

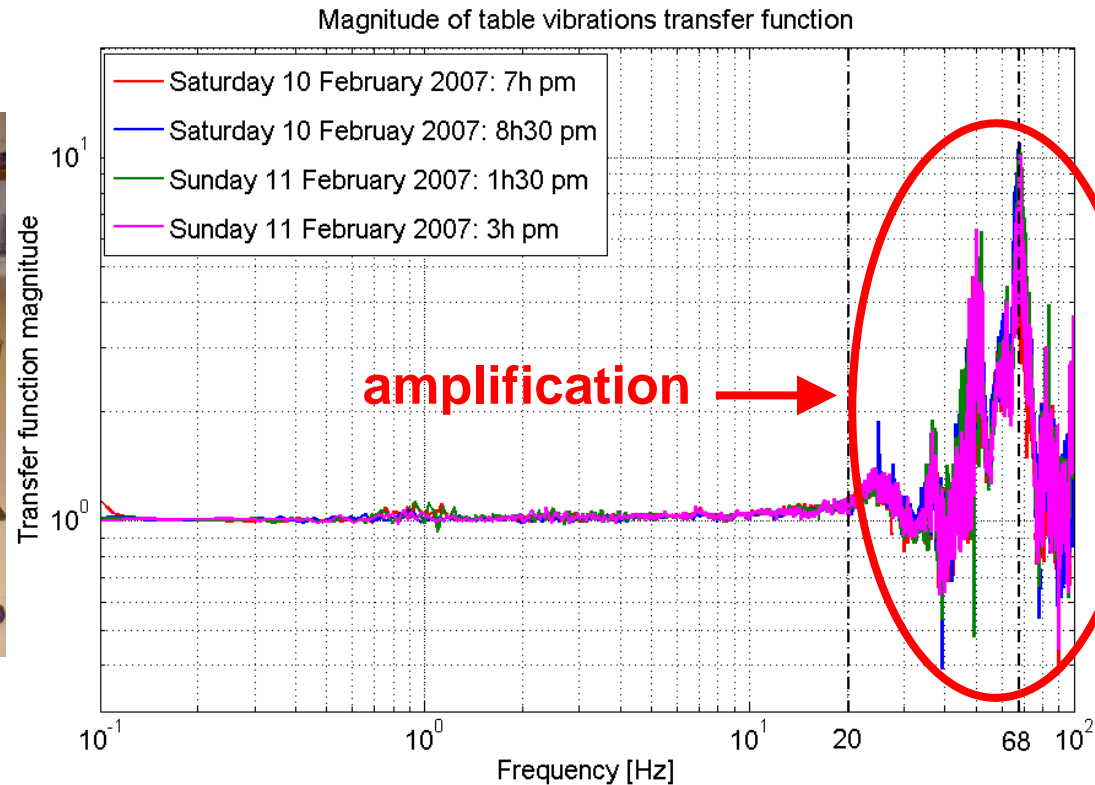
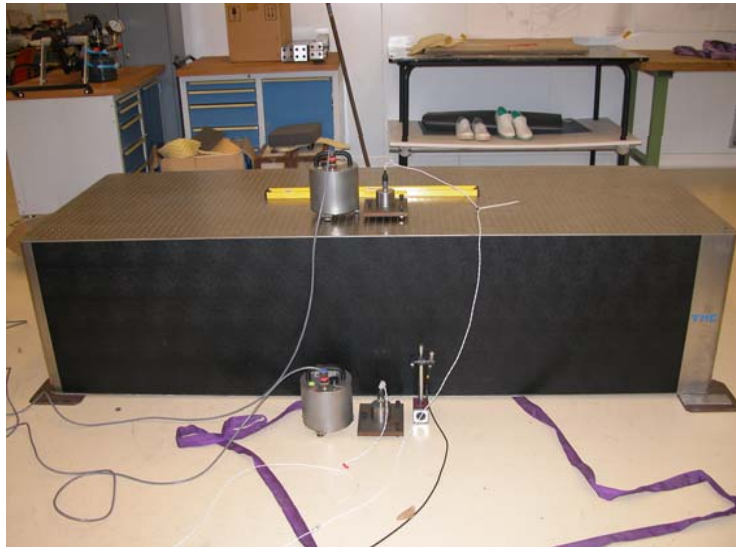
Work done at LAPP/Annecy

