A.Jeremie

LAViSta: Laboratories in Annecy working on Vibration Stabilization

Some information on the Stacis 2000 Table from CERN, currently in Annecy

B.Bolzon, F.Cadoux, N.Geffroy, A.Jeremie, Y.Karyotakis

presented by P.Bambade, LAL-Orsay
ATF2 project meeting, KEK, May 30-June 1, 2006

CERN Stacis 2000 table currently in Annecy, France.

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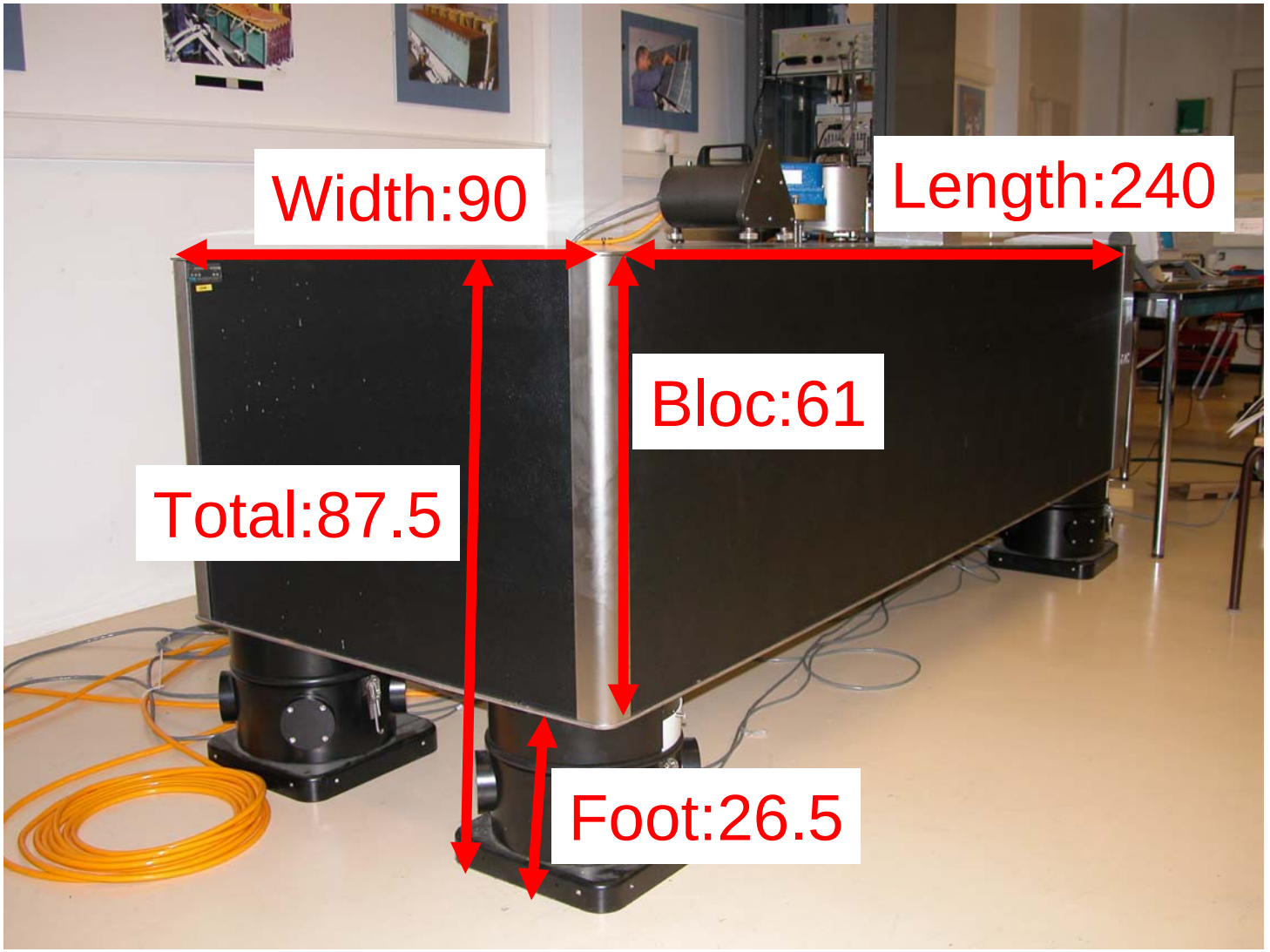

Values are in cm and measured directly on the table with a tape-measure.
Static load capacity per foot (there are 4) 182 kg to 500 kg.
Honeycomb bloc has a weight of 731kg.

