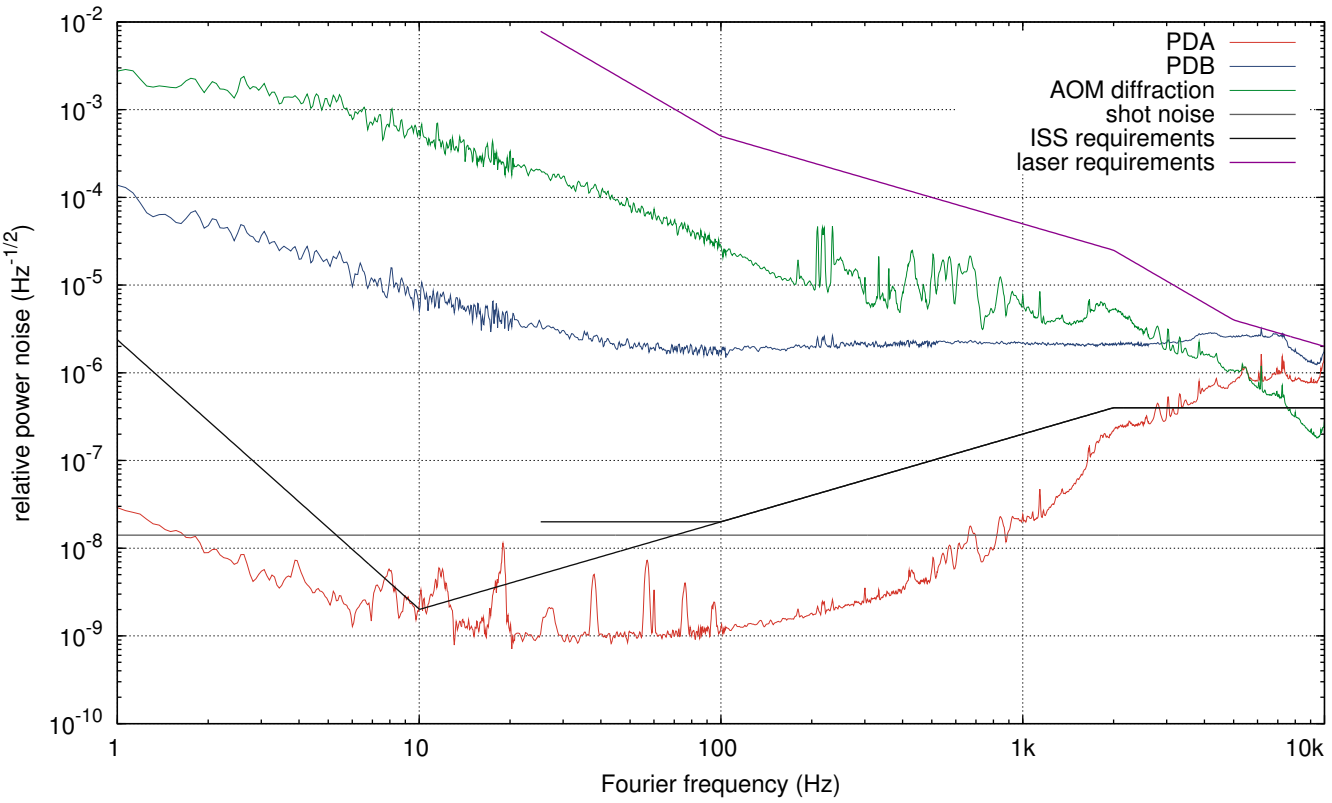
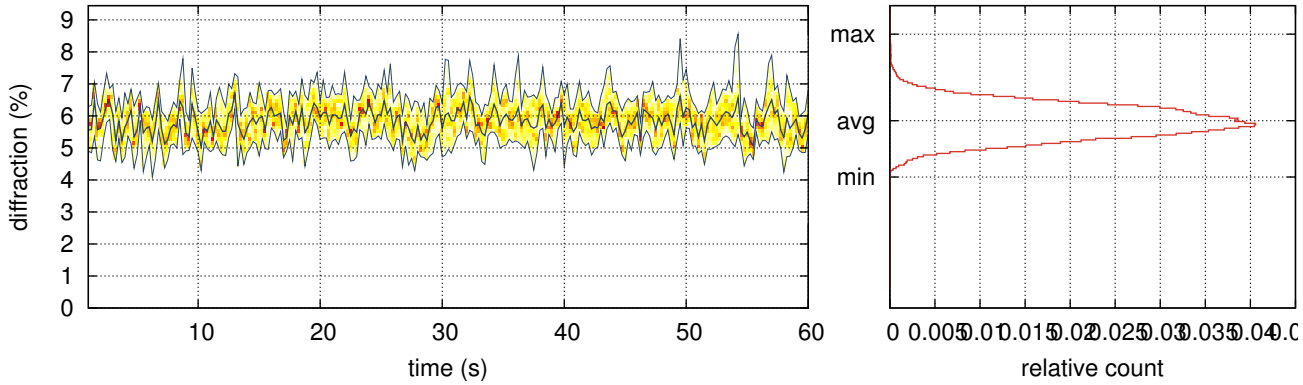
ISS – first loop relative power noise

