PAGE 8 of Takanori's document (11/04/2011,EM)

Double Pendulum Model (IM+TM+RM) Parameter List

Material Property

Maraging Steel (MS)

rho["MS"]=8.0gram/cm3;
young["MS"]=186 10^9 pascal;
phi["MS"]=1.0 10^-4;
poisson["MS"]=0.3;

Tungsten (W)

rho["W"]=19.25gram/cm3;
young["W"]=411 10^9 pascal;
phi["W"]=1.0 10^-4;
poisson["W"]=0.3;

C-70 Steel (C70)

rho["C70"]=7.8gram/cm3;
young["C70"]=212 10^9 pascal;
phi["C70"]=1.0 10^-4;
poisson["C70"]=0.3;

Body

(* IM, TM, RM, *)
mass = {80.0, 10.7, 90.0} kg;
moix = {1.20, .051, 4.00} kg meter^2;
moiy = {2.40,.051, 4.00} kg meter^2;
moiz = {1.20,.084, 8.00} kg meter^2;

Wire

(* IM, TM, RM, *)
matw = {"MS", "W", "C70"};
lNw = { {2.084},
{2.084, 2.084, 2.084, 2.084},
{2.084, 2.084, 2.084, 2.084}} meter;
dw = { {2.10},
{0.15, 0.15, 0.15, 0.15},
{0.70, 0.70, 0.70, 0.70}} mm;
dyu = {{0.00},
{0.00, 0.00, 0.00, 0.00},
{0.00, 0.00, 0.00, 0.00}} mm;
dyl = {{-3.0},
{1.00, 1.00, 1.00, 1.00},
{1.00, 1.00, 1.00, 1.00}} mm;
dxu = {0.00, 25.0, 34.0} cm;
dzu = {0.00, 3.00, 6.00} cm;
dxl = dxu; dzl = dzu;(*vertical suspension*)

- Below I consider only Takanori's 3D plots
- RM params must be revised, I took exactly the values in Takanori's doc just in order to compare.
- Also wire separation should be revised, but als to this extent I took Takanori's values.
- I used exactly Takanori's material parameters.

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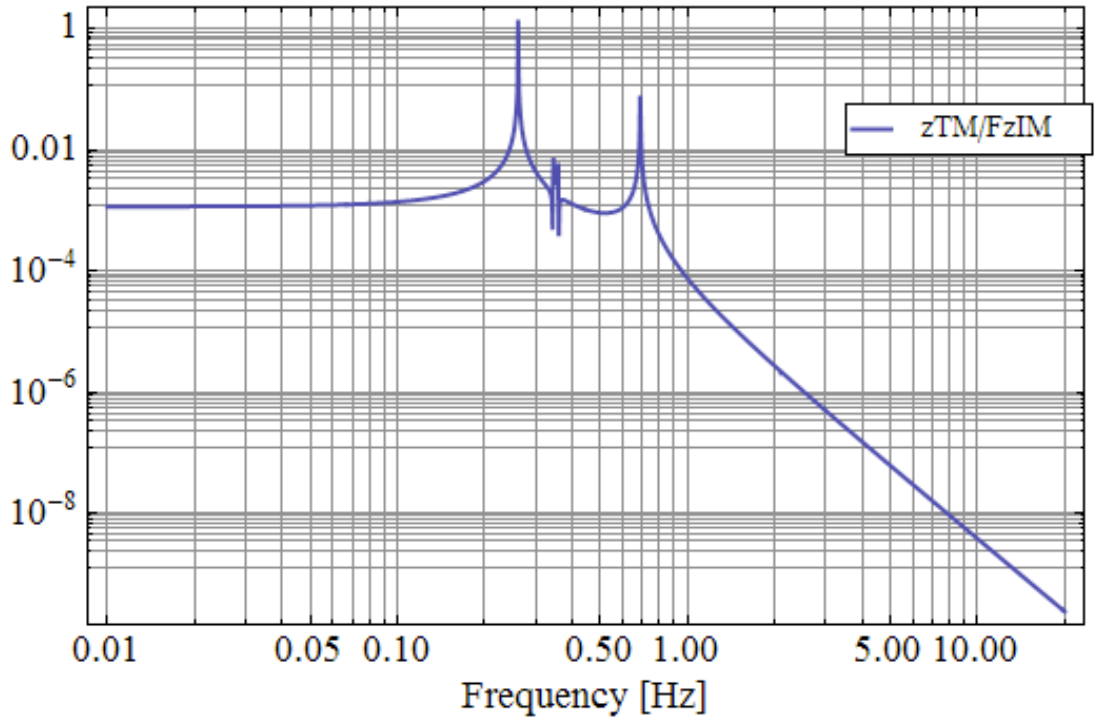