Table weight capacity

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Information written on the STACIS 2000 feet we have:
3 feet with max weight 544kg, and one with max weight 500kg
(standard table has three feet, but one can buy with 4 feet).

$\Rightarrow$ Max weight 2131kg.

$\Rightarrow$ Honeycomb bloc weighs 731kg

$\Rightarrow$ Total weight capacity left:1400kg

Two setup considered for ATF2

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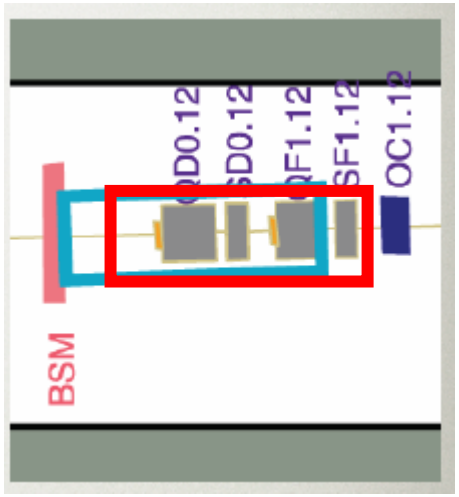
From T.Sanuki U.Tokyo

1. Shintake monitor (BSM) on table: not really a solution

Shintake monitor:	740kg
support:	estimated at 100kg
QD0:	400kg
mover:	estimated 25kg
T-plate:	10kg

=> total Shintake + QD0 without extra BPMs: 1275kg
not enough capacity to add SD0 etc…



1. Shintake monitor on separate support: closer to ILC situation

QD0+mover+T-plate:	estimated at 435kg
SD0+mover+T-plate:	estimated at 181kg
QF1+mover+T-plate:	estimated at 435kg
SF1+mover+T-plate:	estimated at 181kg

=>total QD0+SD0+QF1+SF1 without extra BPMs: 1232kg
not enough capacity to add OC1