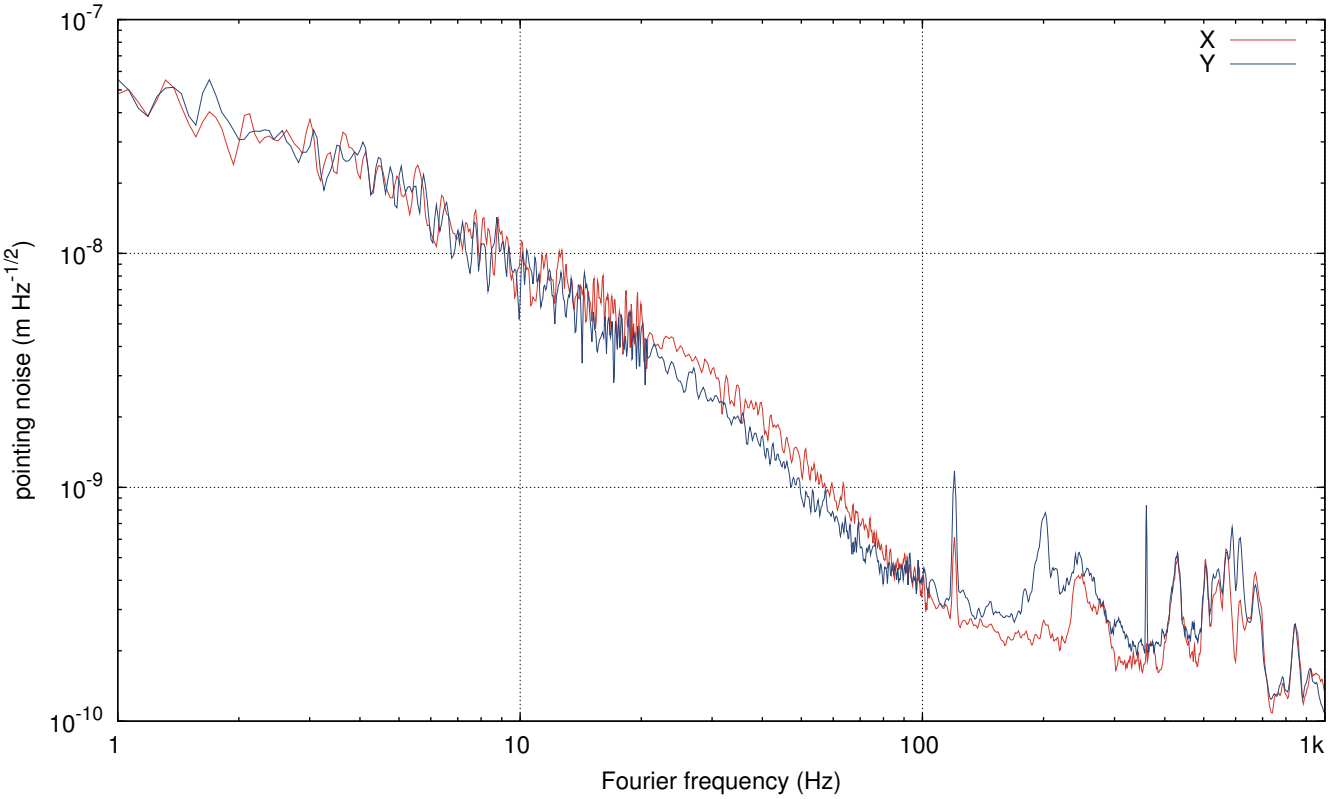
noisereport

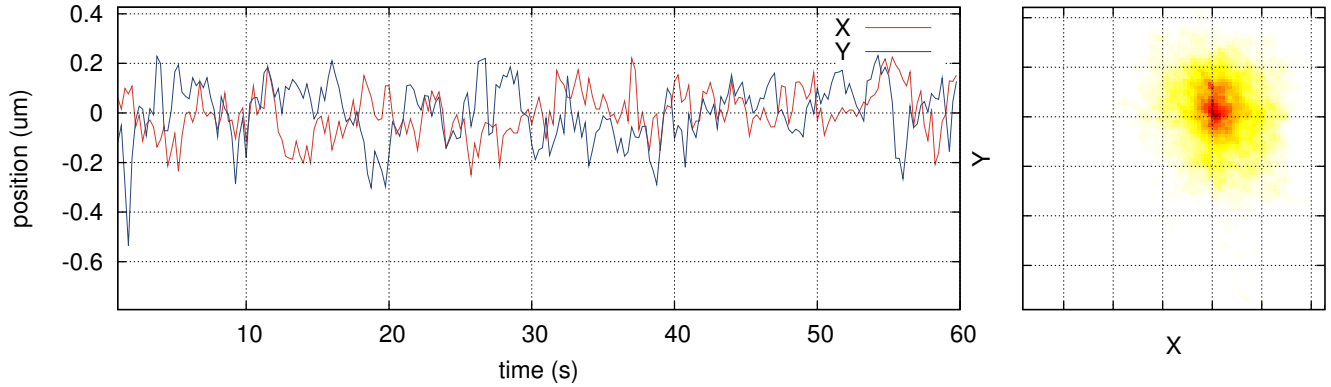




POWER STABILIZATION	
Measurement:	60 s = 1.0 min, 07. Feb 2012 13:32 PST
Stabilization:	first loop closed, integrator on; second loop injection off
Reference signal:	-2.133 V
First-loop gain:	-3.2 V
Last saturation event:	0d 5h 2m
Average AOM diffraction:	5.85%
Diffraction signal range:	4.09%. . .8.55% (4.46% peak-to-peak, 32768 Hz samplingrate)

POWER NOISE		
	Photodiode A (PDA)	Photodiode B (PDB)
Average DC signal:	10.796 V	10.624 V
FILT signal range:	2.125 V. . .2.199 V (0.008 V_{rms})	1.052 V. . .3.184 V (0.218 V_{rms})
FILT samplingrate:	32768 Hz	32768 Hz
Photocurrent:	3.3 mA	3.2 mA
Relative shot noise level:	9.93e-09 $Hz^{-1/2}$	1.00e-08 $Hz^{-1/2}$