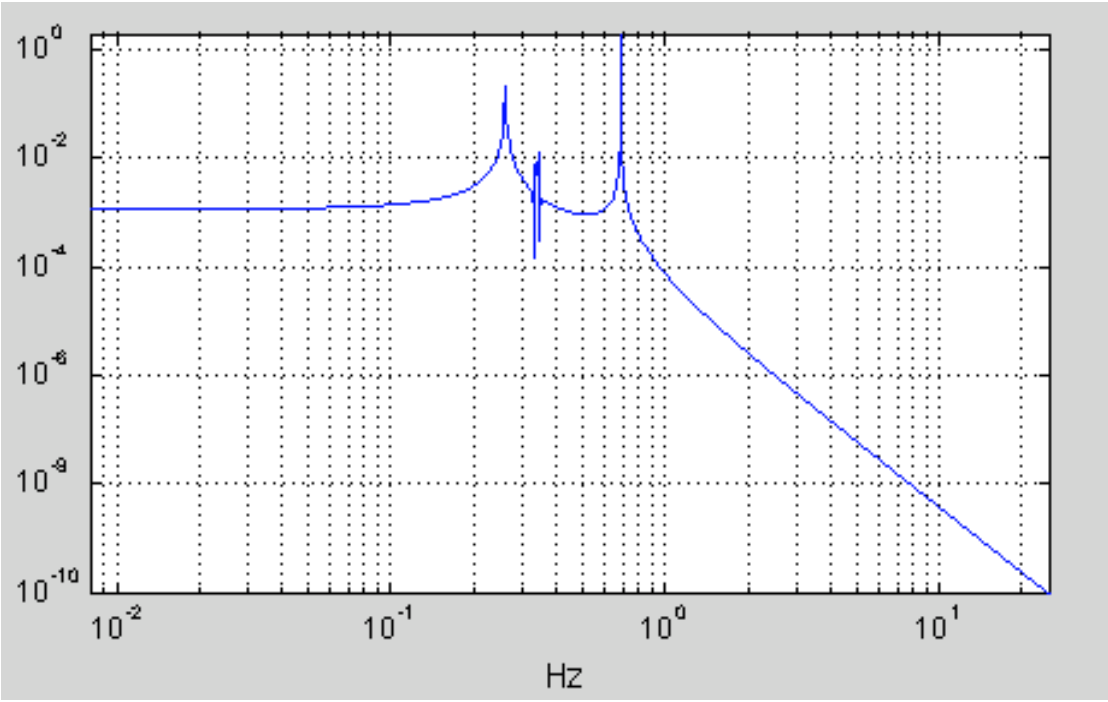

3D comparison, OK (using clamp point of IM wire @ COM)

