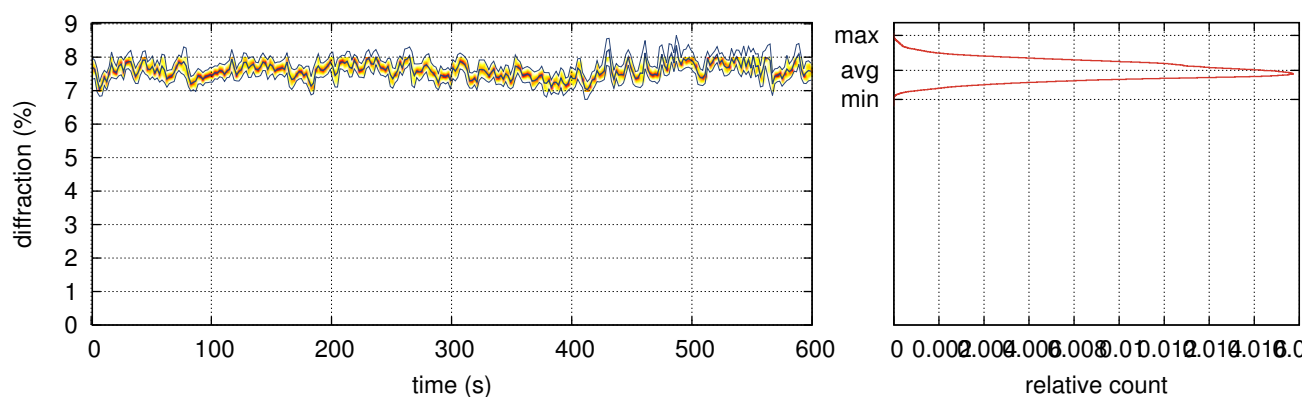
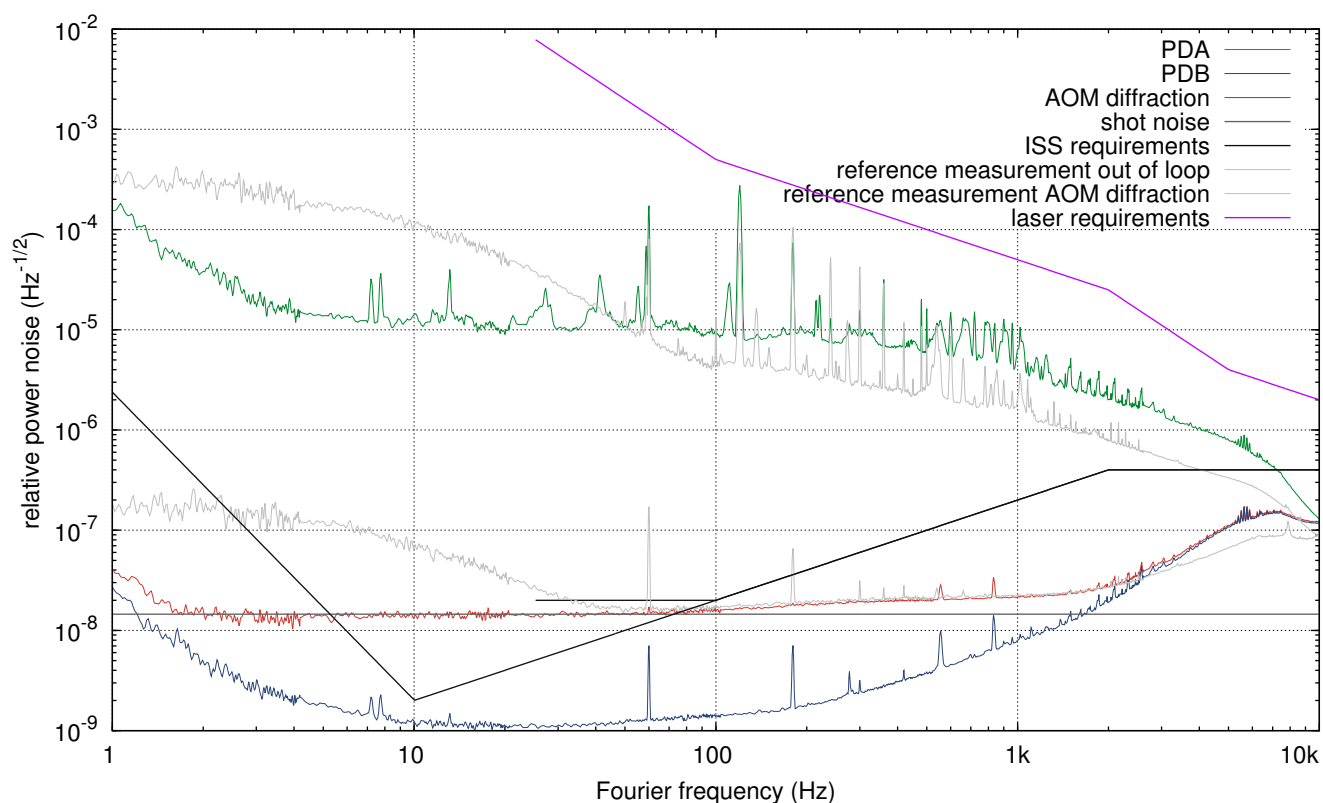
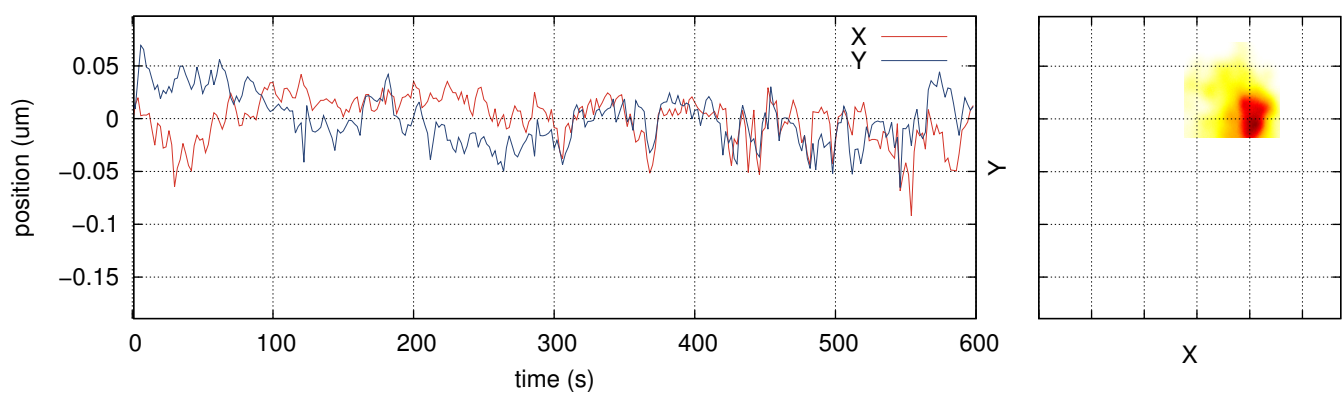
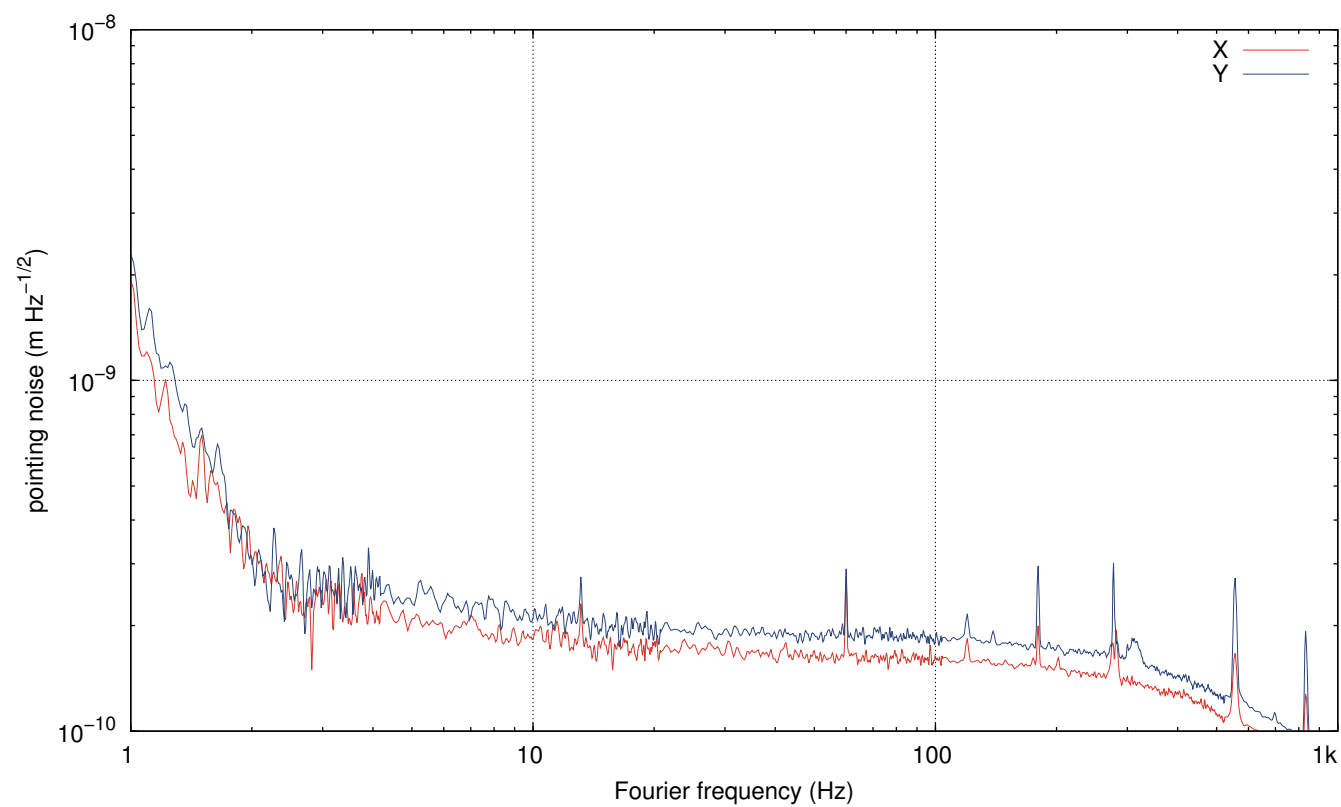




| POWER STABILIZATION       |                                                                 |
|---------------------------|-----------------------------------------------------------------|
| Measurement:              | 600 s = 10.0 min, 10. Aug 2015 09:26 PDT                        |
| Stabilization:            | first loop closed, integrator on; second loop injection unknown |
| Reference signal:         | -2.017 V                                                        |
| First-loop gain:          | 16.0 dB                                                         |
| Last saturation event:    | 0d 11h 32m                                                      |
| Average AOM diffraction:  | 7.61%                                                           |
| Diffraction signal range: | 6.74%...8.65% (1.91% peak-to-peak, 32768 Hz samplingrate)       |

| POWER NOISE                |                                             |                                             |
|----------------------------|---------------------------------------------|---------------------------------------------|
|                            | Photodiode A (PDA)                          | Photodiode B (PDB)                          |
| Average DC signal:         | 10.015 V                                    | 10.189 V                                    |
| FILT signal range:         | 1.996 V...2.010 V (0.001 V <sub>rms</sub> ) | 2.033 V...2.043 V (0.001 V <sub>rms</sub> ) |
| FILT samplingrate:         | 32768 Hz                                    | 32768 Hz                                    |
| Photocurrent:              | 3.0 mA                                      | 3.1 mA                                      |
| Relative shot noise level: | 1.03e-08 Hz <sup>-1/2</sup>                 | 1.02e-08 Hz <sup>-1/2</sup>                 |



