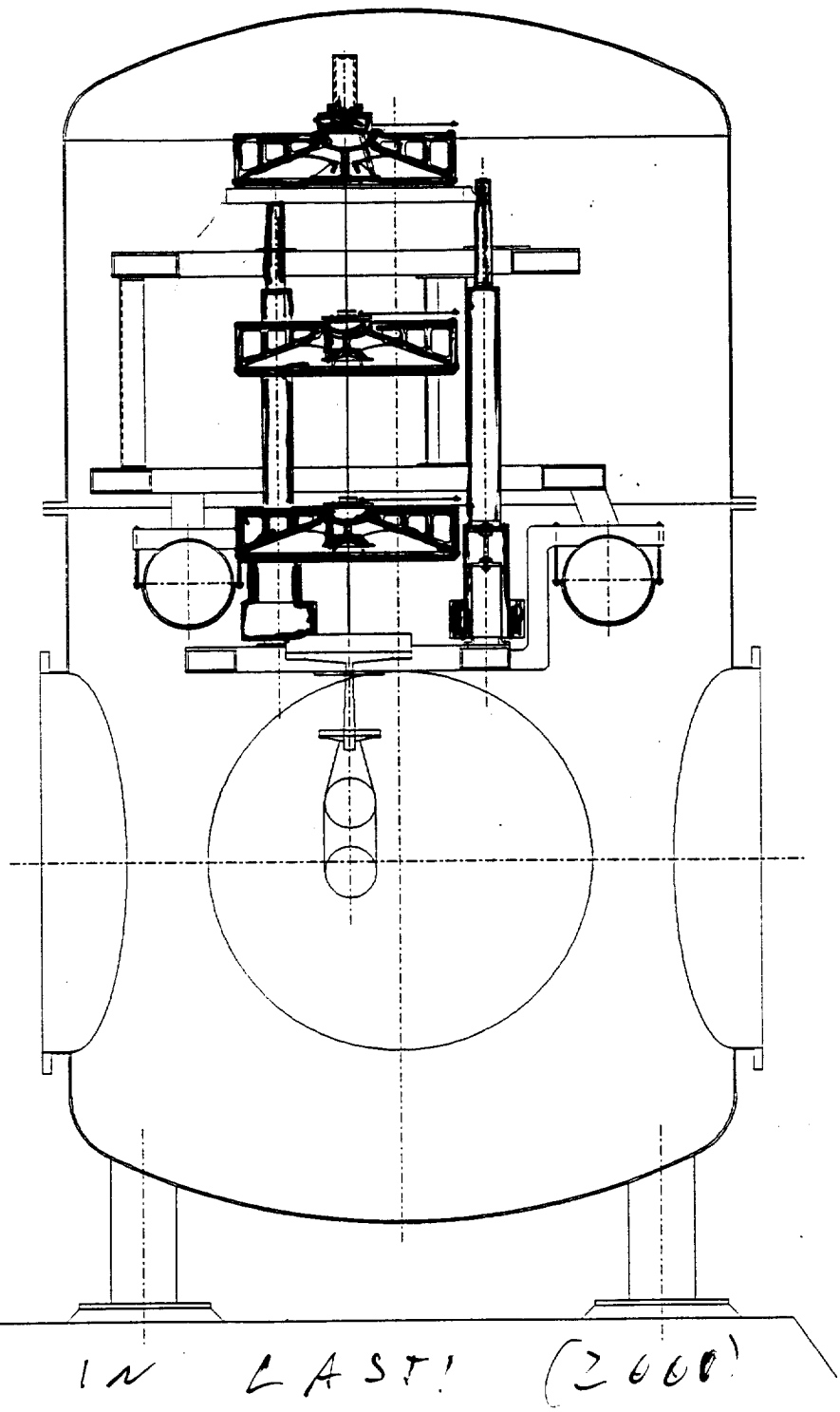
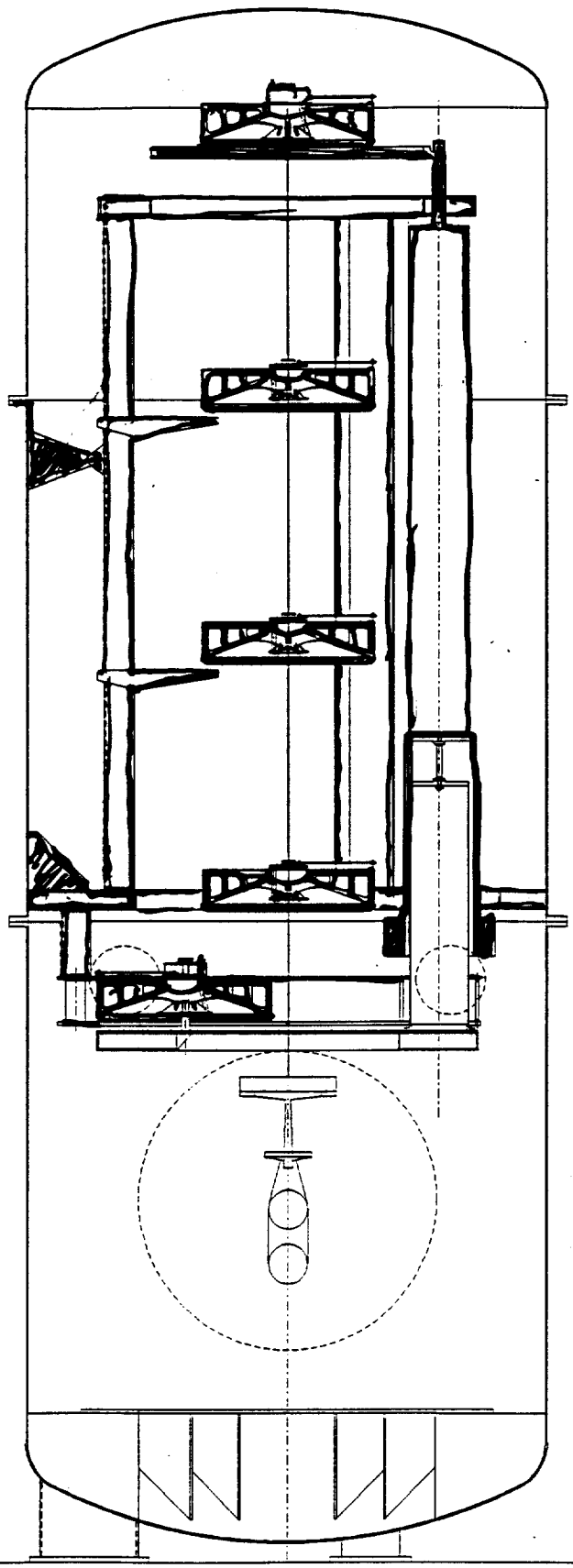
MINI TOWER IN EXISTING BSC



TEST/S IN LAST! (2000)

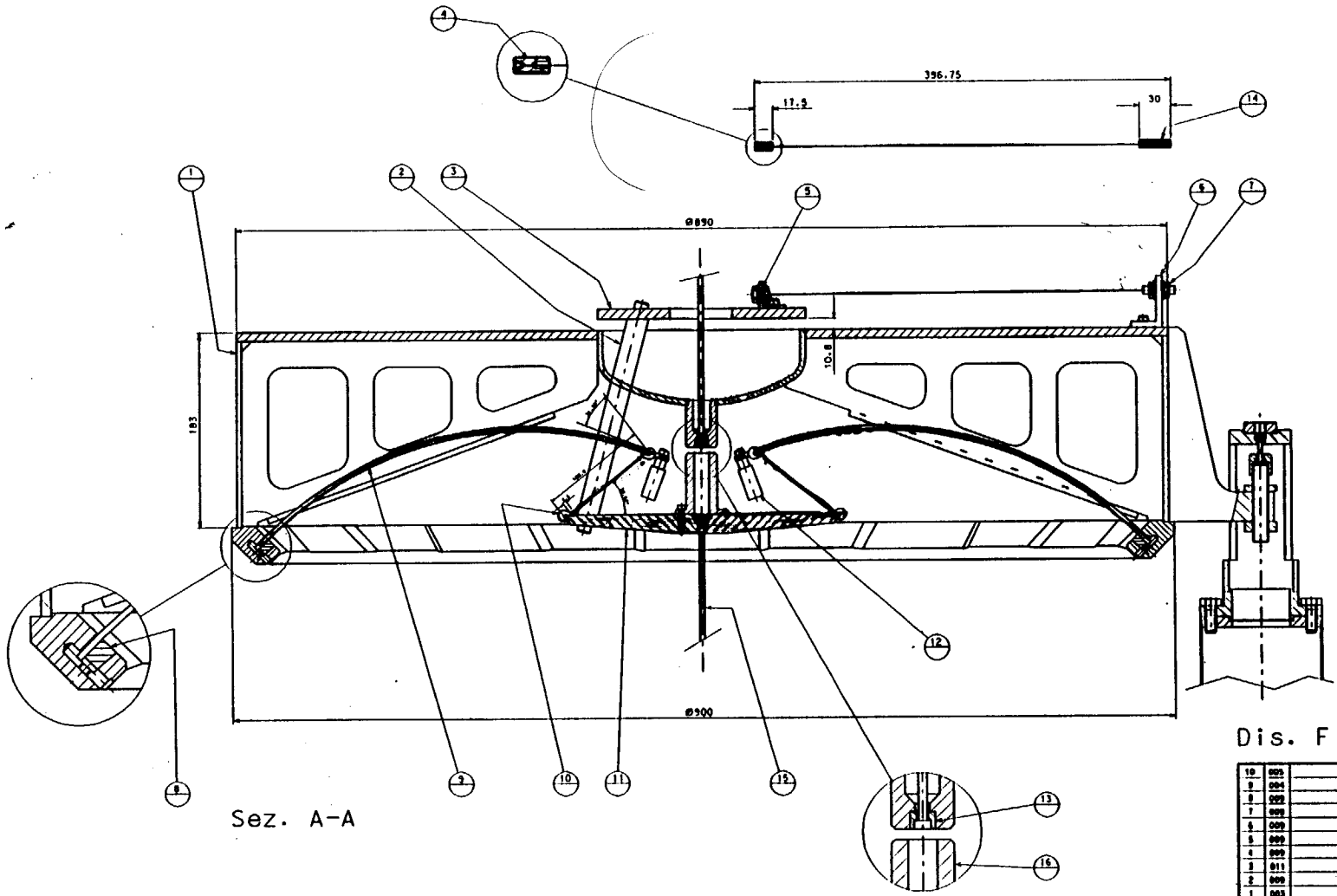
c:/dgn/ligo/torrini.dgn Jul. 06, 1999 19:01:42

BAYONET MOUNT SAS



LESS THAN ONE WEEK INSTALLATION TIME

MINIMUM INTERFEROMETER DOWN TIME.