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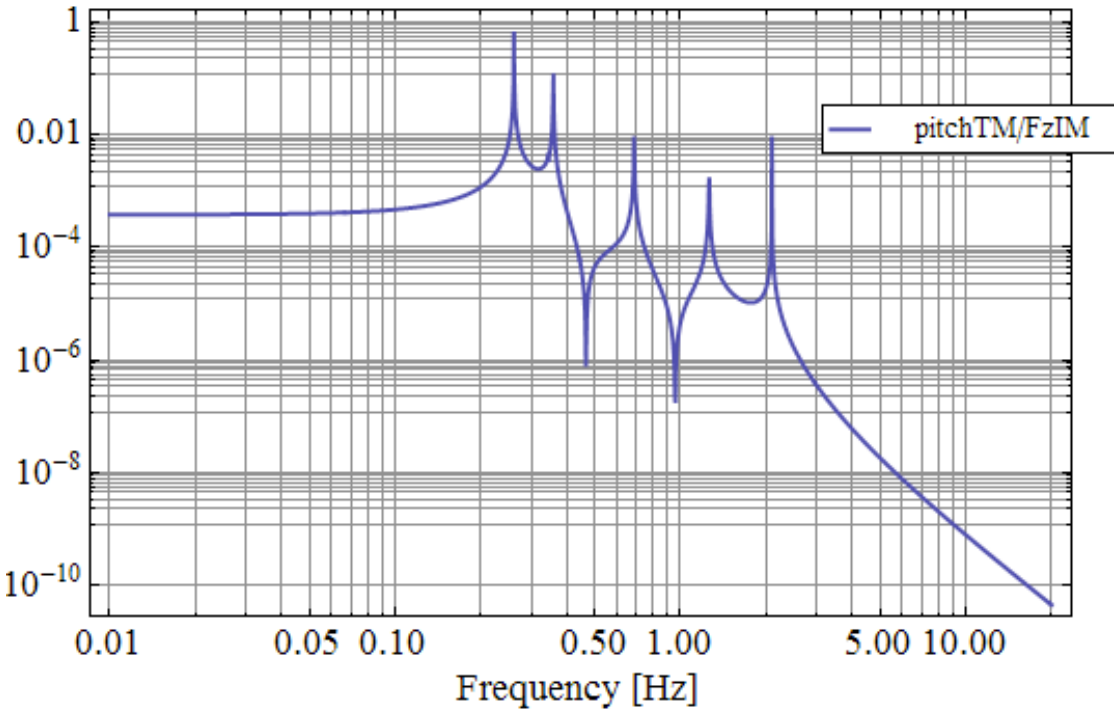