Magnet information from Ch.Spencer

Measurements with only 50 kg on the table

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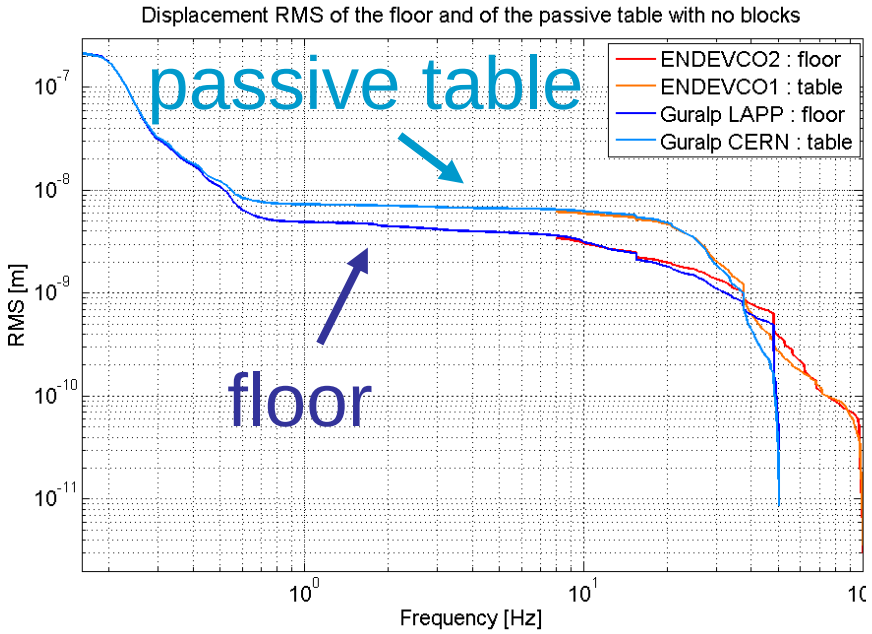
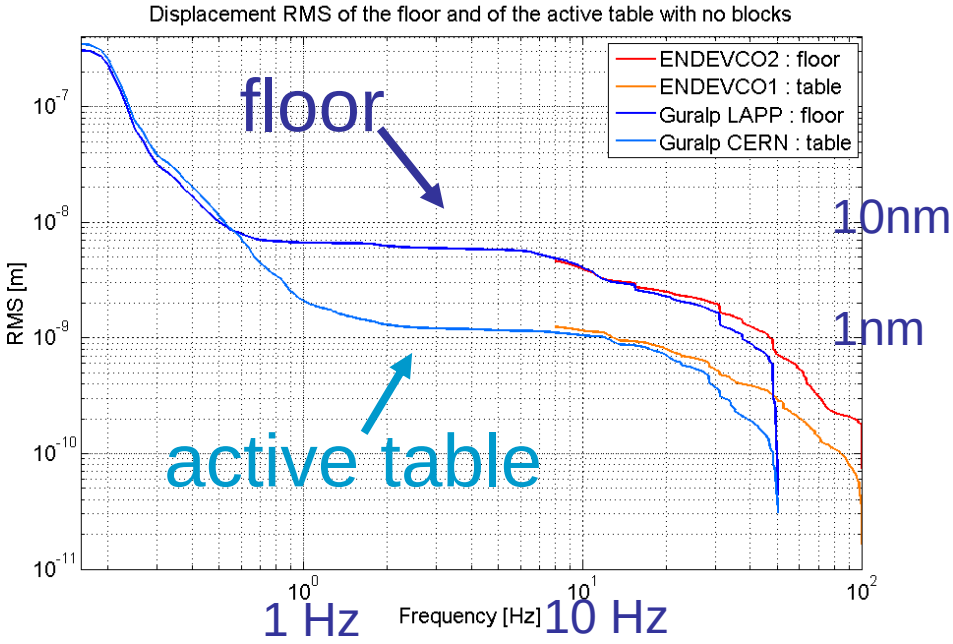


1 Hz 10 Hz

10nm

1nm

At 10 Hz, floor has RMS of 3nm
passive table 6nm
active table 1nm



10nm

1nm

Tested frequency ranges

Guralp velocity sensors: 0.2 – 50 Hz
ENDEVCO acc. sensor: 7 – 100 Hz

Measurements with 50 kg + 4 × 38.9 kg blocs centered on the table

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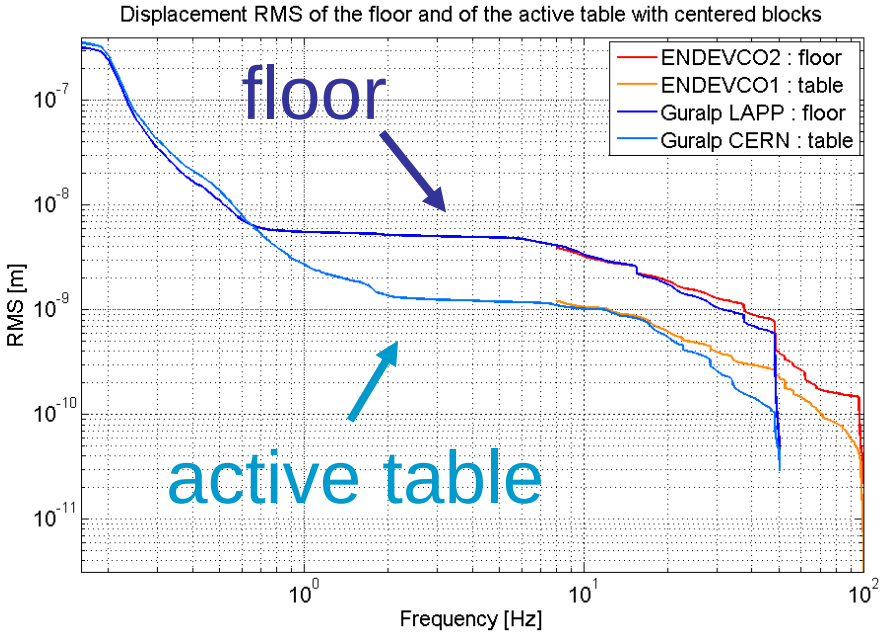