POSITION FLUCTUATIONS	
X position:	9.028 ± 0.116 um, 8.569 um . . . 9.401 um
Y position:	-29.185 ± 0.139 um, -29.979 um . . . $-$ 28.758 um
Samplingrate:	32768 Hz, 32768 Hz

D A Q	
Measurement duration:	60 s = 1.0 min
Measurement start:	07. Feb 2012 13:32 PST (07. Feb 2012 21:32 UTC, 1012685539 GPS)
NDS:	h2nds0:8088 (v12r0)
User:	controls@h2pslws0
Channels:	H2:PSL-ISS_PDA_OUT 32768 Hz, H2:PSL-ISS_PDB_OUT 32768 Hz, H2:PSL-ISS_DIFFRACTION_OUT 32768 Hz, H2:PSL-ISS_QPD_DX_OUT 32768 Hz, H2:PSL-ISS_QPD_DY_OUT 32768 Hz, H2:PSL-ISS_LOOP_STATE_OUTPUT 16 Hz, H2:PSL-ISS_REFSIGNAL_MON_OUTPUT 16 Hz, H2:PSL-ISS_GAIN 16 Hz, H2:PSL-ISS_SECONDLOOP_CLOSED 16 Hz, H2:PSL-ISS_SAT_MIN 16 Hz, H2:PSL-ISS_SAT_HOUR 16 Hz, H2: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