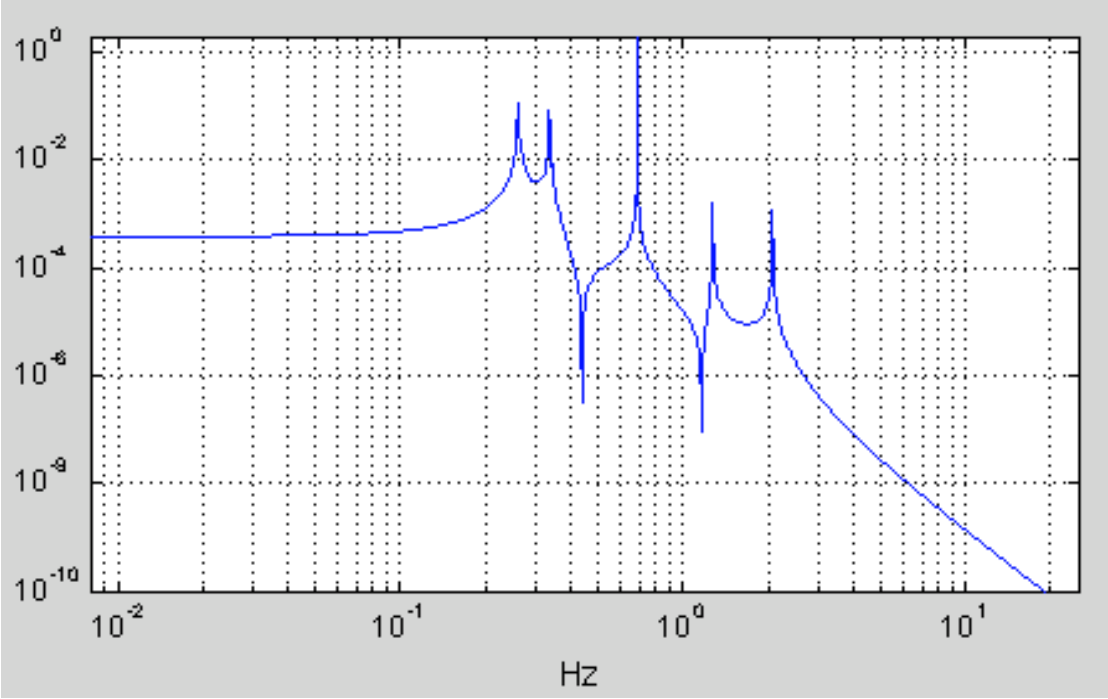

3D comparison, ~OK (using clamp point of IM wire @ COM)