Sez. A-A

Dis. Filter_0.000

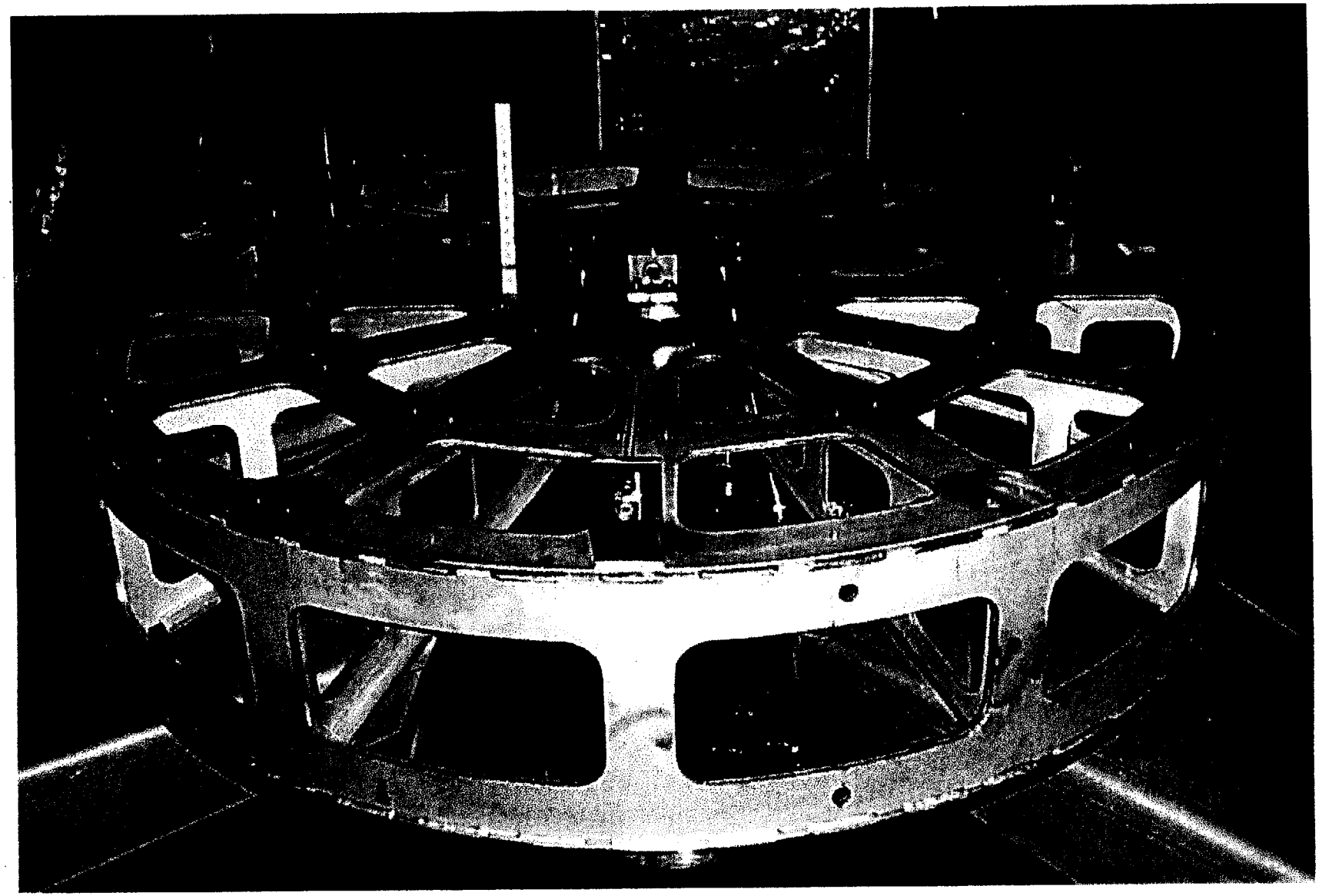
10	005	
9	004	
8	009	
7	008	
6	009	
5	009	
4	009	
3	011	
2	009	
1	003	

