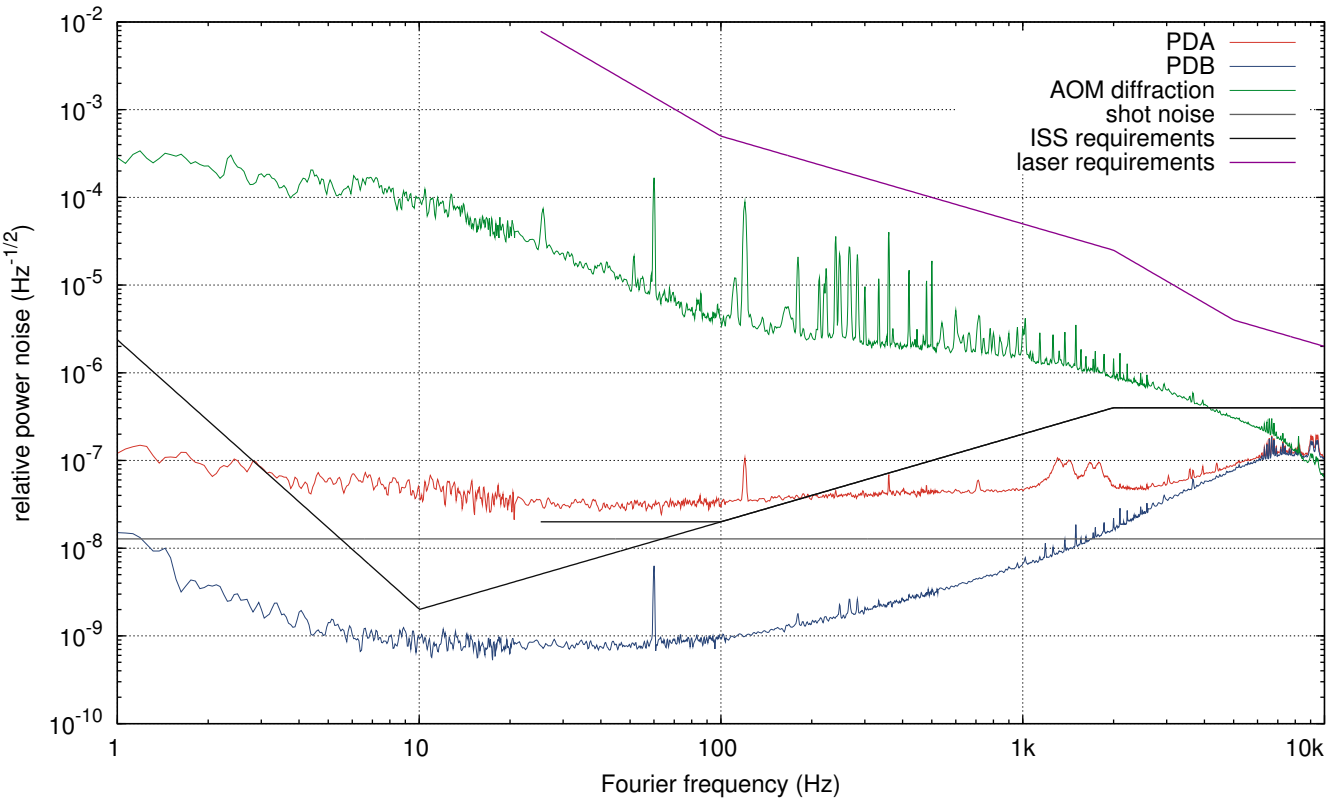
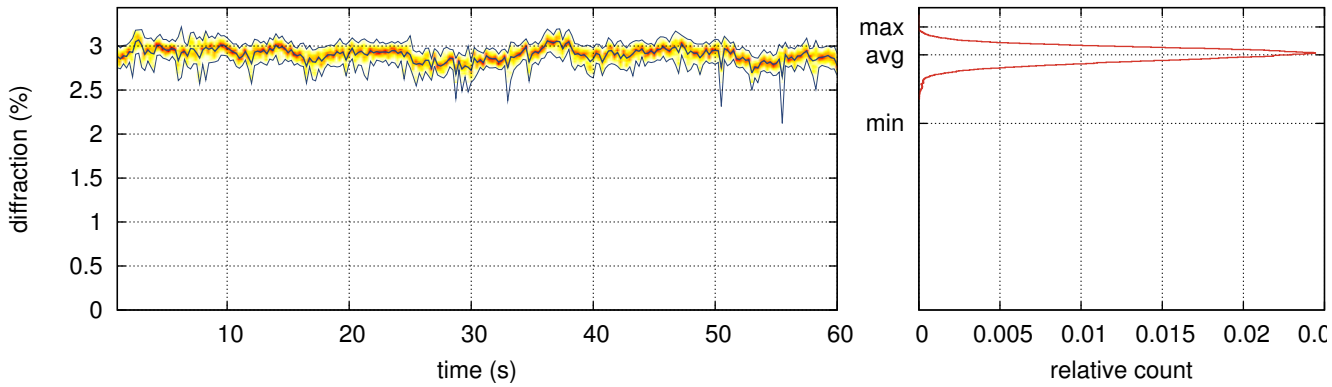
ISS – first loop relative power noise

