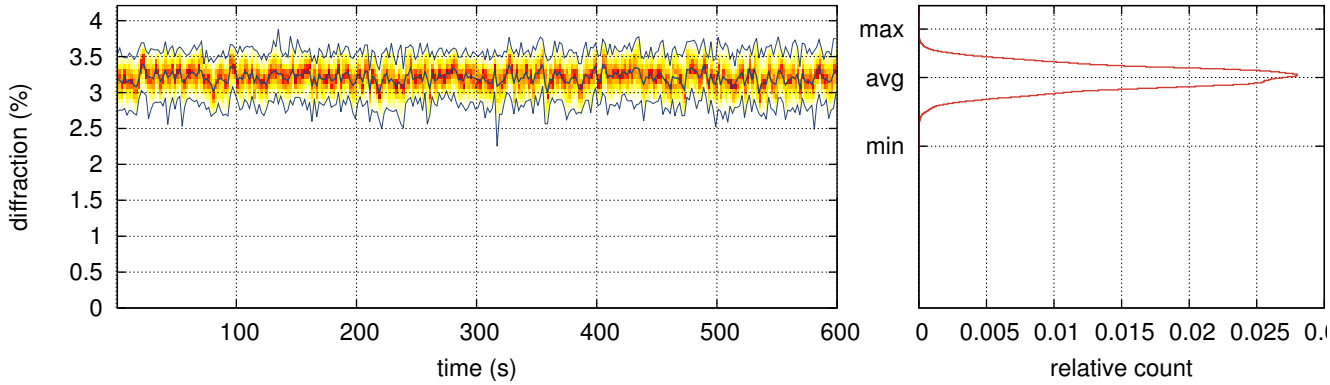
ISS – first loop relative power noise

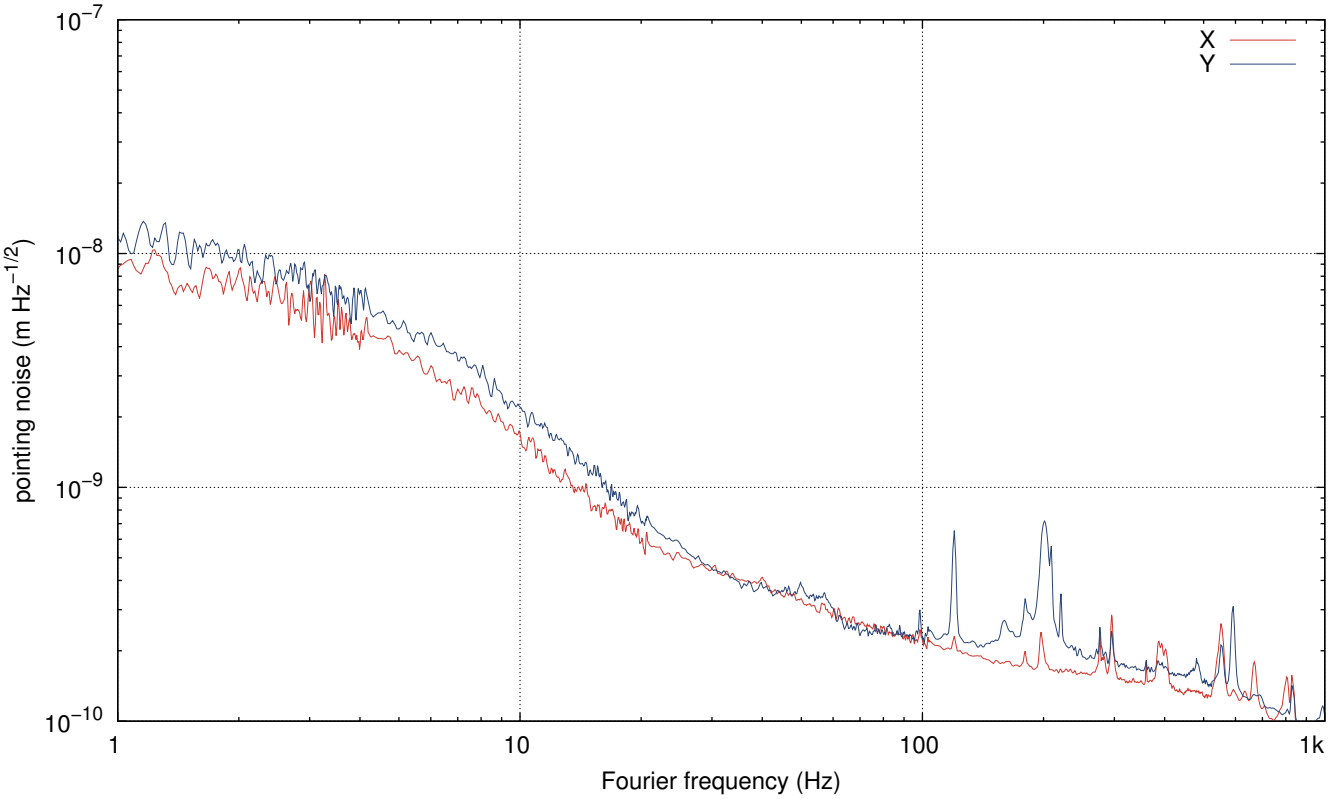
noisereport

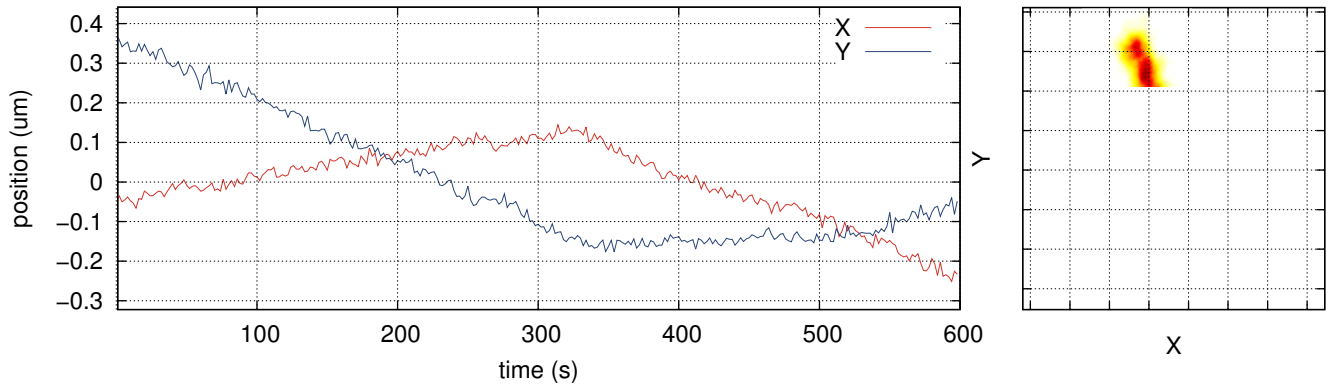




POWER STABILIZATION	
Measurement:	600 s = 10.0 min, 28. Sep 2017 08:06 PDT
Stabilization:	first loop closed, integrator on; second loop injection on
Reference signal:	-0.899 V
First-loop gain:	18.0 dB
Last saturation event:	6d 23h 38m
Average AOM diffraction:	3.21%
Diffraction signal range:	2.25%. . .3.88% (1.63% peak-to-peak, 32768 Hz samplingrate)

POWER NOISE		
	Photodiode A (PDA)	Photodiode B (PDB)
Average DC signal:	2.937 V	4.533 V
FILT signal range:	0.522 V. . .0.662 V (0.012 V_{rms})	0.903 V. . .0.910 V (0.001 V_{rms})
FILT samplingrate:	32768 Hz	32768 Hz
Photocurrent:	0.9 mA	1.4 mA
Relative shot noise level:	1.90e-08 $Hz^{-1/2}$	1.53e-08 $Hz^{-1/2}$





POSITION FLUCTUATIONS	
X position:	2.703 ± 0.095 um, 2.381 um . . . 2.915 um
Y position:	-13.831 ± 0.166 um, -14.153 um . . . $-$ 13.389 um
Samplingrate:	32768 Hz, 32768 Hz

D A Q	
Measurement duration:	600 s = 10.0 min