Andrea JEREMIE

ATF2 weekly meeting : May 9, 2007

Vibrations transmissibility study between table and floor

✓ Magnitude of table transfer function measured at LAPP:



✓ **Up to 20Hz:** Table transfer function magnitude around 1

→ No big amplification or damping done by the table

✓ **Above 20Hz:** Increase of table transfer function magnitude

→ Ground motion amplification done by the table up to a factor 11 at 68Hz

Compare measurements to simulations

✓ Simple block simulation done by Nicolas Geffroy:

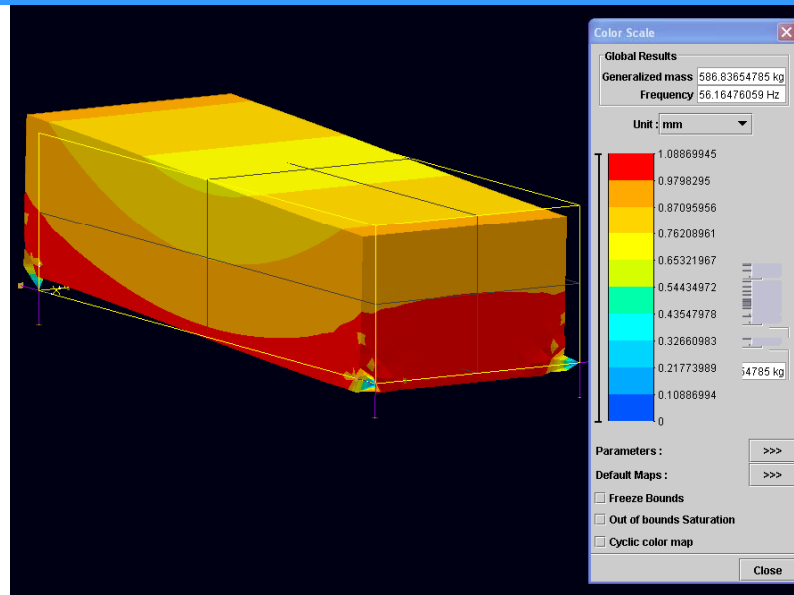
Full block with the table dimensions (240*90*60cm)

Calculation of the density to obtain the table weight (700kg)

Young modulus chosen (rigidity) to obtain the first eigenfrequency of the table in free-free configuration (230Hz) 5value given by TMC company)

✓ First eigenfrequency at 56.2Hz: **Well lower than in free-free configuration!!!**