16	011	
15	013	
14	009	
13	009	
12	013	
11	010	

PROMEC S.A.S

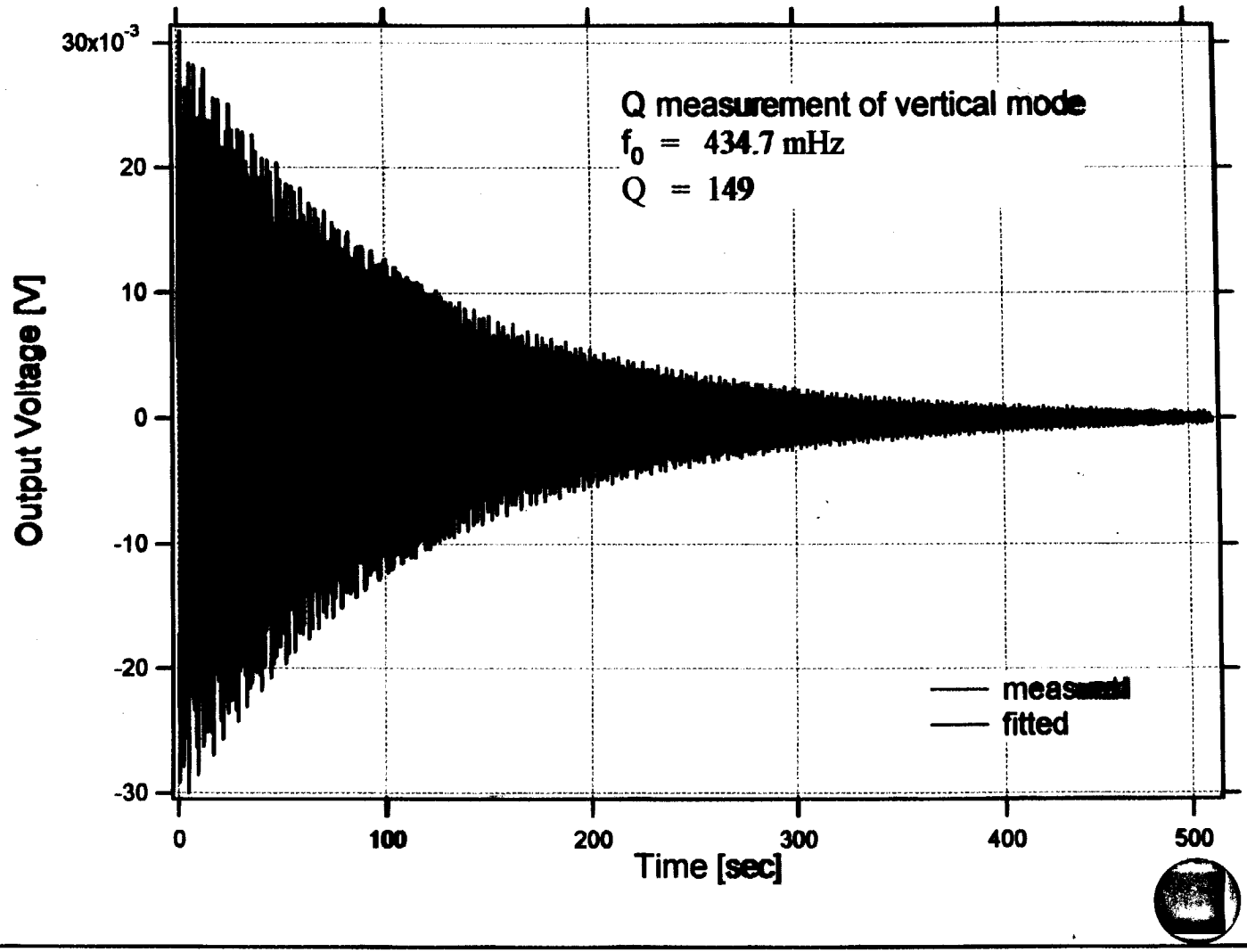
PROTOTYPE FILTER_0

Nota: Le lame sono disegnate sul medesimo piano reale



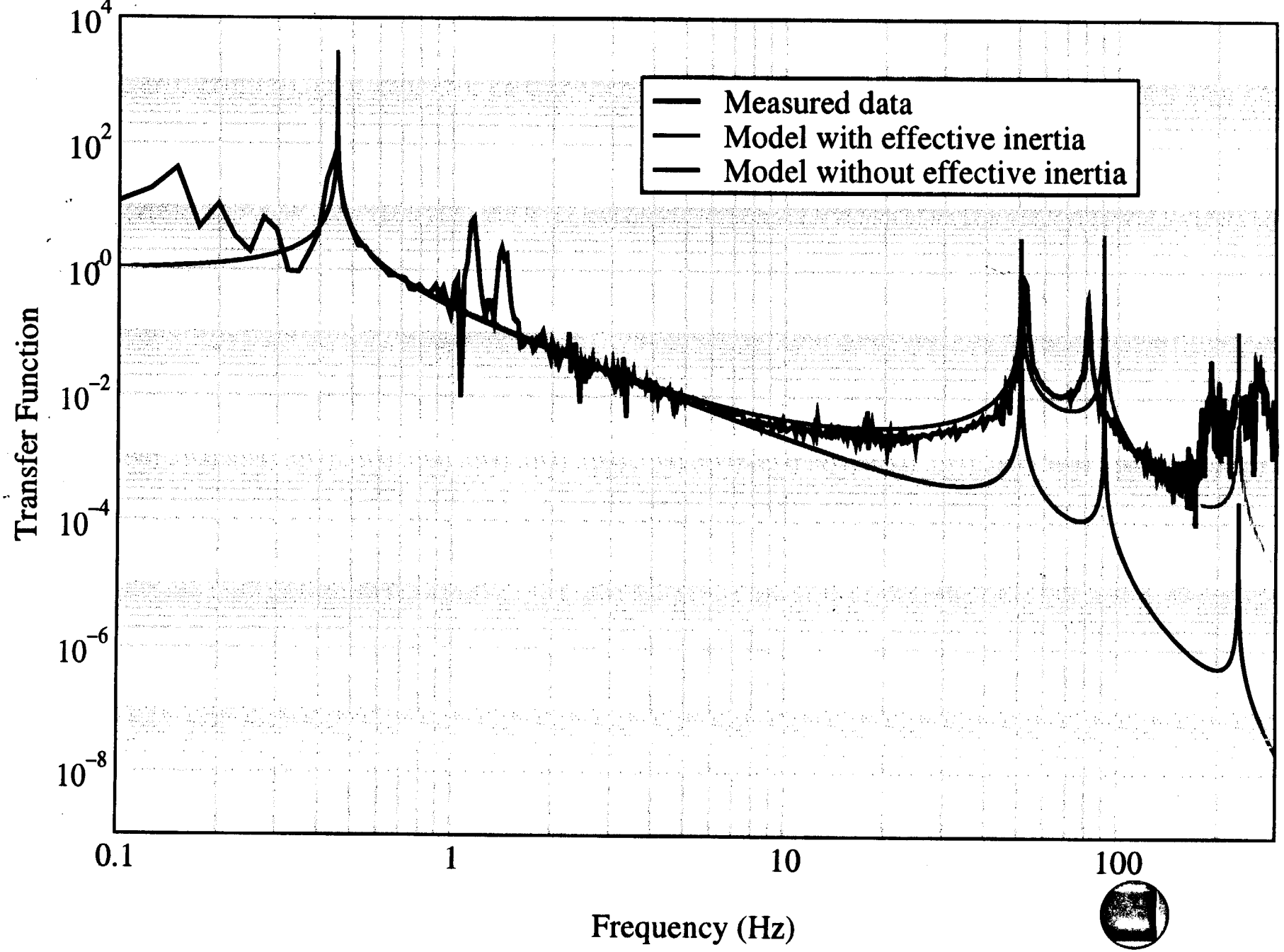
Present Status of Development of GAS

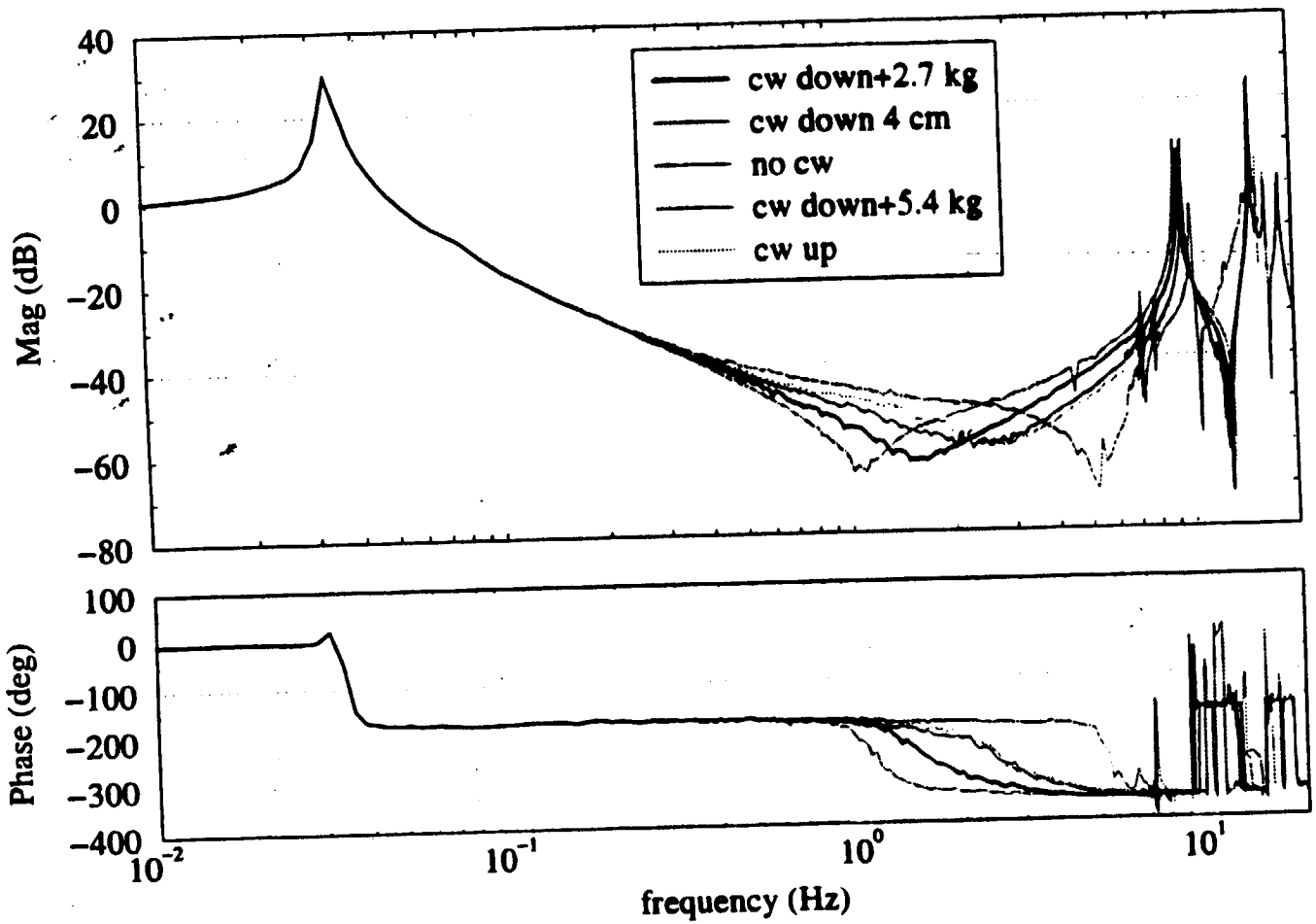
- Resonance Frequency & Q Factor of the GAS Mode
  - Result



