

▪ **Step 20 - Lower Zero Moment Plane**

X offset:

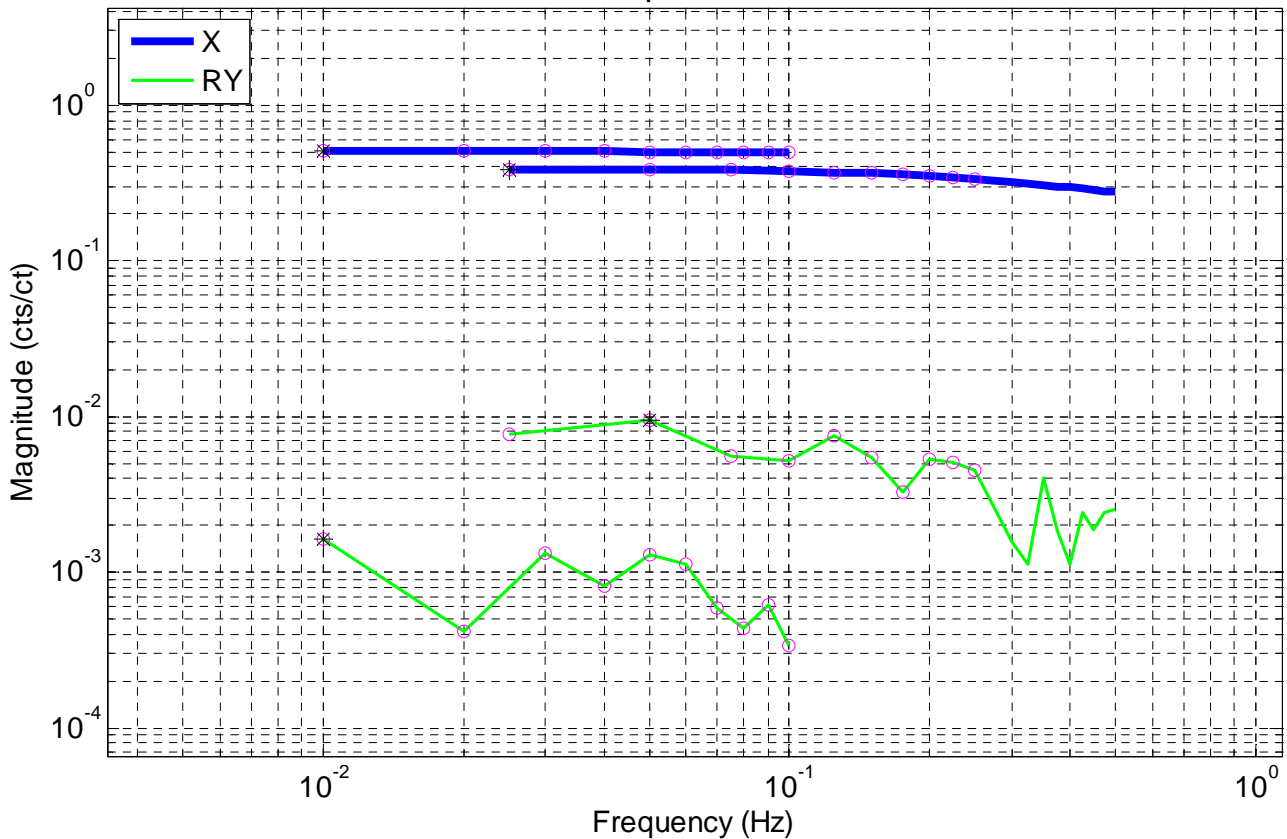
The results from two measurements are presented on the figure below:

- the first measurement, from 0.025 Hz to 0.5 Hz was done on July 4. This measurement was used to make a first approximation of the LZMP. Using this measurement, the X offset estimation was 2.76 mm.
- the second measurement, from 0.01 to 0.1 Hz was done on July 21 Using this measurement, the X offset estimation is 0.24 mm.

Comments:

We assume that the second number is more accurate, because it was done after the change of feedthroughs. However, it doesn't show a very good coherence. We are doing another measurements with much more averages (a 6 hours drive in the X direction).