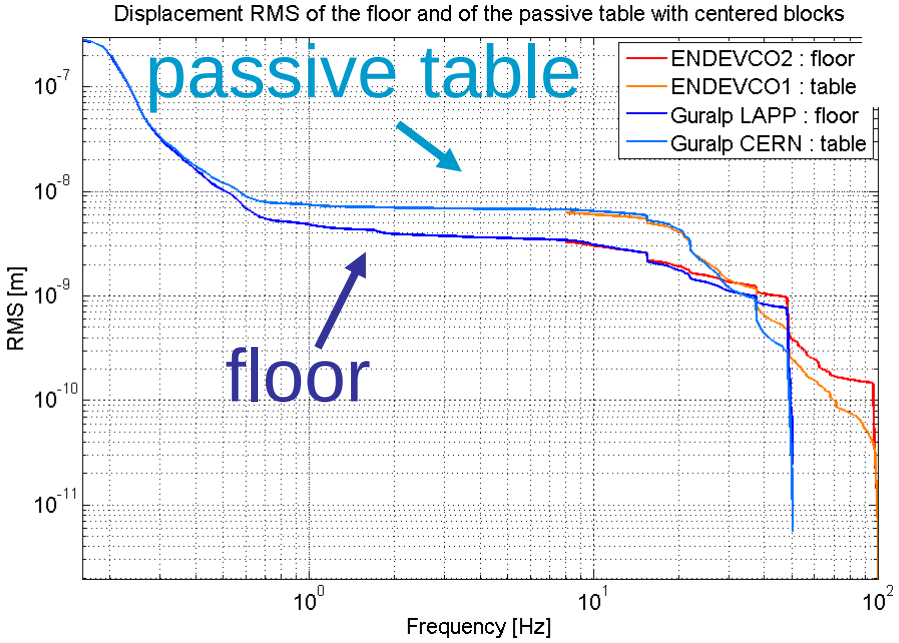

At 10 Hz, floor has RMS of 3nm
passive table 6nm
active table 1nm

Table still works with ~ 200 kg on in its middle

Measurements with 50 kg + 4 × 38.9 kg blocs on top of each foot

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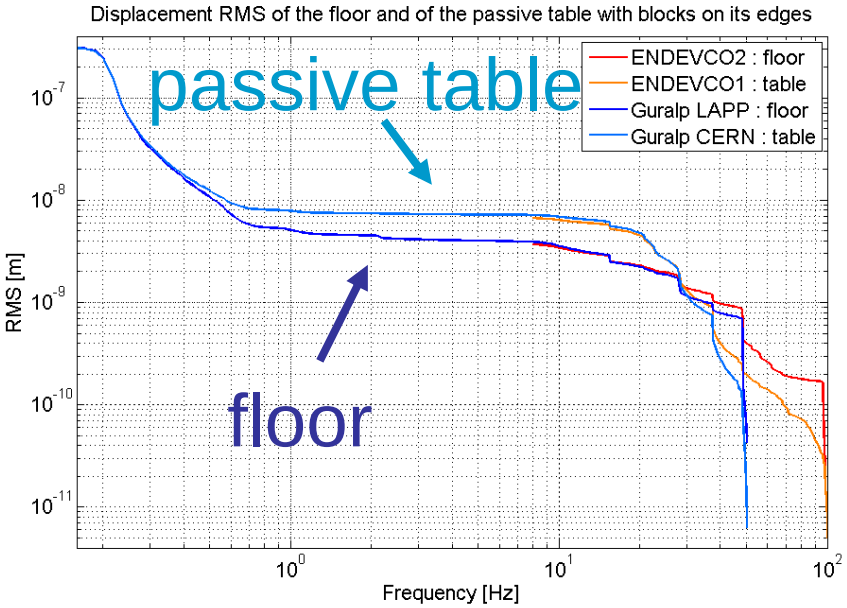