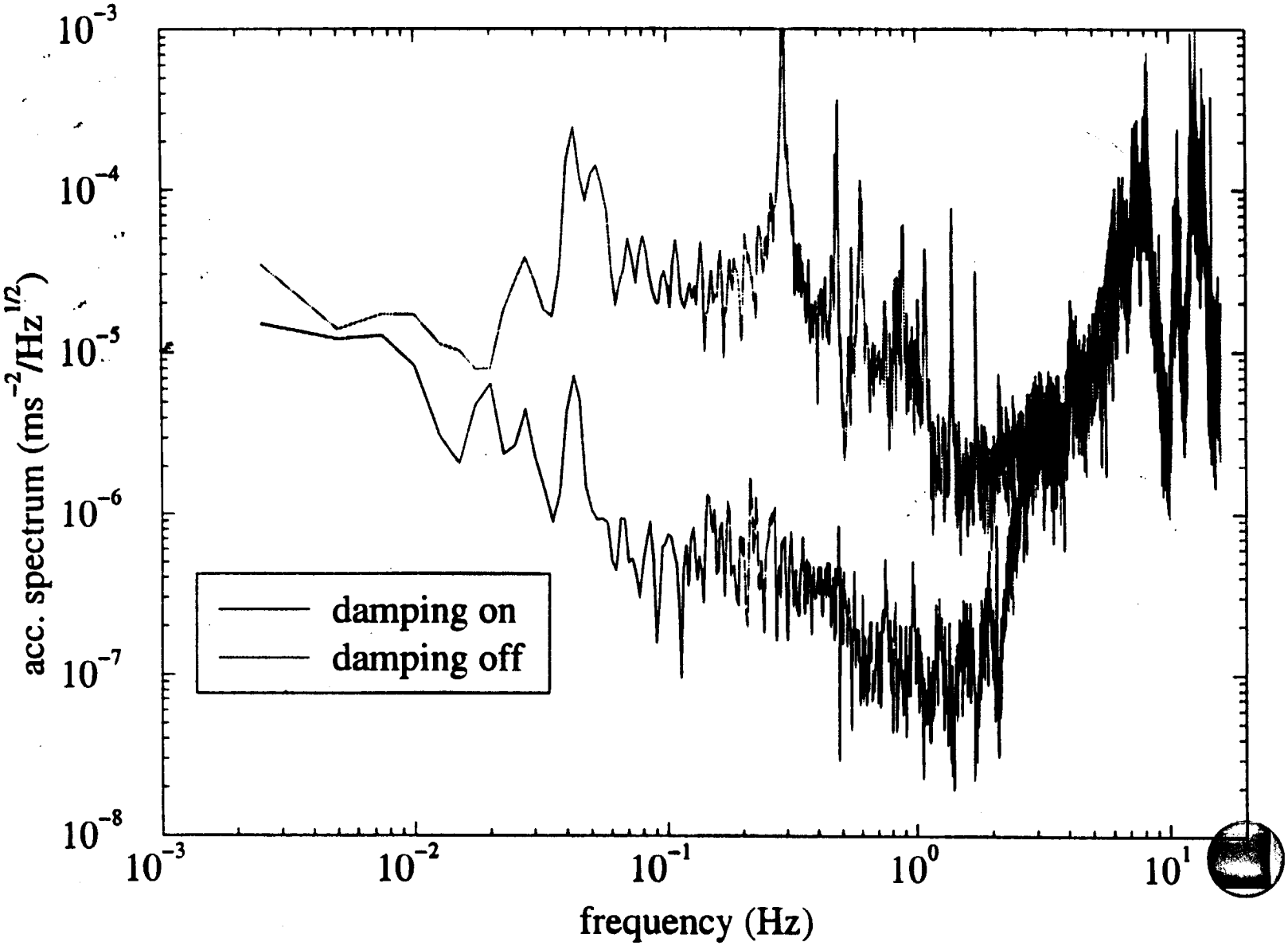
Vertical transfer function

Model with 6 internal blade's modes

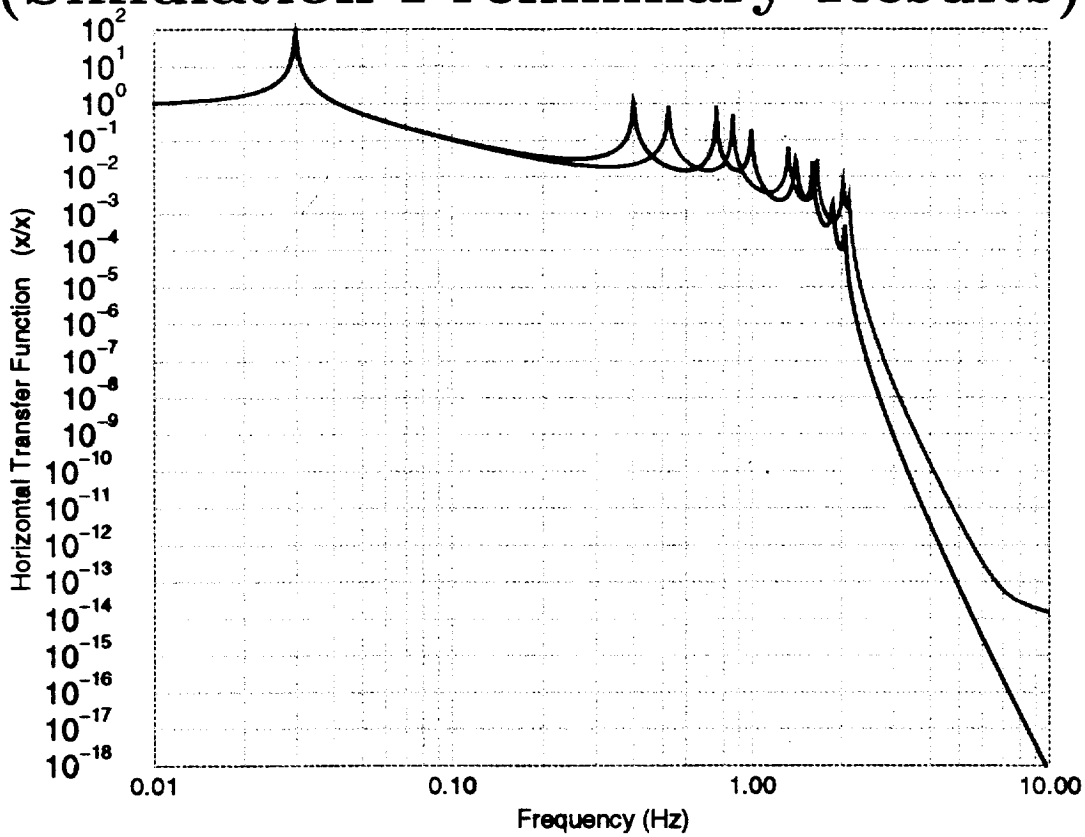


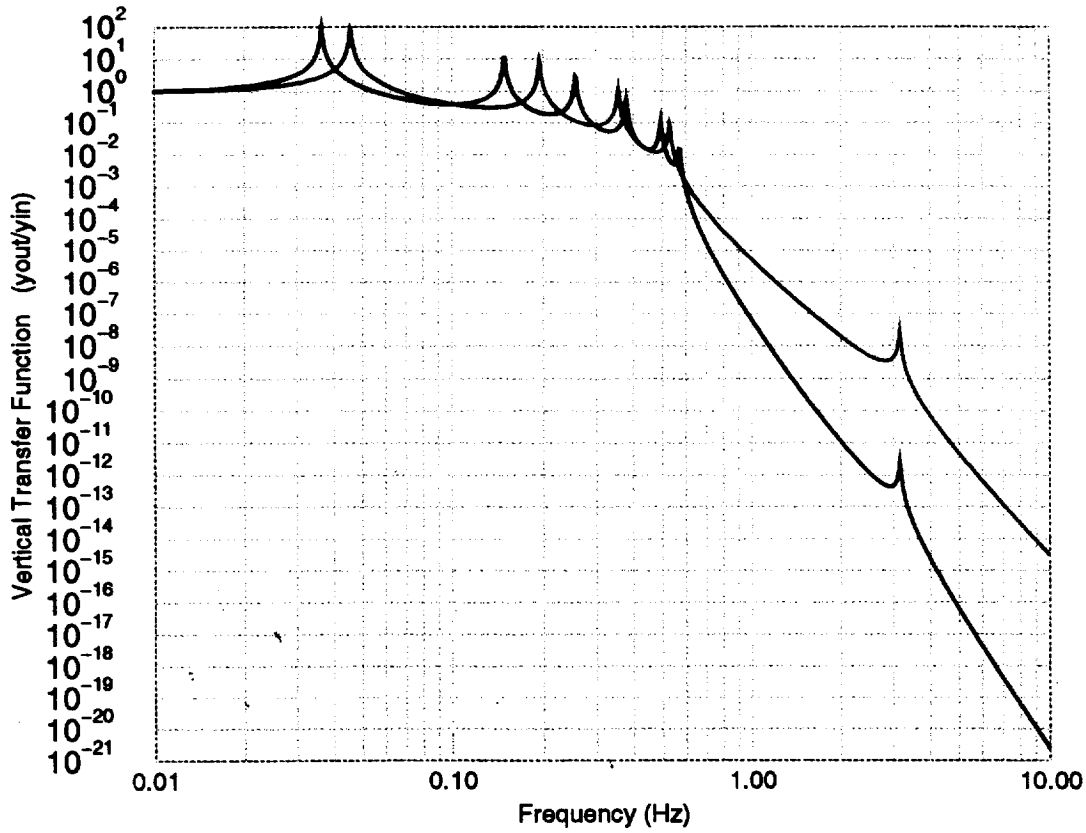


2: Performance of the Virgo inverted pendulum table. Mechanical transfer function of the IP of the Virgo superattenuator on the horizontal dof. The 5 curves were measured with configurations of counterweight to null the batting point effect. The large peak at 9 Hz


10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
10^{-8}
acc. spectrum ($ms^{-2}/Hz^{1/2}$)
damping on
damping off
10^{-3}
10^{-2}
10^{-1}
10^{0}
10^{1}
frequency (Hz)

Vert. and Horiz. TF (Simulation Preliminary Results)





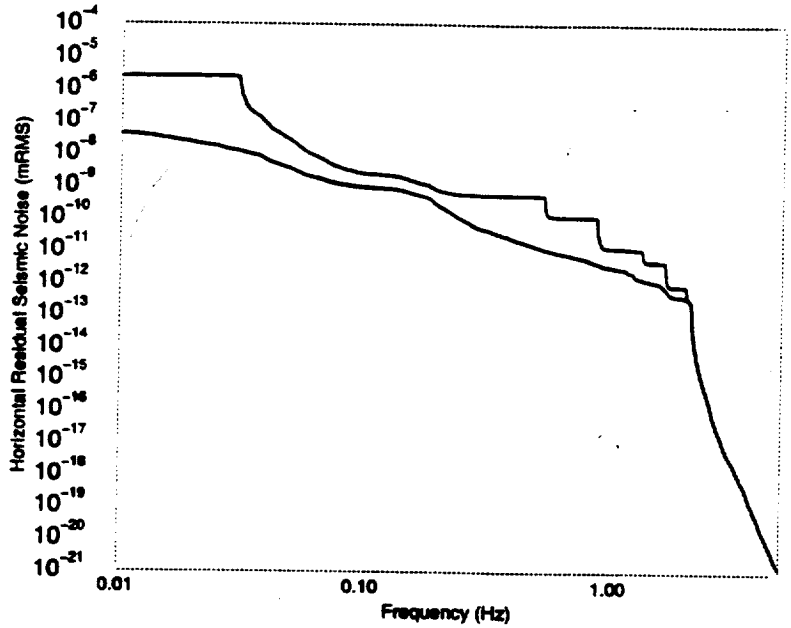


Figure 22: Integrated rms residual motion of the mirror for the short SAS chain with and without inertial damping (blue and red respectively).

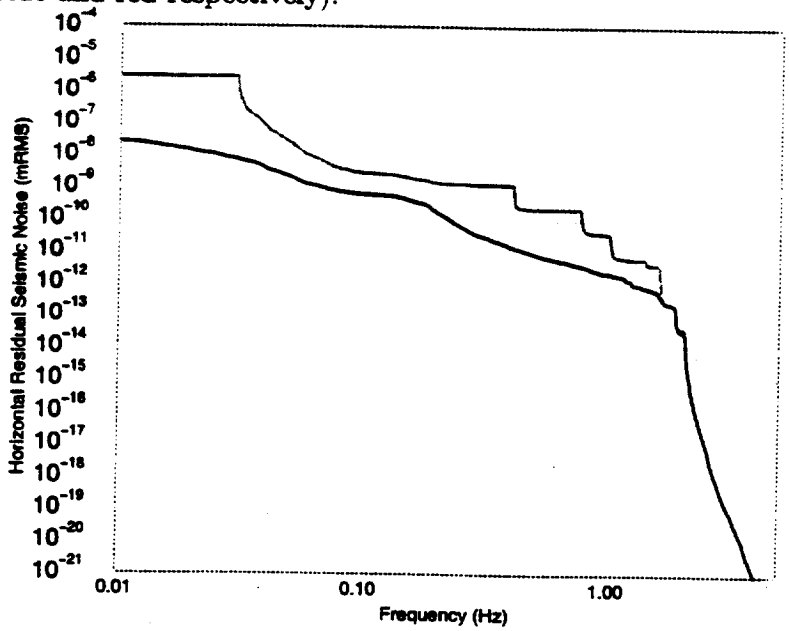
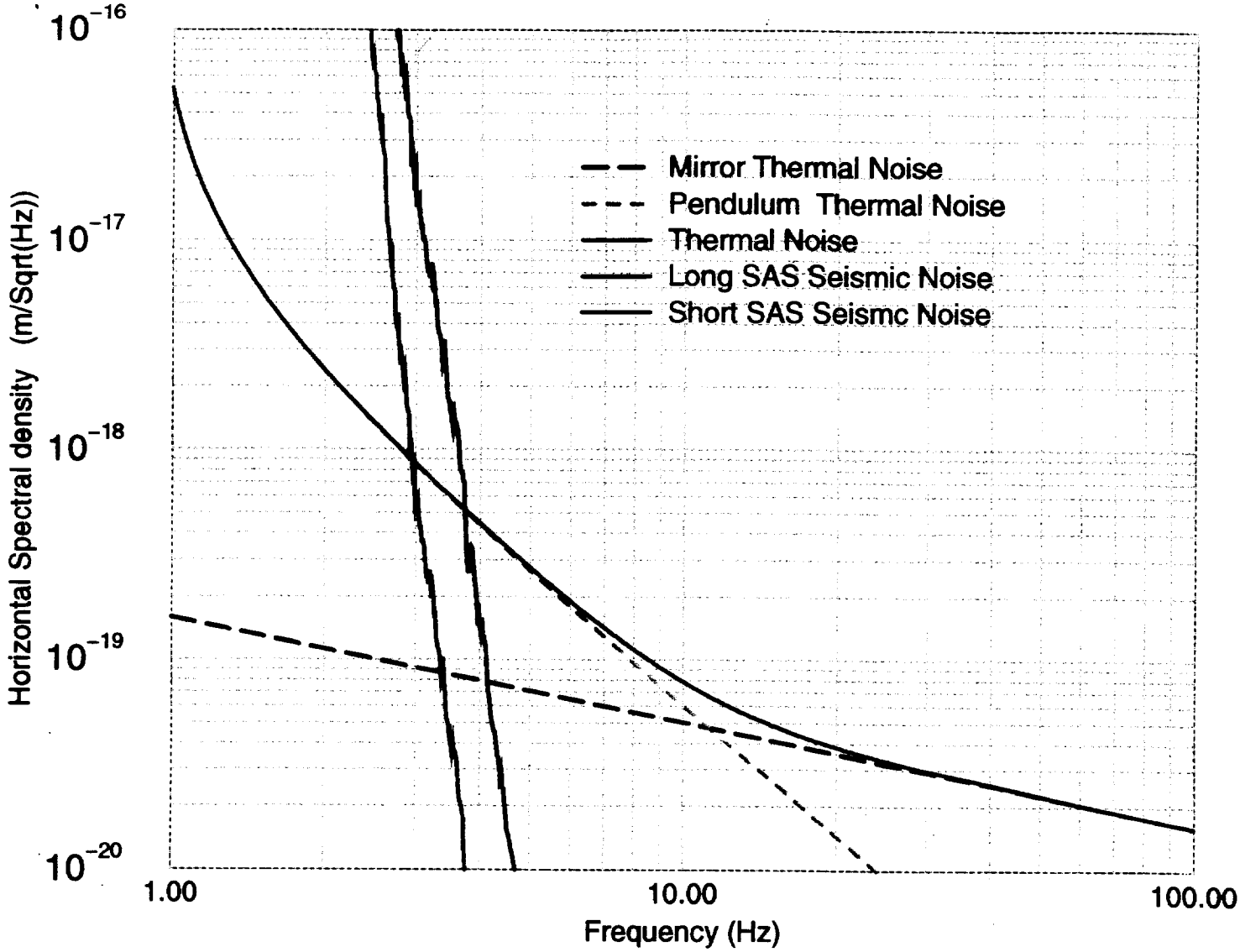
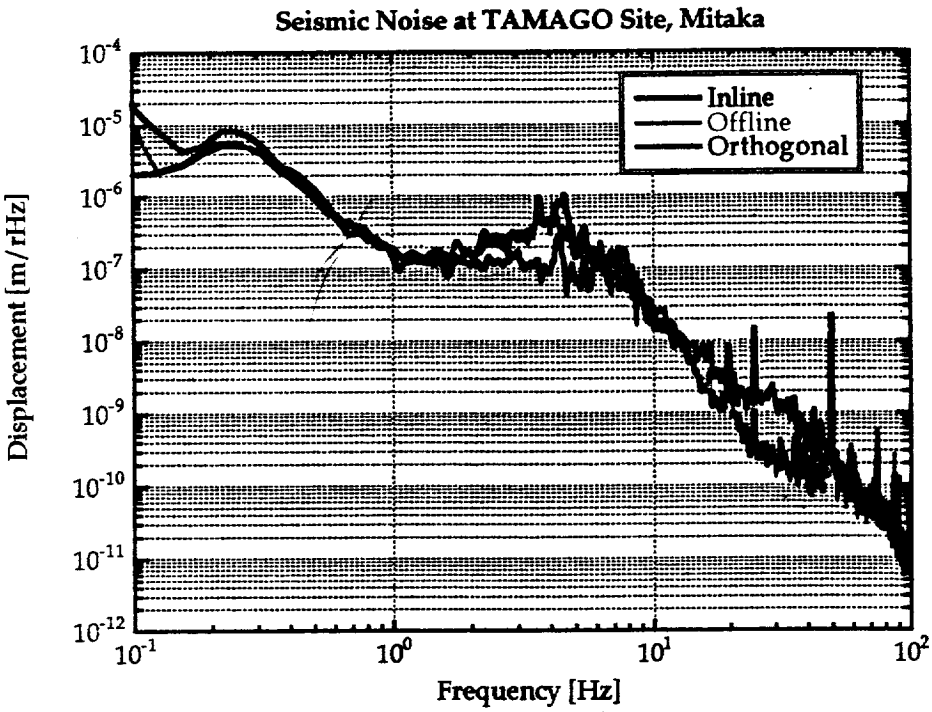
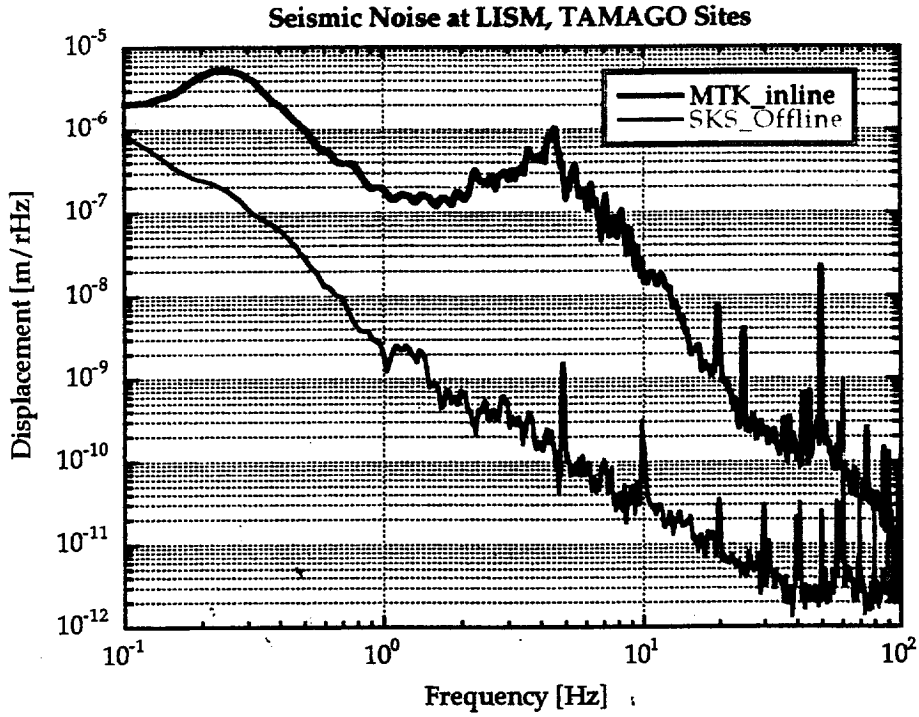