LHO aLIGO unit 1, July 2010
 Lower Zero Moment Plane Analysis
 X and RY Displacement Sensors



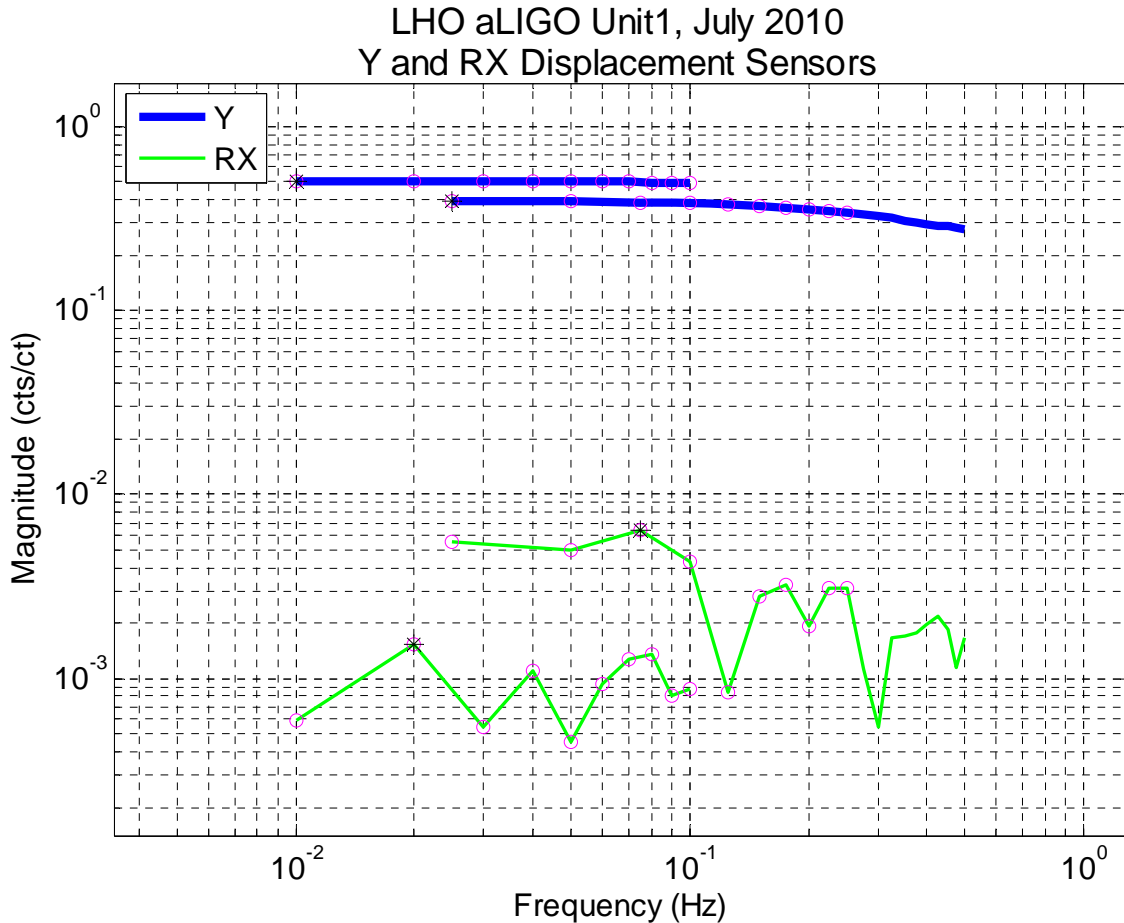
Legend:

- pink circles are the points used for the LZMP calculations.
- Black stars show the max values.

Y offset:

The results from two measurements are presented on the figure below:

- the first measurement, from 0.025 Hz to 0.5 Hz was done on July 4. This measurement was used to make a first approximation of the LZMP. Using this measurement, the Y offset estimation was 1.32 mm.
- the second measurement, from 0.01 to 0.1 Hz was done on July 21 Using this measurement, the Y offset estimation is 0.30 mm.



Comments:

As for the X direction, we assume that the second number is more accurate, because it was done after the change of feedthroughs. However, it doesn't show a very good coherence. We are doing another measurement with much more averages (a 6 hours drive in the Y direction).

Legend:

- pink circles are the points used for the LZMP calculations.
- Black stars show the max values.