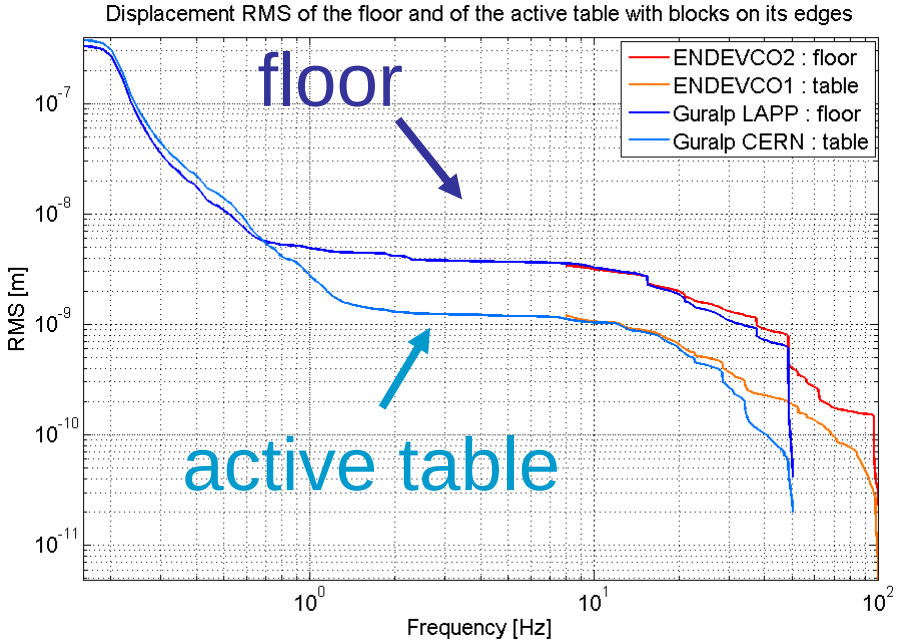

At 10 Hz, floor has RMS of 3nm
passive table 7nm
active table 1nm

Table still works with ~ 40 kg on top of each foot

Measurements with 4 x 38.9 kg blocs

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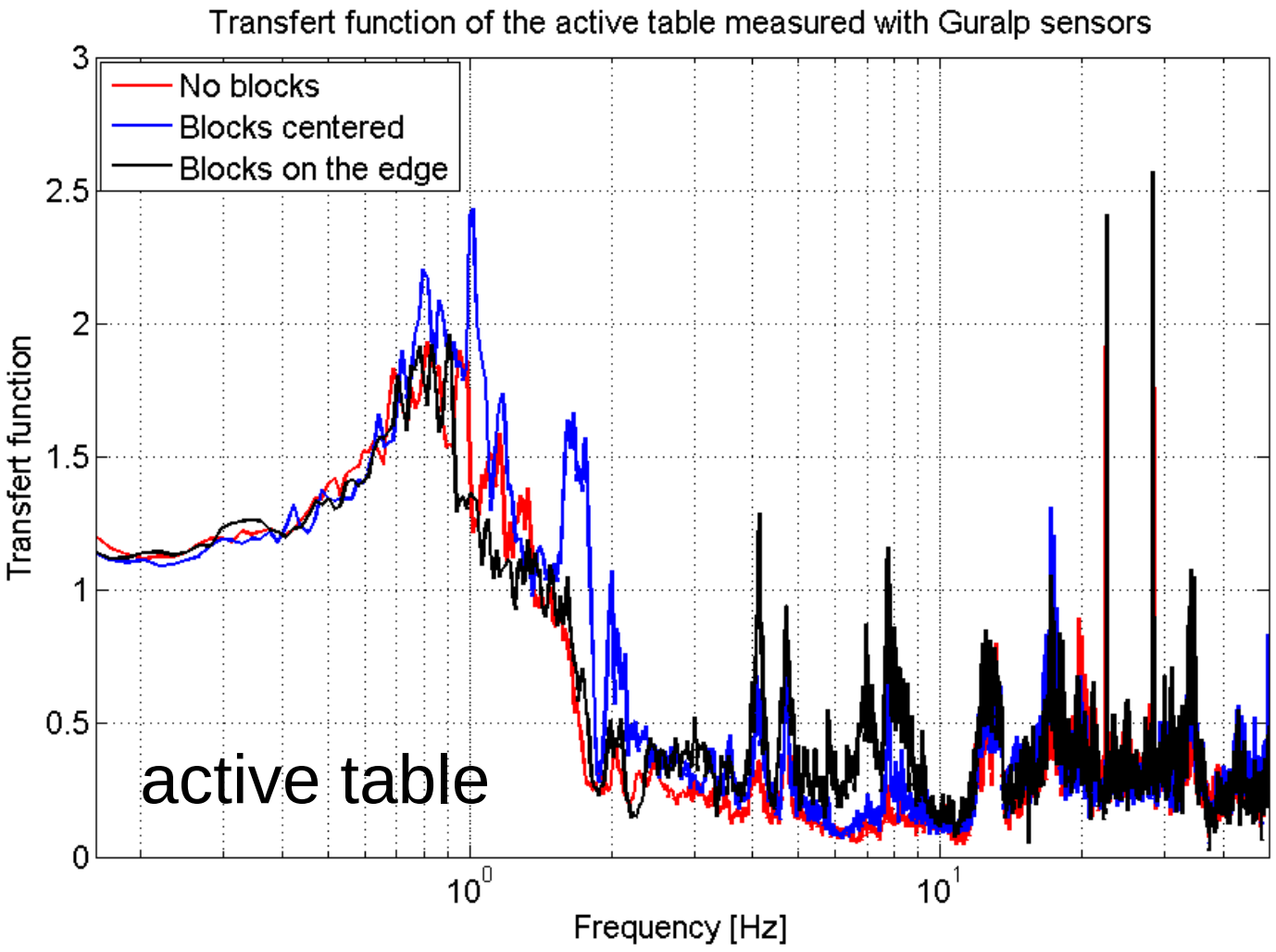