Figure 23: Integrated rms residual motion of the mirror for the long SAS chain with and without inertial damping (blue and green respectively).

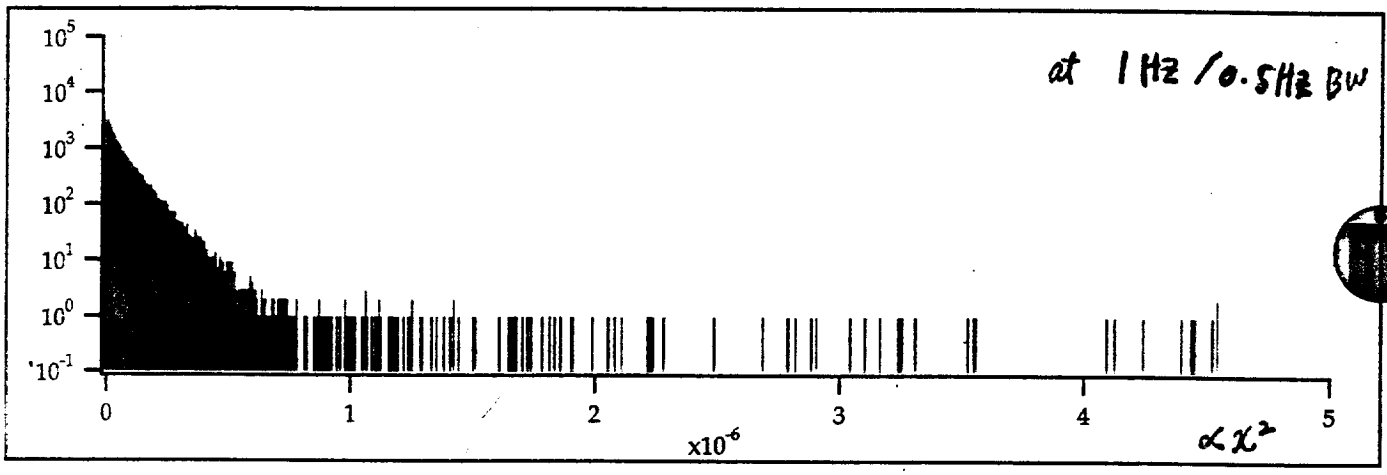
Sensitivity Curve (Preliminary Results)

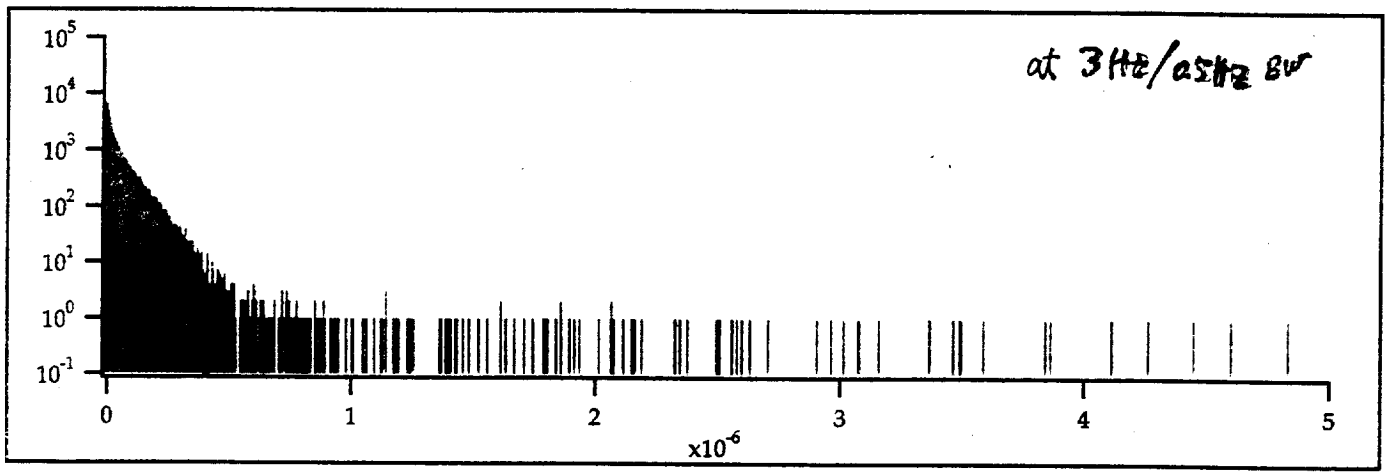


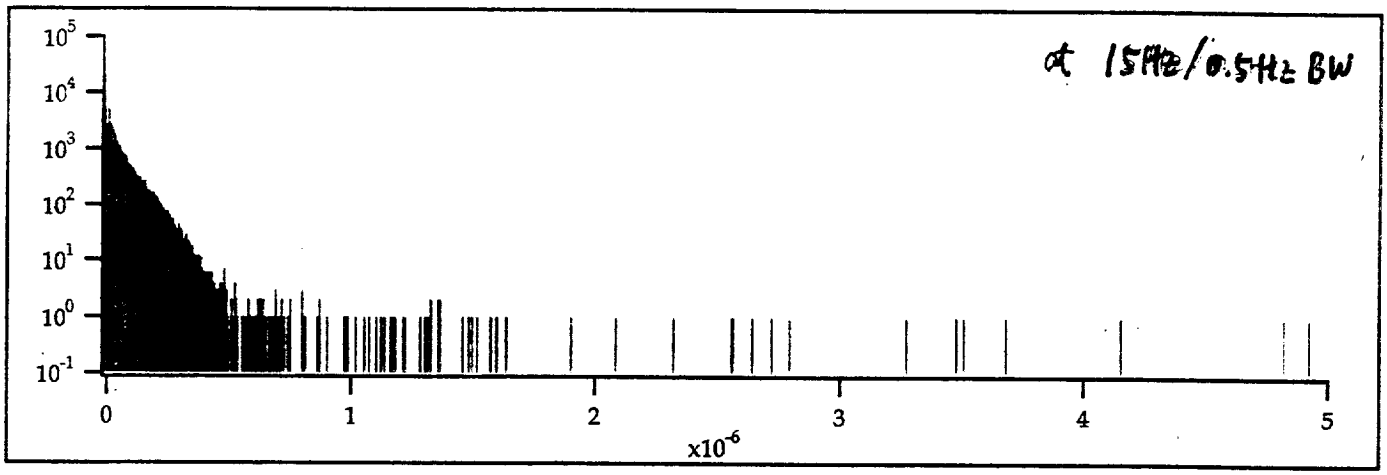

Seismic Noise at TAMAGO Site, Mitaka
Inline
Offline
Orthogonal
Displacement [m/rHz]
Frequency [Hz]
10^-4
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-1
10^0
10^1
10^2