✓ In agreement with transfer function measurements



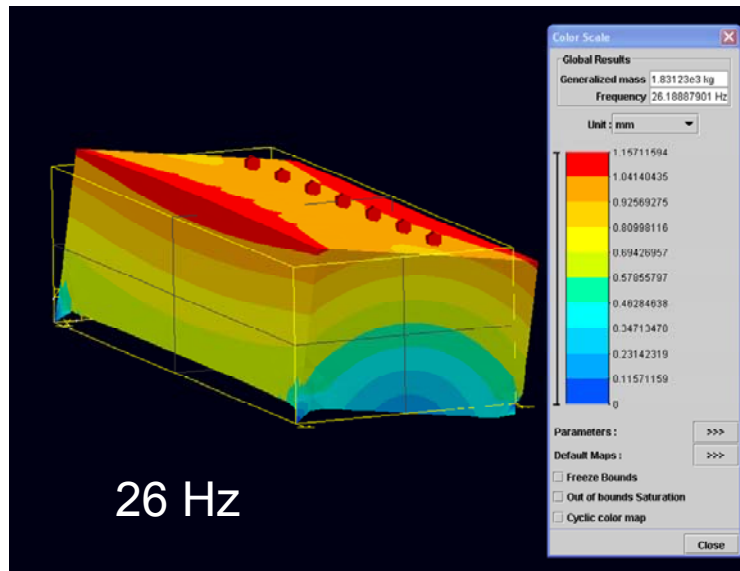


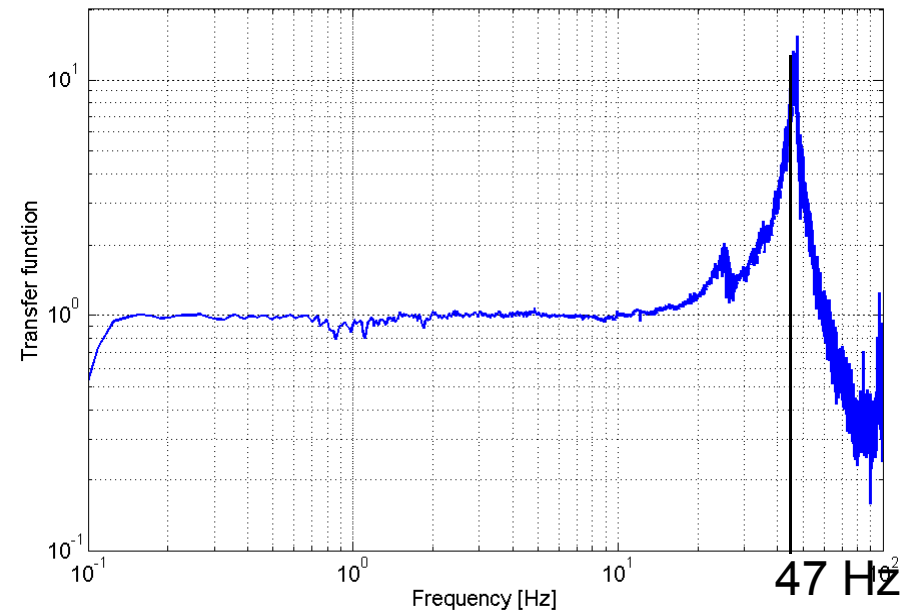
Figure 6: Simulation of the first eigenfrequency of our honeycomb table with four supports fixed to its corners and fixed to the floor and with a weight of 1400kg on it



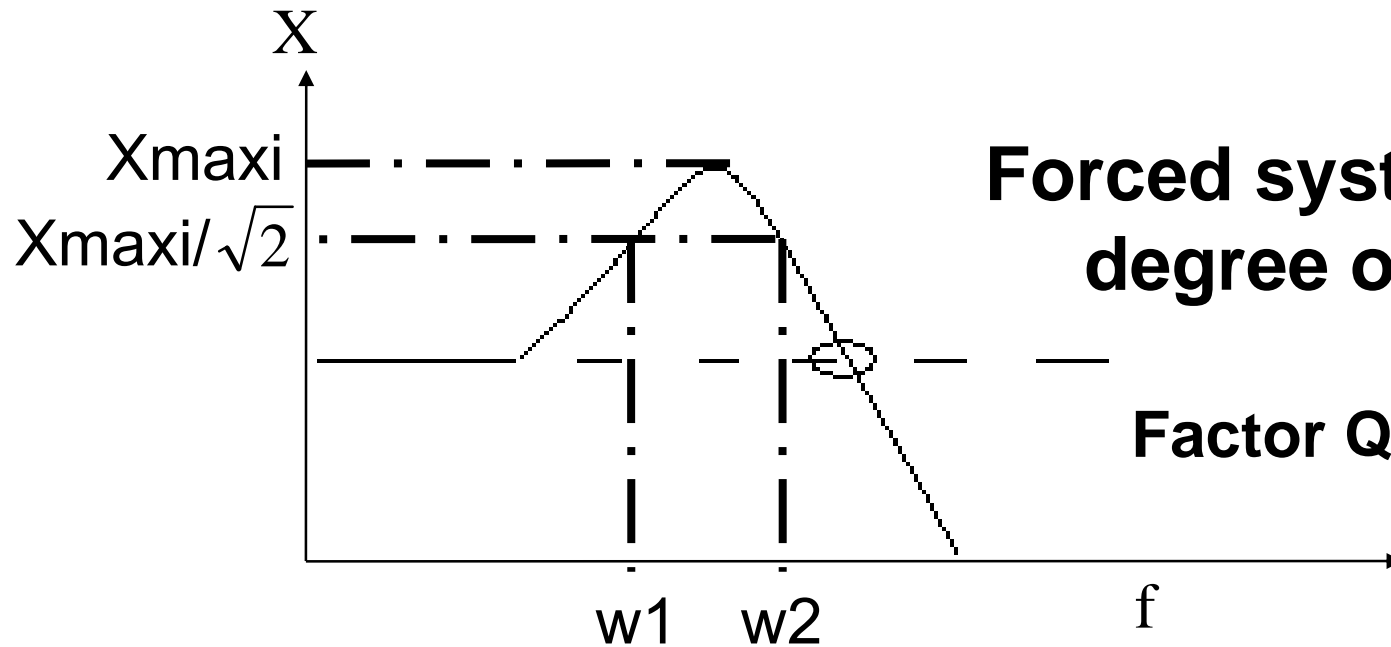
Sensor measurement and hammer test give 47Hz: where does the difference come from?