Measurement start:	28. Sep 2017 08:06 PDT (28. Sep 2017 15:06 UTC, 1190646422 GPS)
NDS:	h1nds1:8088 (v12r2)
User:	controls@zotws1
Channels:	H1:PSL-ISS_PDA_OUT 32768 Hz, H1:PSL-ISS_PDB_OUT 32768 Hz, H1:PSL-ISS_DIFFRACTION_OUT 32768 Hz, H1:PSL-ISS_QPD_DX_OUT 32768 Hz, H1:PSL-ISS_QPD_DY_OUT 32768 Hz, H1:PSL-ISS_LOOP_STATE_OUTPUT 16 Hz, H1:PSL-ISS_REFSIGNAL_MON_OUTPUT 16 Hz, H1:PSL-ISS_GAIN 16 Hz, H1:PSL-ISS_SECONDLOOP_CLOSED 16 Hz, H1:PSL-ISS_SAT_MIN 16 Hz, H1:PSL-ISS_SAT_HOUR 16 Hz, H1:PSL-ISS_SAT_DAY 16 Hz
Raw data:	rawdata.zip (attached to this .pdf file, use Adobe Reader)
Calibration:	default.cali (embedded), 01. Jan 1970 00:00 UTC
Report source files:	report.zip (attached to this .pdf file, use Adobe Reader)
Program:	iss_rpn.py v0.7, Patrick Kwee, patrick.kwee@aei.mpg.de

I N F O
Measurement method: The power noise downstream of the PMC is measured with two low-noise 2 mm InGaAs photodetectors. One of the photodetectors is used as sensor in the ISS first feedback control loop. The signal to the AOM driver is used to estimate the free-running power noise of the laser system.
no comment