Some differences in transfer function arise when weights distributed differently

Comparing sensors on block and on table

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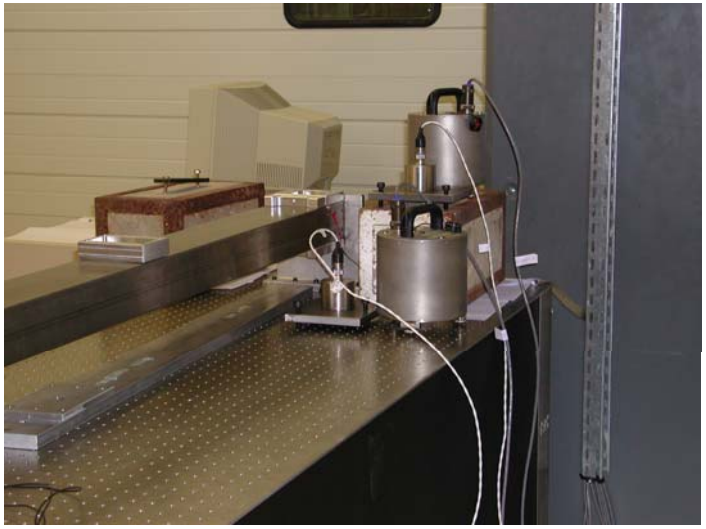