Also: student from Romania working on understanding and developing combination of passive and active damping, but stay too short to go very far in study

Table transfer function with a weight of 1400kg and with steel supports at its 4 corners



Compliance curve discussion between B.Bolzon, T.Tauchi and T.Kume

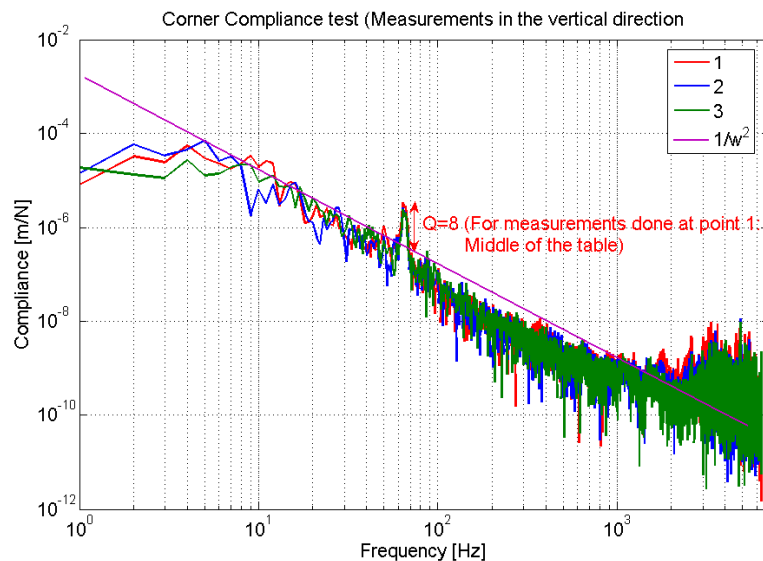


Forced system with one degree of freedom

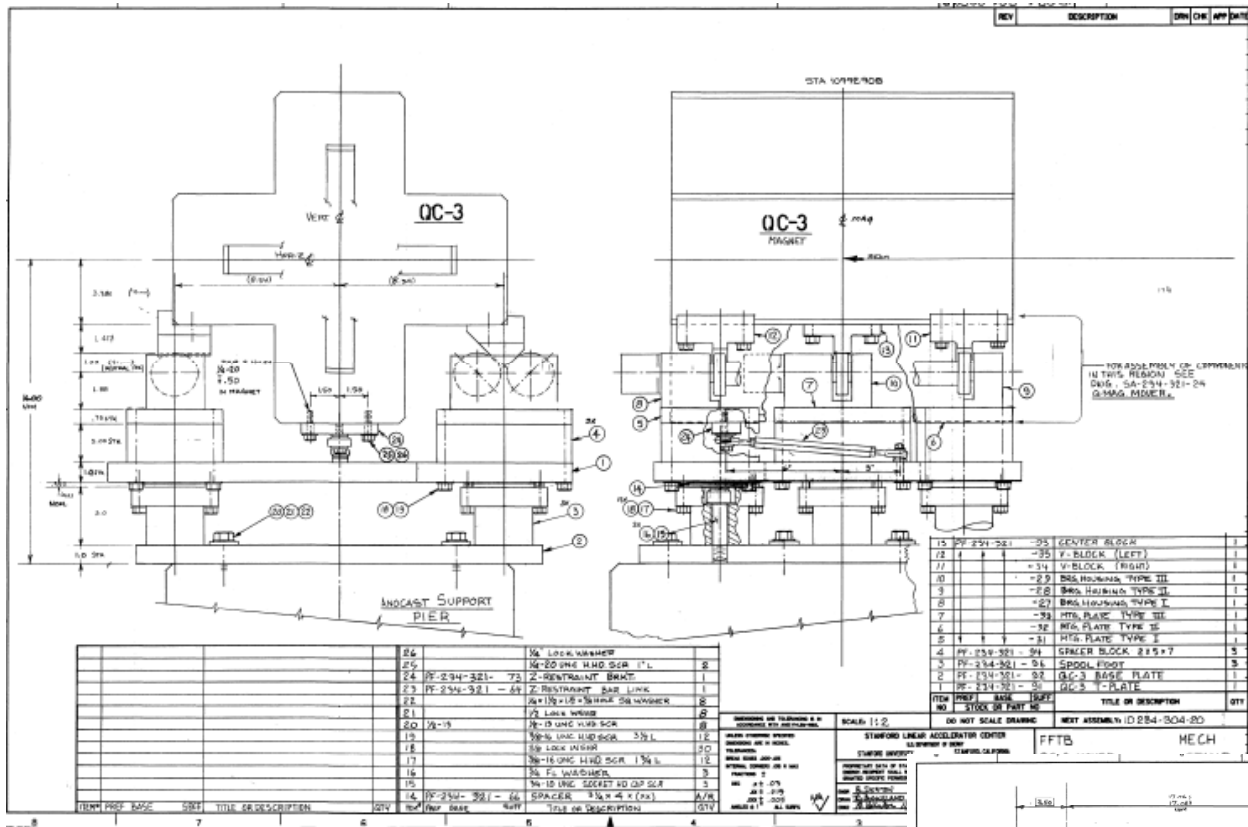
Factor Q measurements

$$\xi = (w2 - w1) / (w2 + w1) = 1 / (2Q) \text{ with:}$$

- ✓ Q= Amplification factor
- ✓ ξ =Damping

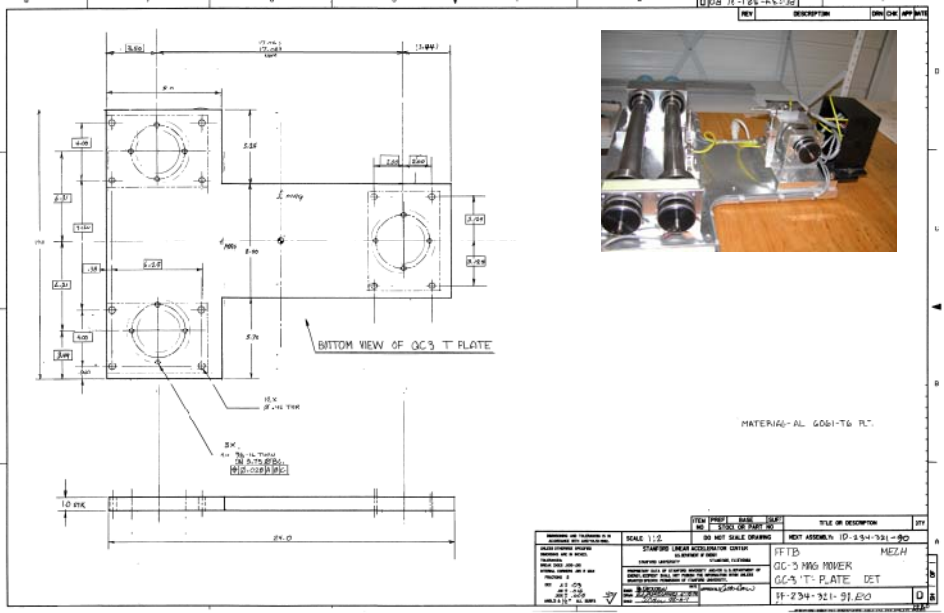


Compliance curve of “empty” table: Q factor of 8 as in transfer function measurements



Student from Canada (until June 1st) putting the drawings in electronic form for modification due to larger QC3=> QD0 Already very well advanced! Has access to all the detail drawings initially drawn by hand!

T-plate and blocs material received Machine shop time reserved but not yet started Still need to exchange information with Cherrill to see if the drawings and T-plate modifications correspond to what is needed



ITEM	REF	QTY	DESCRIPTION	UNIT
15			05 CENTER BLOCK	1
12			-35 Y-BLOCK (LEFT)	1
11			-34 Y-BLOCK (RIGHT)	1
10			-29 B&G HOLDING TYPE III	1
9			-28 B&G HOLDING TYPE II	1
8			-27 B&G HOLDING TYPE I	1
7			-26 MTR-BLOCK TYPE III	1
6			-25 MTR-BLOCK TYPE II	1
5			-21 MTR-PLATE TYPE I	1
4			SP-25 X 21 - 24 SPACER BLOCK 2 1/2 X 7	5
3			SP-25 X 21 - 23 SPACER BLOCK 2 1/2 X 7	5
2			SP-25 X 21 - 22 Q-C-3 BASE PLATE	1
1			SP-25 X 21 - 21 Q-C-3 T-PLATE	1