| POSITION FLUCTUATIONS |                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------|
| X position:           | $12.689 \pm 0.023 \mu\text{m}$ , $12.517 \mu\text{m} \dots 12.763 \mu\text{m}$    |
| Y position:           | $-18.450 \pm 0.025 \mu\text{m}$ , $-18.639 \mu\text{m} \dots -18.353 \mu\text{m}$ |
| Samplingrate:         | 32768 Hz, 32768 Hz                                                                |

| D A Q                 |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement duration: | 600 s = 10.0 min                                                                                                                                                                                                                                                                                                                                                                                                     |
| Measurement start:    | 10. Aug 2015 09:26 PDT (10. Aug 2015 16:26 UTC, 1123259231 GPS)                                                                                                                                                                                                                                                                                                                                                      |
| NDS:                  | h1nds1:8088 (v12r2)                                                                                                                                                                                                                                                                                                                                                                                                  |
| User:                 | controls@opsws1                                                                                                                                                                                                                                                                                                                                                                                                      |
| Channels:             | H1:PSL-ISS_PDA_OUT 32768 Hz,<br>H1:PSL-ISS_PDB_OUT 32768 Hz,<br>H1:PSL-ISS_DIFFRACTION_OUT 32768 Hz,<br>H1:PSL-ISS_QPD_DX_OUT 32768 Hz,<br>H1:PSL-ISS_QPD_DY_OUT 32768 Hz,<br>H1:PSL-ISS_LOOP_STATE_OUTPUT 16 Hz,<br>H1:PSL-ISS_REFSIGNAL_MON_OUTPUT 16 Hz,<br>H1:PSL-ISS_GAIN 16 Hz,<br>H1:PSL-ISS_SECONDDLOOP_CLOSED 16 Hz,<br>H1:PSL-ISS_SAT_MIN 16 Hz,<br>H1:PSL-ISS_SAT_HOUR 16 Hz,<br>H1:PSL-ISS_SAT_DAY 16 Hz |
| Raw data:             | <a href="#">rawdata.zip</a> (attached to this .pdf file, use Adobe Reader)                                                                                                                                                                                                                                                                                                                                           |
| Calibration:          | default.cali (embedded), 01. Jan 1970 00:00 UTC                                                                                                                                                                                                                                                                                                                                                                      |
| Report source files:  | <a href="#">report.zip</a> (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. |  |
| <i>no comment</i>                                                                                                                                                                                                                                                                                           |  |