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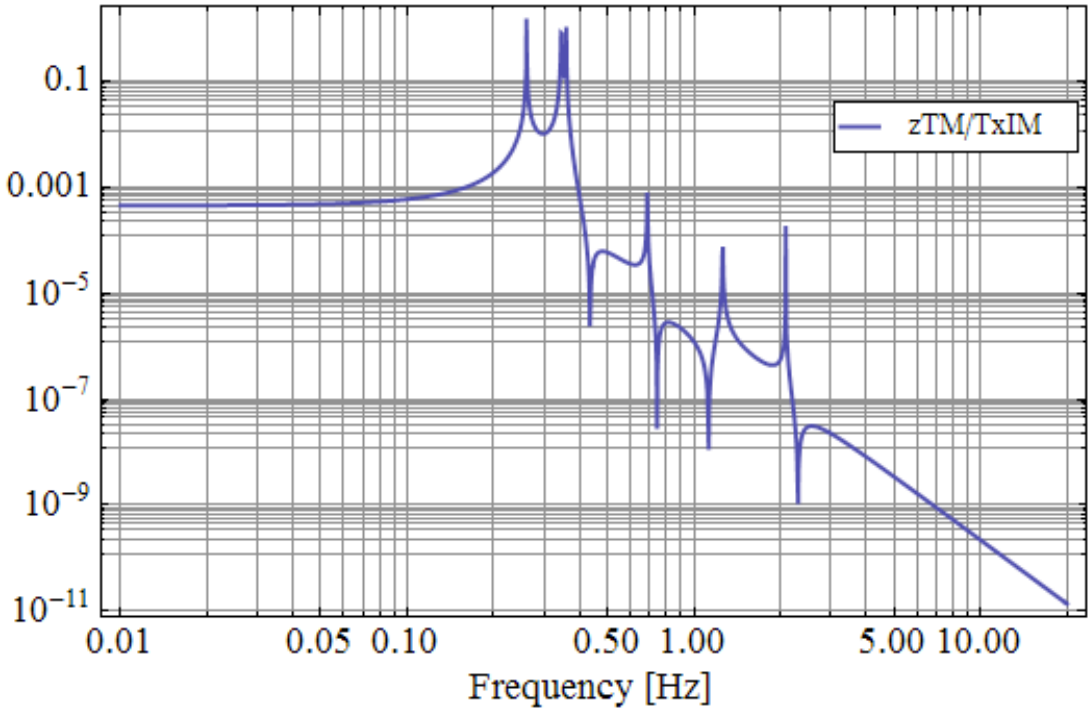
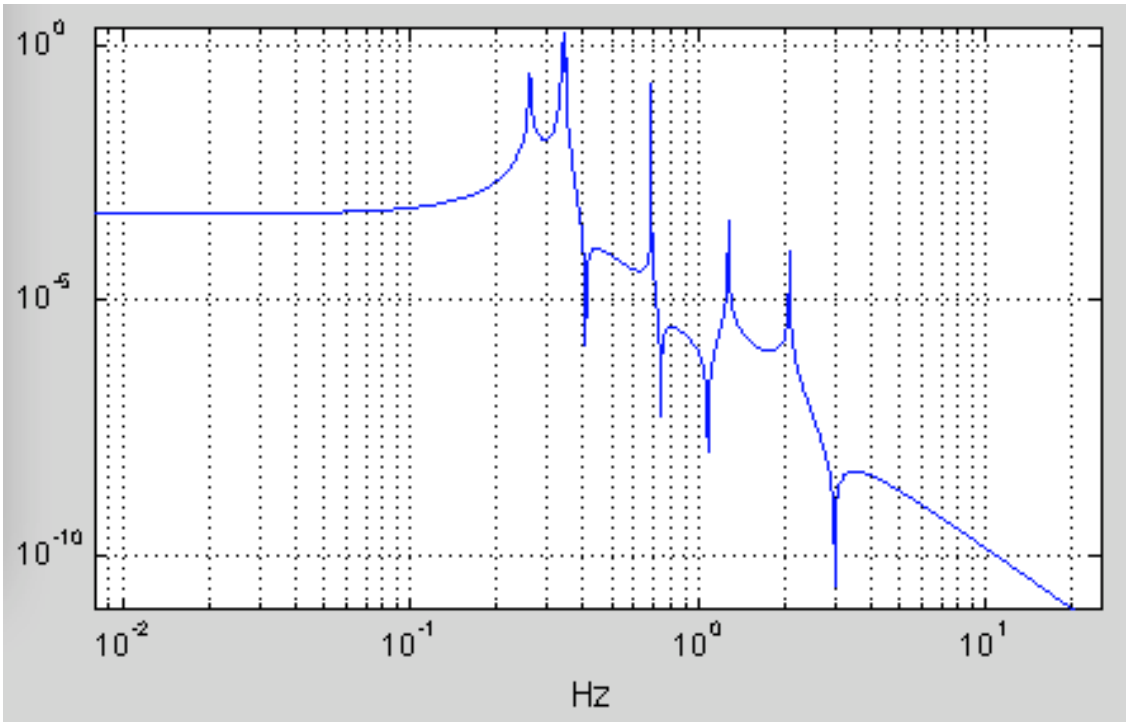