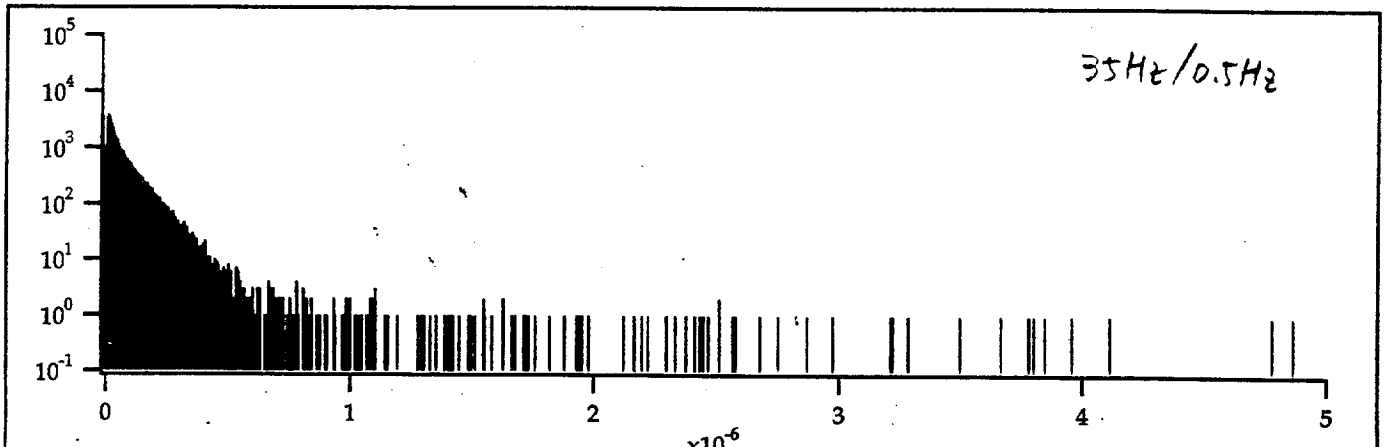

Seismic Noise at LISM, TAMAGO Sites
MTK_inline
SKS_Offline
Displacement [m/rHz]
Frequency [Hz]
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-1
10^0
10^1
10^2

24hr (1200 sec)



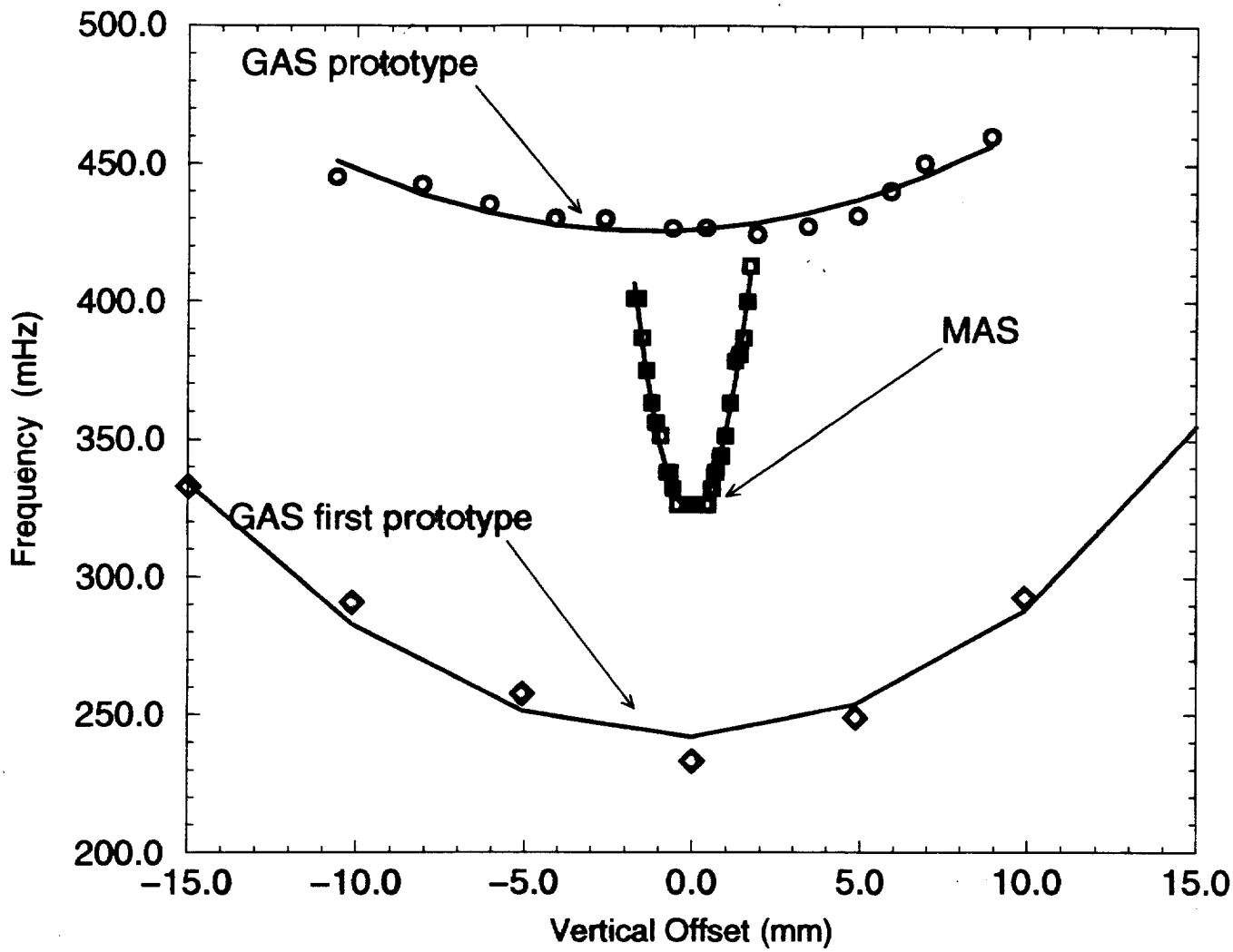


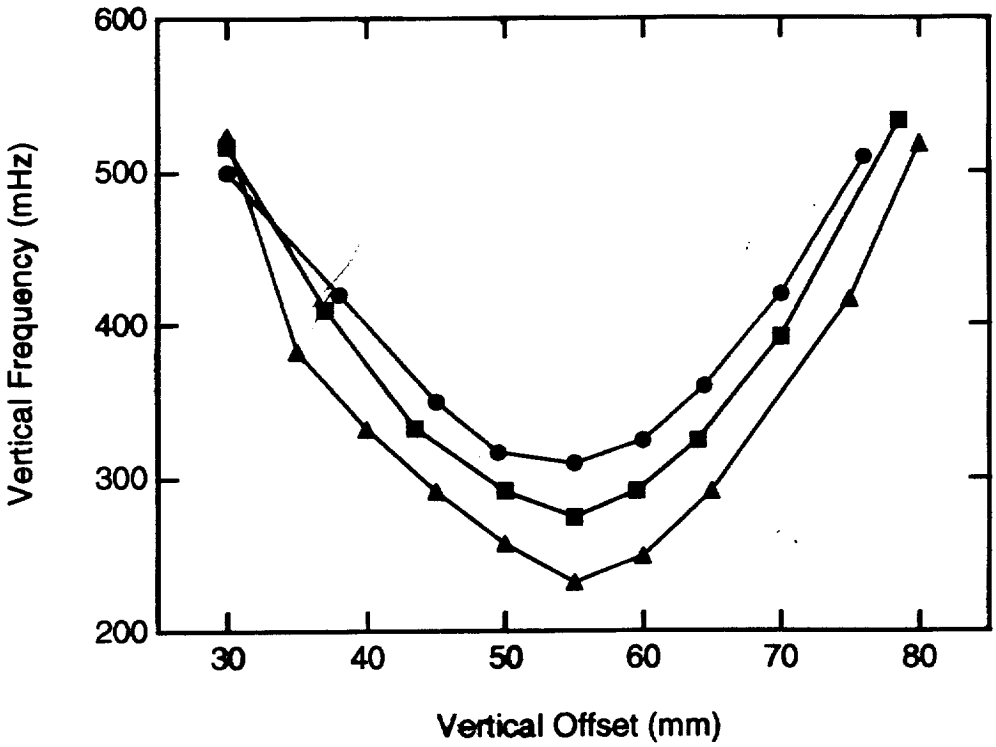


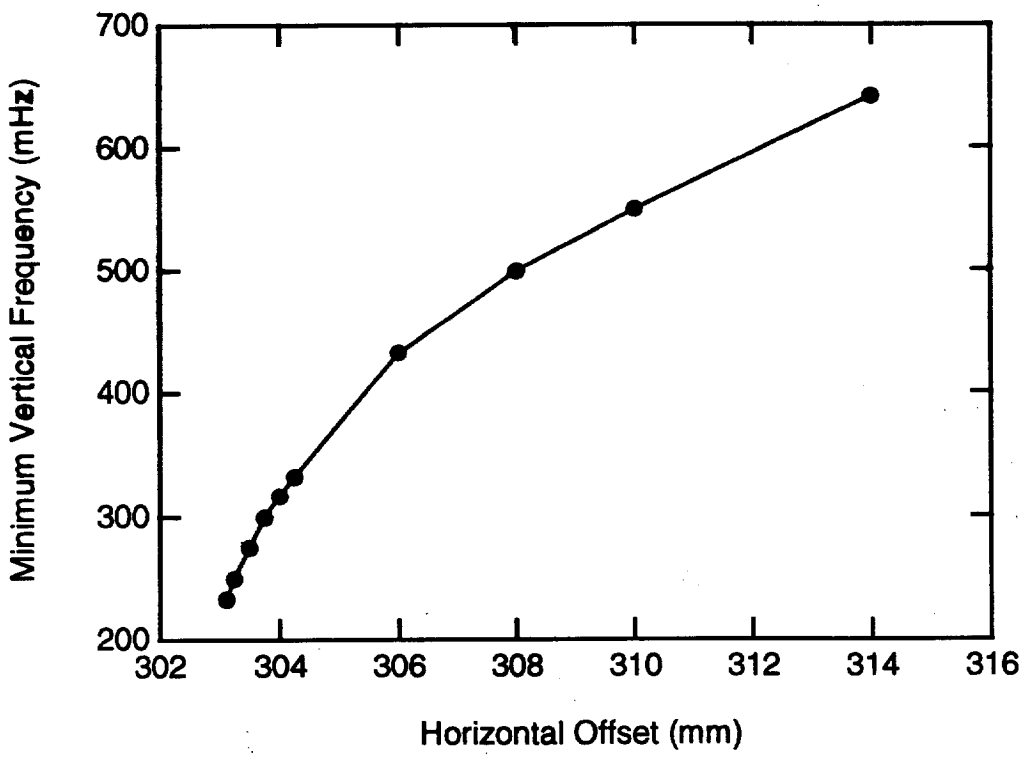


Vertical Frequency Tuning

(Comparison with Magnetic Anti-Spring System)




600
500
400
300
200
Vertical Frequency (mHz)
30
40
50
60
70
80
Vertical Offset (mm)


700
600
500
400
300
200
Minimum Vertical Frequency (mHz)
302
304
306
308
310
312
314
316
Horizontal Offset (mm)