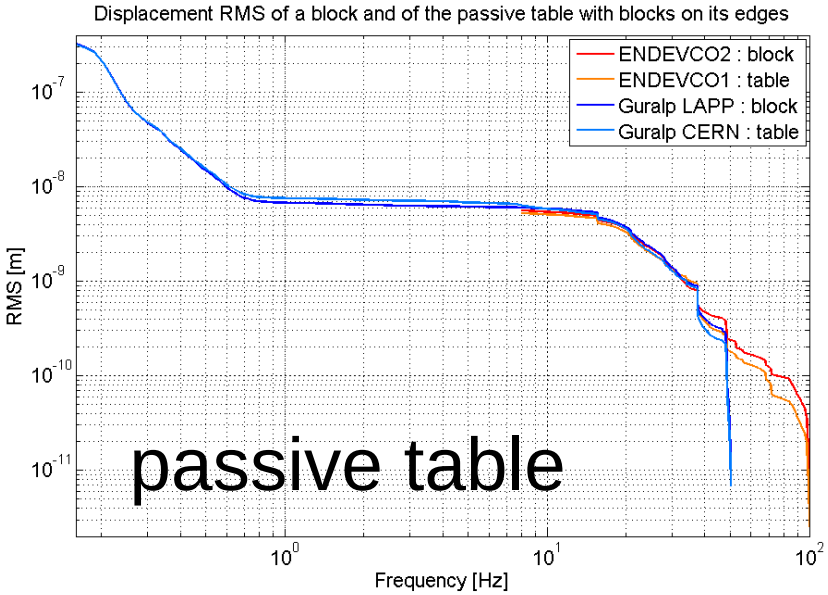

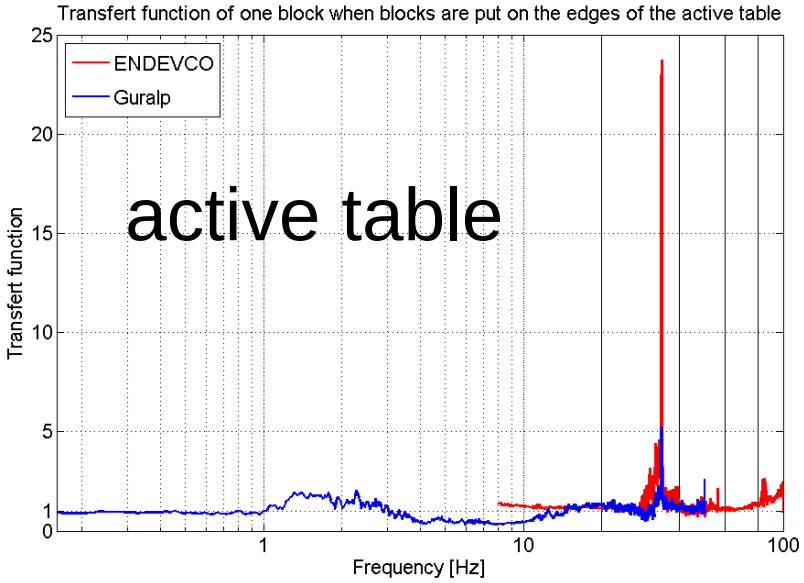

- When table « passive », no difference if sensor on block or on table
- Not quite understood the peak at 27Hz in the transfer function when table « active »!