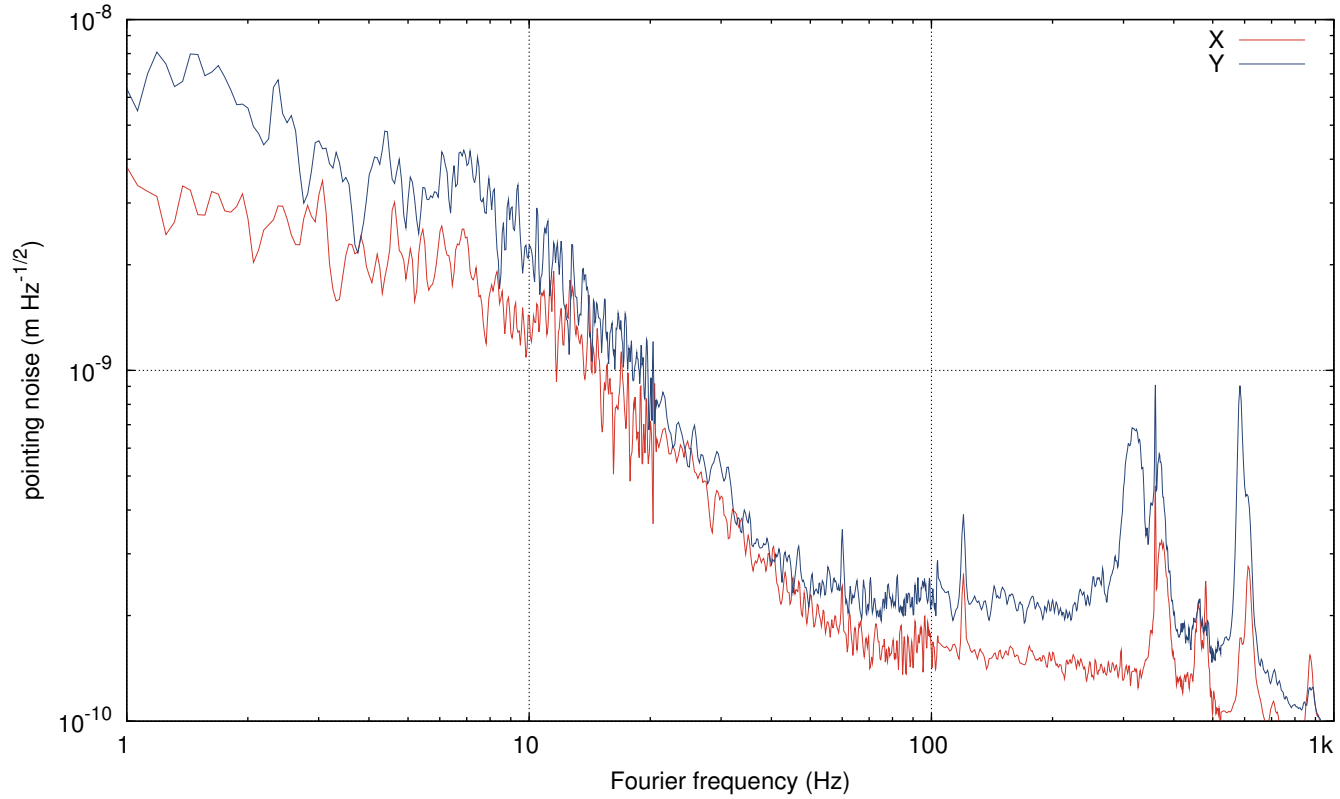
noisereport

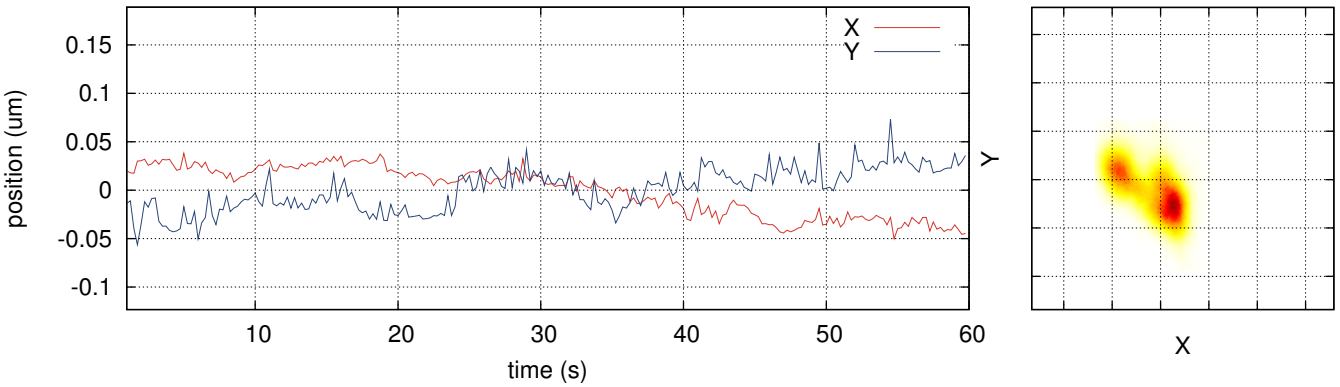




POWER STABILIZATION	
Measurement:	60 s = 1.0 min, 20. Jul 2012 09:42 PDT
Stabilization:	first loop closed, integrator on; second loop injection off
Reference signal:	-2.631 V
First-loop gain:	7.0 V
Last saturation event:	0d 16h 2m
Average AOM diffraction:	2.90%
Diffraction signal range:	2.12%. . .3.22% (1.10% peak-to-peak, 32768 Hz samplingrate)

POWER NOISE		
	Photodiode A (PDA)	Photodiode B (PDB)
Average DC signal:	12.713 V	13.325 V
FILT signal range:	2.528 V. . .2.559 V (0.003 V_{rms})	2.659 V. . .2.670 V (0.001 V_{rms})
FILT samplingrate:	32768 Hz	32768 Hz
Photocurrent:	3.8 mA	4.0 mA
Relative shot noise level:	9.15e-09 $Hz^{-1/2}$	8.93e-09 $Hz^{-1/2}$





POSITION FLUCTUATIONS	
X position:	35.240 ± 0.026 um, 35.150 um . . . 35.343 um
Y position:	-12.261 ± 0.026 um, -12.384 um . . . $-$ 12.072 um
Samplingrate:	32768 Hz, 32768 Hz

D A Q	
Measurement duration:	60 s = 1.0 min
Measurement start:	20. Jul 2012 09:42 PDT (20. Jul 2012 16:42 UTC, 1026837753 GPS)
NDS:	h1nds1:8088 (v12r0)
User:	psl@operator2
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 v0.6, 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