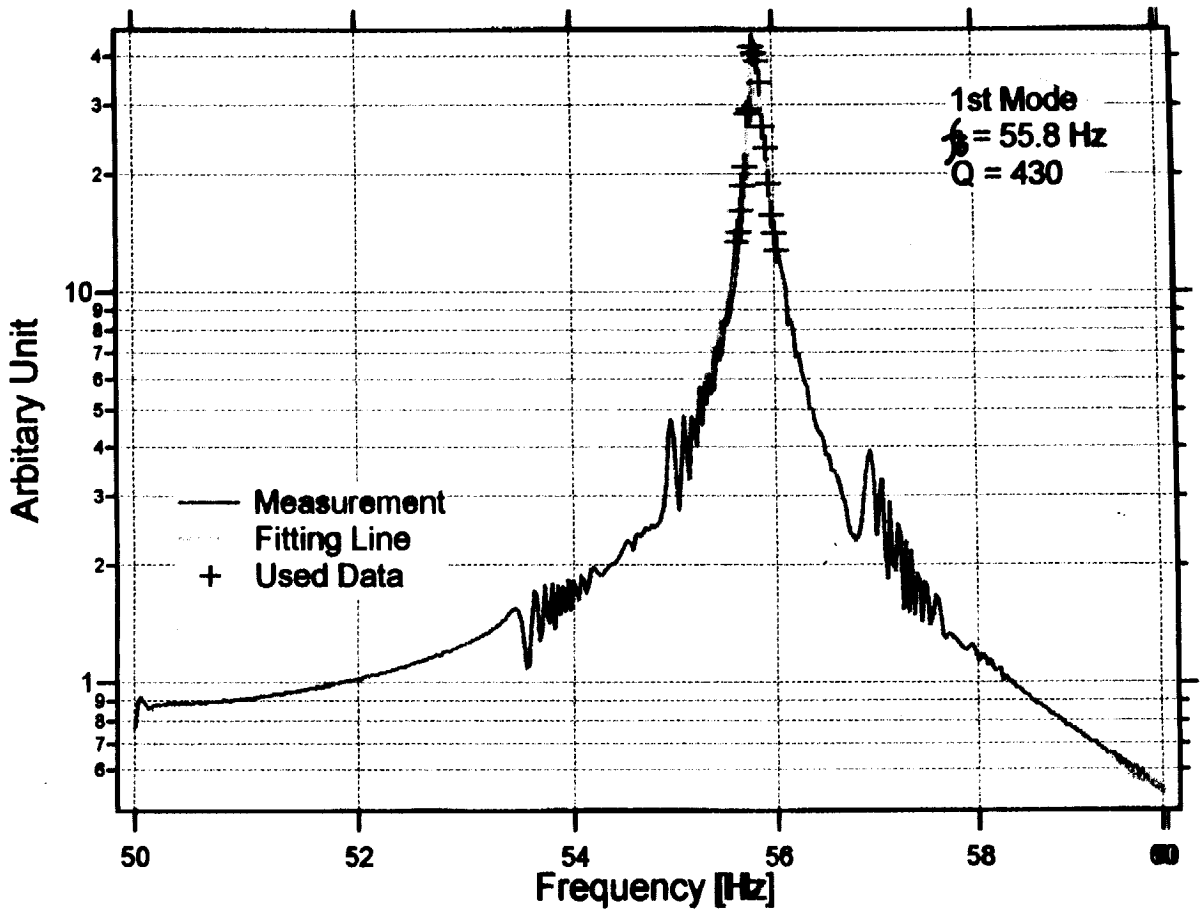
GAS filters advantages

MAS	GAS	
19.3	1.6	mHz/K
400	40	μm/K

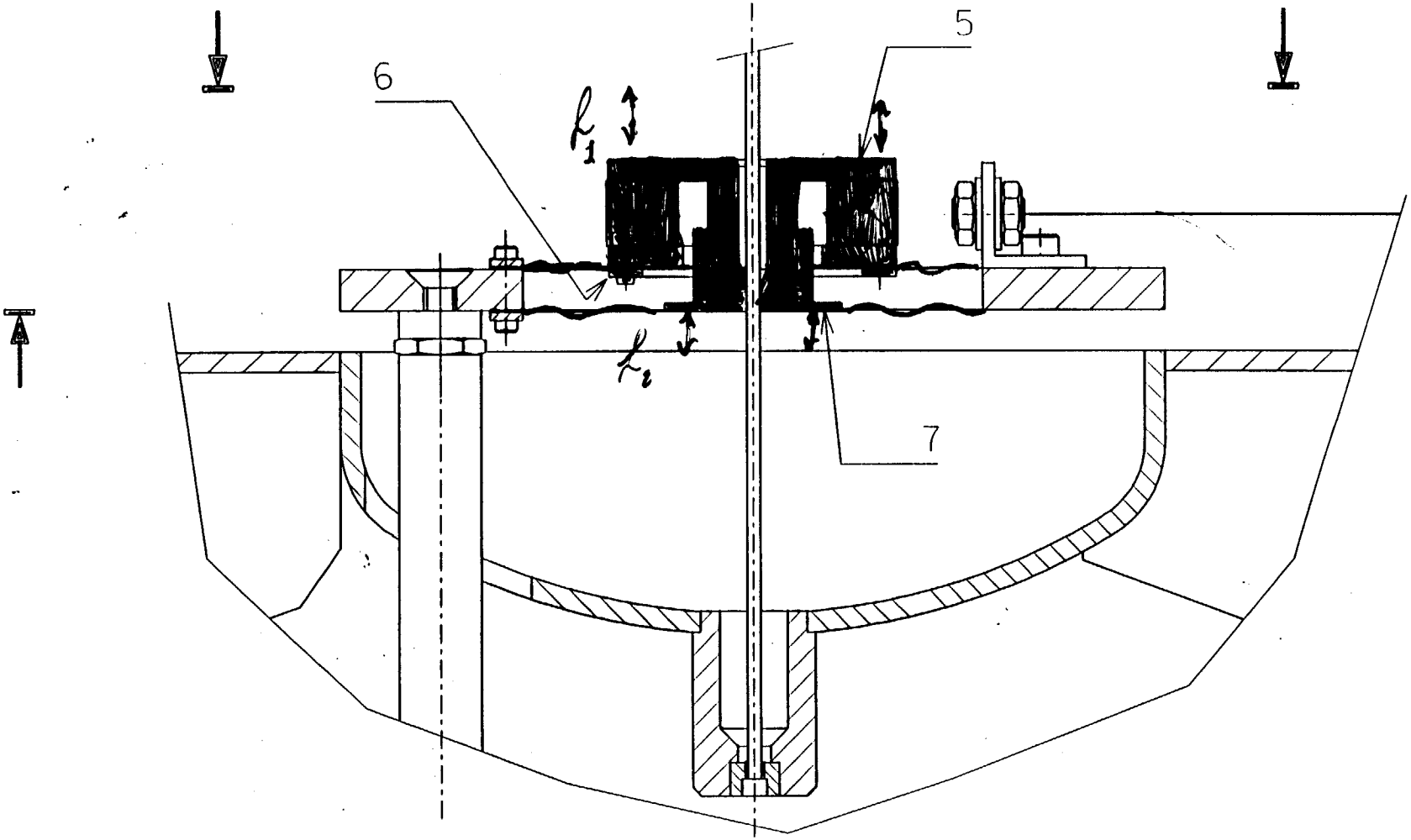
- 100 times less thermal sensitivity
- Wider mechanical dynamic range
  - No need for in-vacuum w.p. tuning
  - No need for load tuning mechanisms

Present Status of Development of GAS

- Resonance Frequency & Q Factor of the Blade Internal Modes
  - Result (1st Mode)