Height to beam-line

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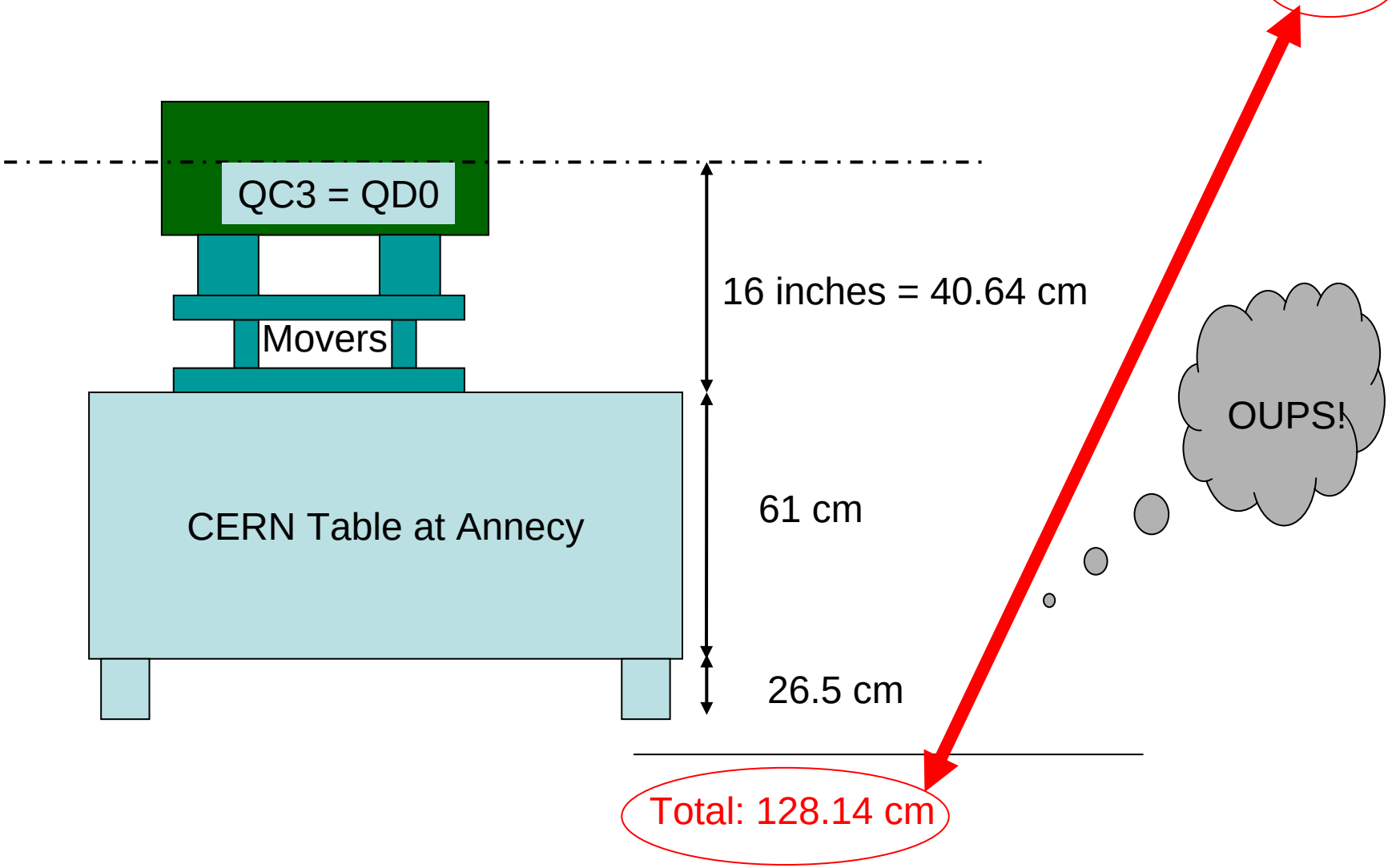
In a message from Tauchi san, the beam-line is at a height of 120cm



Conclusions

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- If Shintake Monitor on Table, can only add QD0; but what about the weight distribution ? Not really a solution
- If Shintake on separate stabilization, Table can stabilize QD0,1 + SD0,1 to 1 nm at 10 Hz; Closer to ILC situation
- Table still stabilizes with slightly more weight than usual, but:
  - transfer function depends somewhat on weight distribution
- With Table, limited height for (new) magnet mover design
  - investigating thinner honeycomb bloc from company

Prospects

- More studies with more important weights
- More checks of QD0,1 + SD0,1 placement with new layout
- Slow drift < 0.1 Hz with displacement sensor (R. Sugahara)
- Frequency analysis with supports + magnets in future (not easy in realistic way with only pdf files with drawings)
- Could design supports for slow correction

Comparing sensors on block and on table