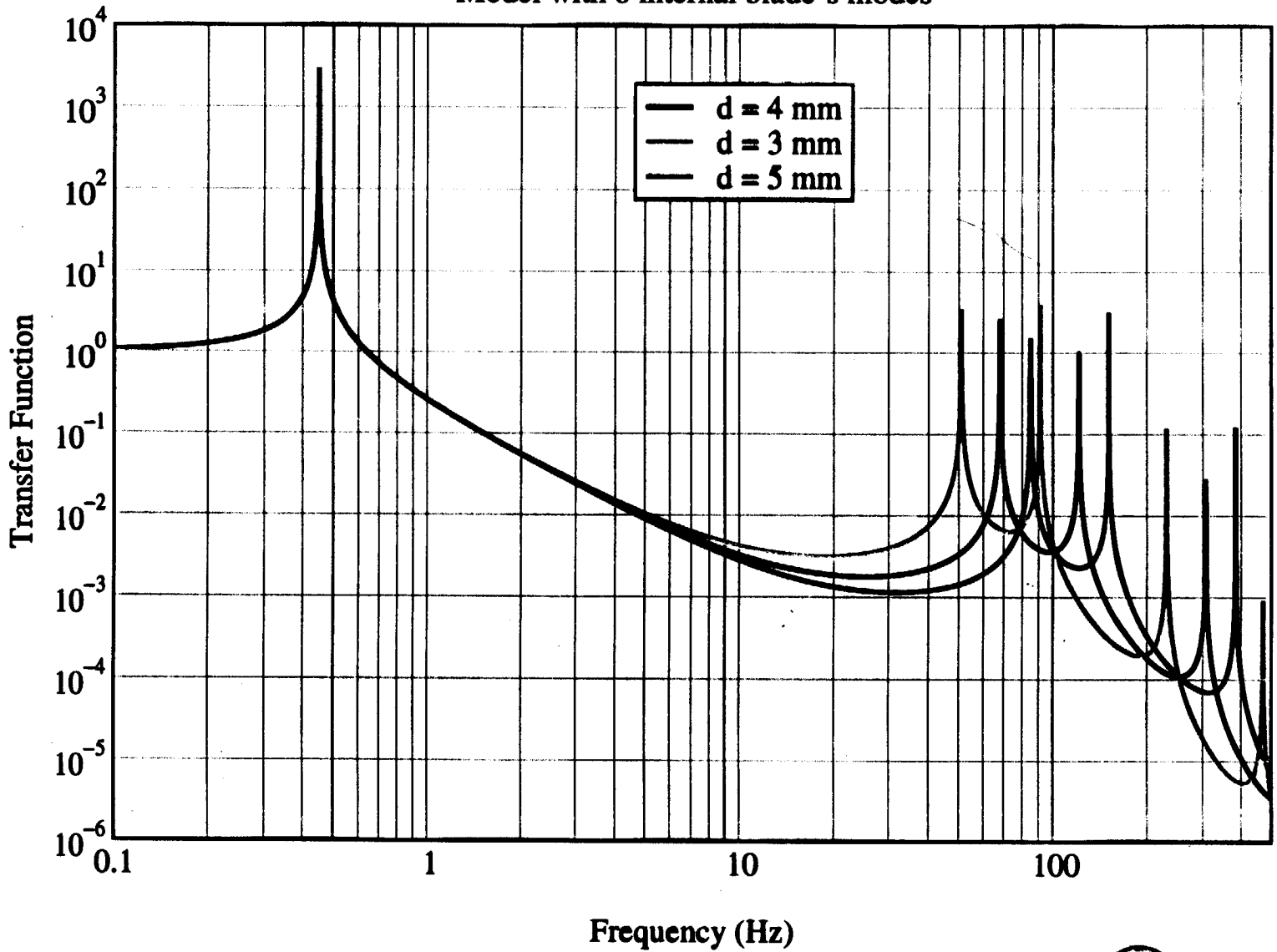


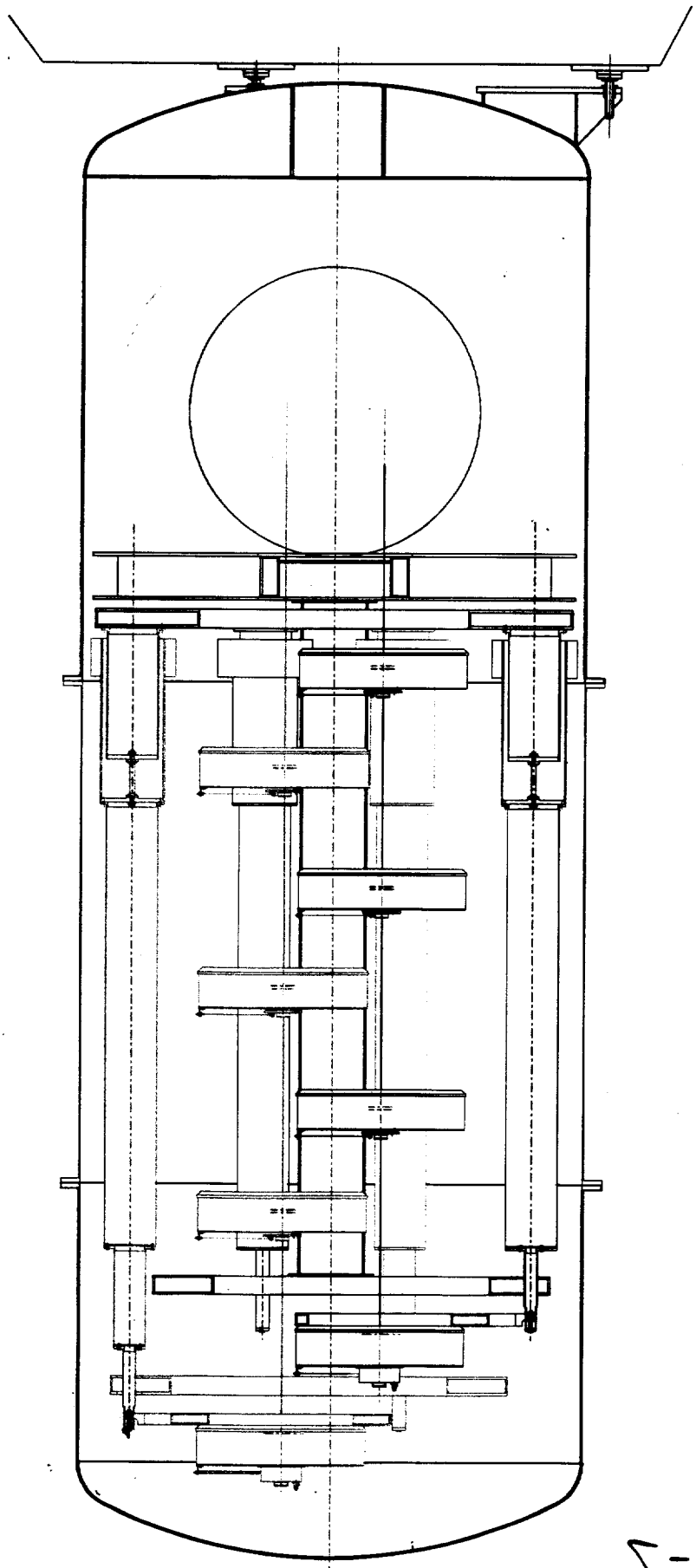
· VERTICAL EDDY CURRENT
BLADE RESONANCE
SELF - DAMPING



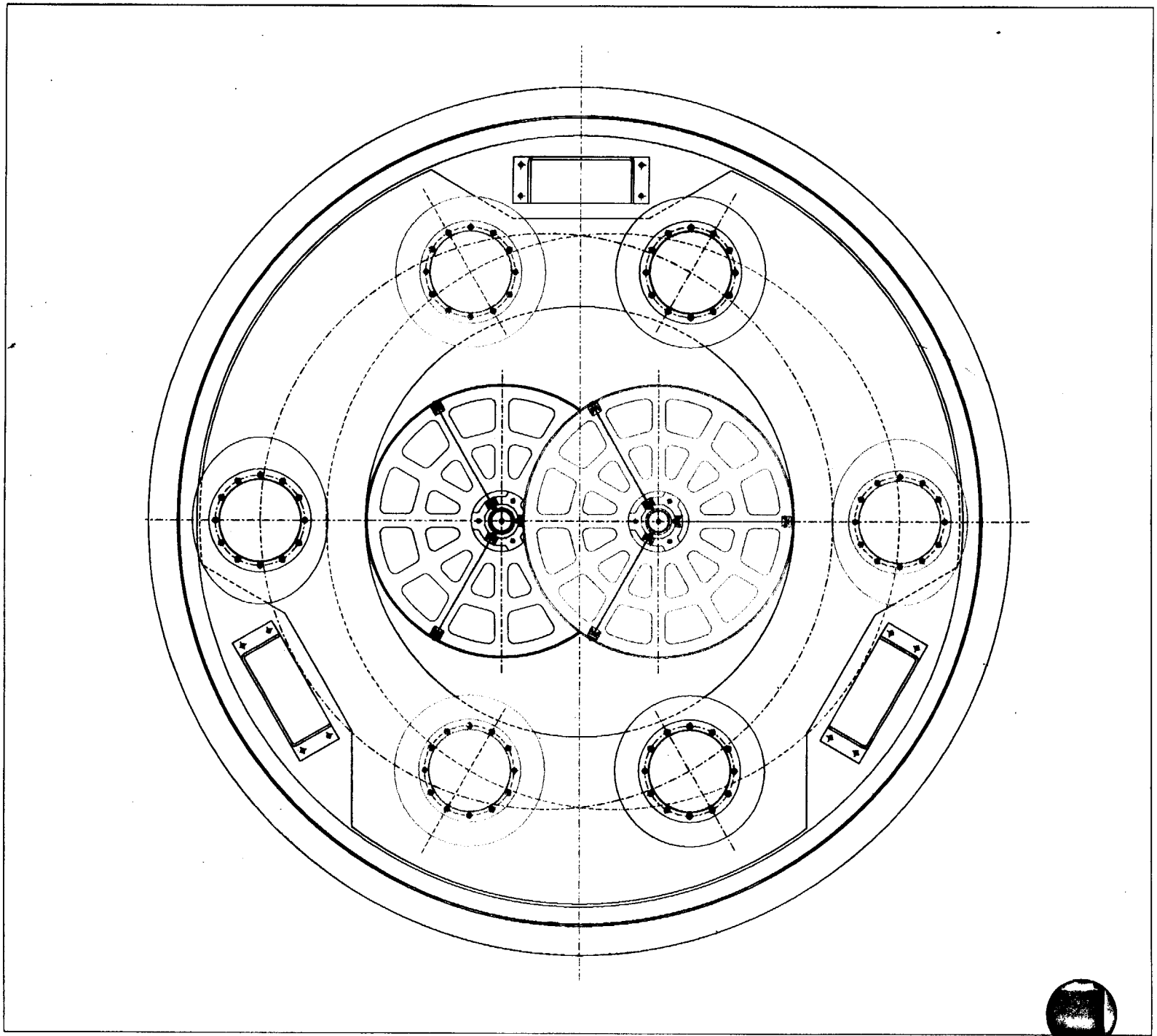
Vertical transfer function

Model with 6 internal blade's modes

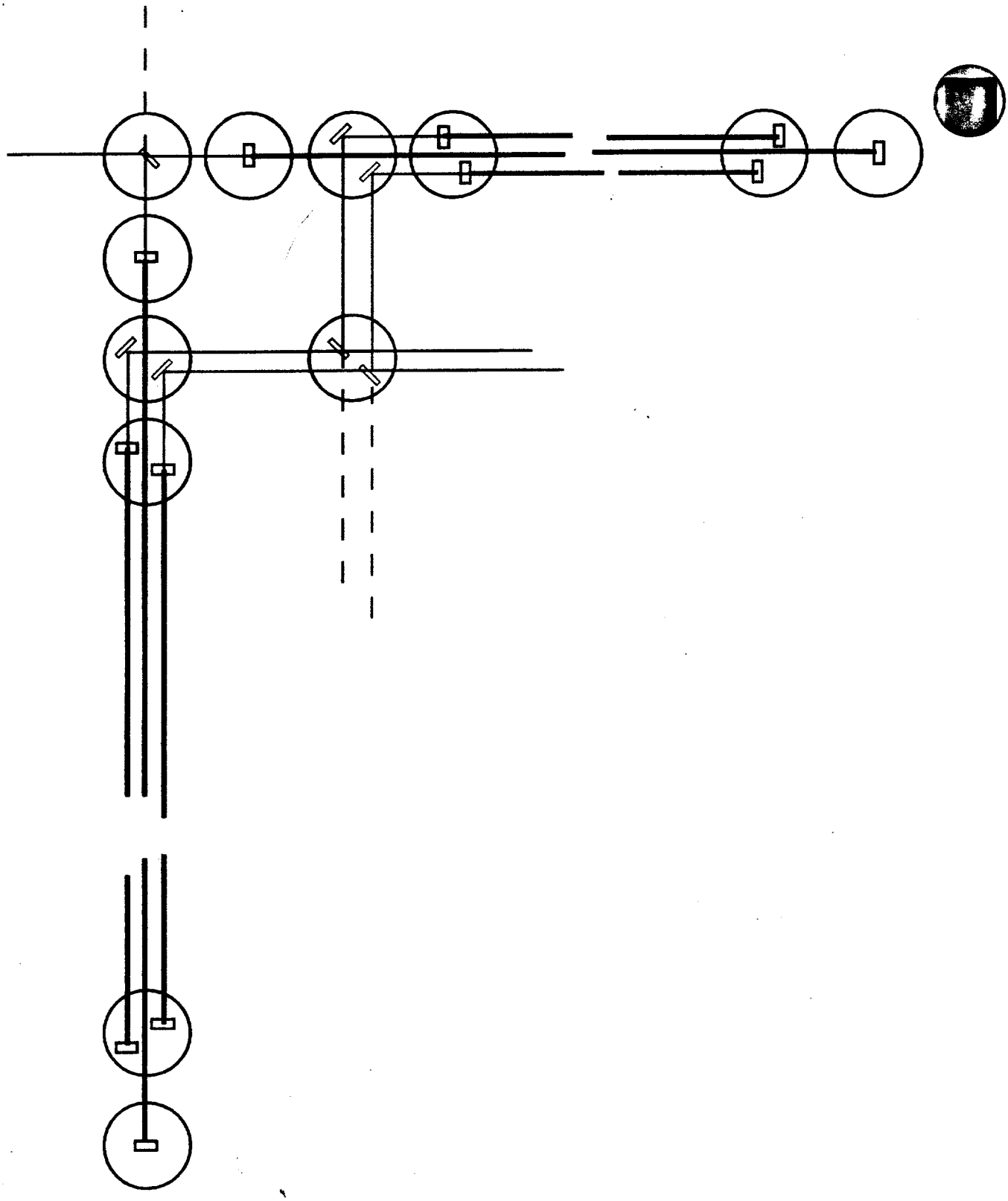




F-M1-5



c:/dgn/ligo/torre_doppia.dgn Jul. 01, 1999 18:33:26



Note 1, Linda Turner, 08/17/99 08:21:51 PM
LIGO-G990079-27-M