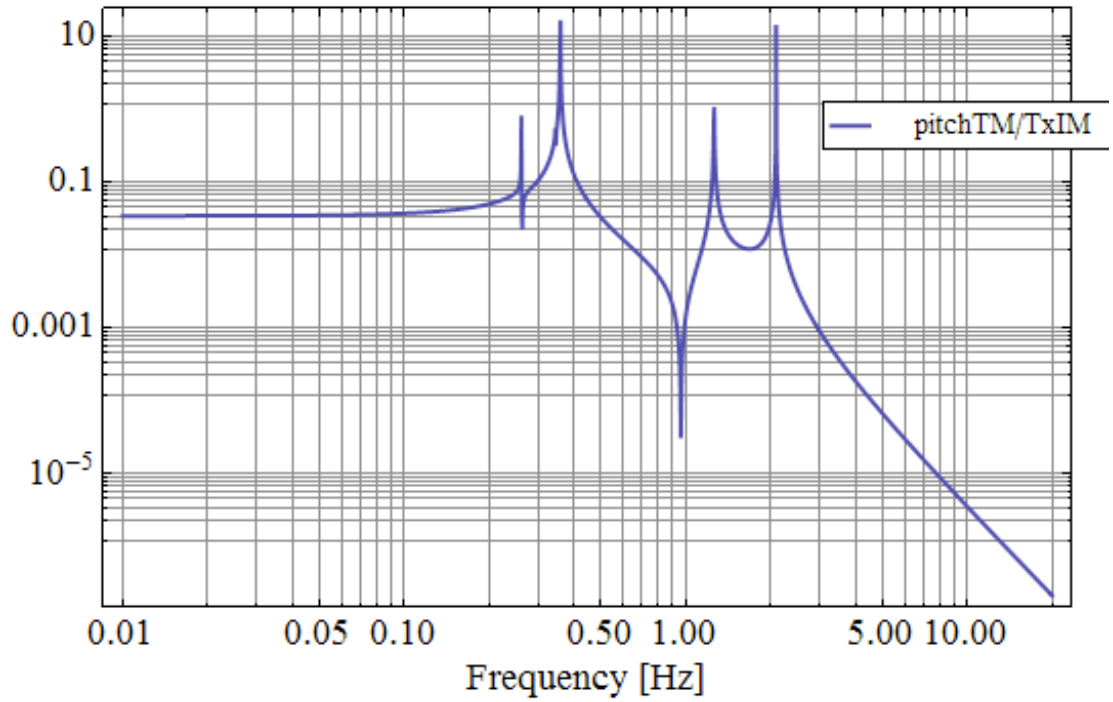
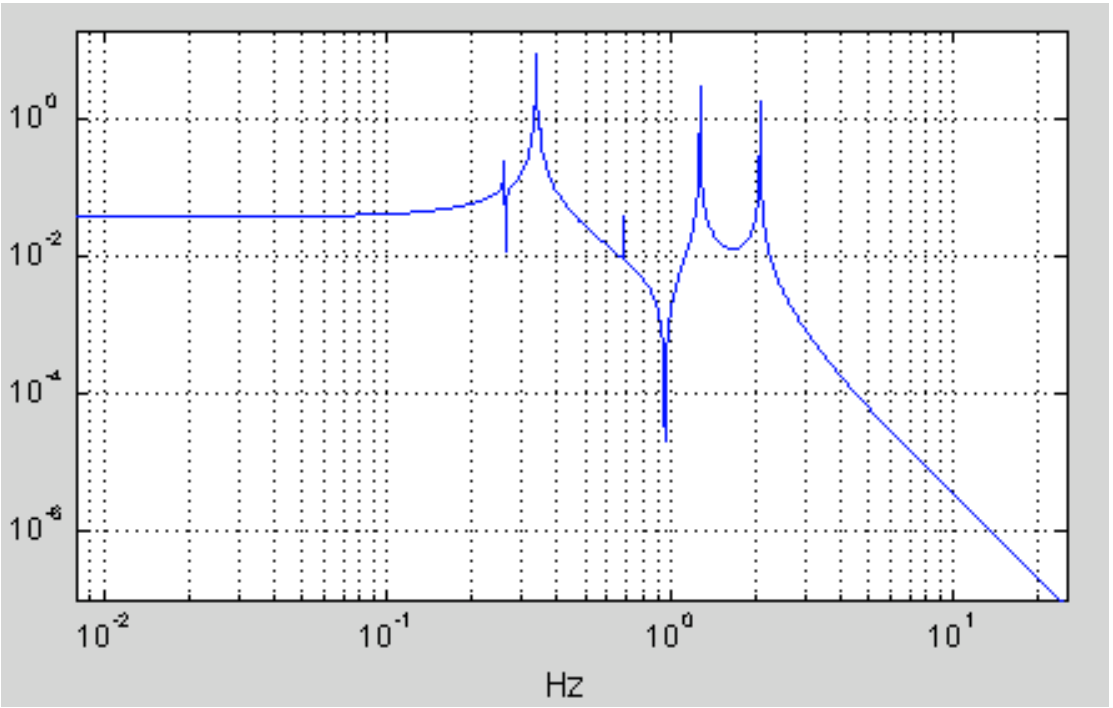




3D comparison, ~OK (using clamp point of IM wire @ COM)

PAGE 13 of Takanori's document

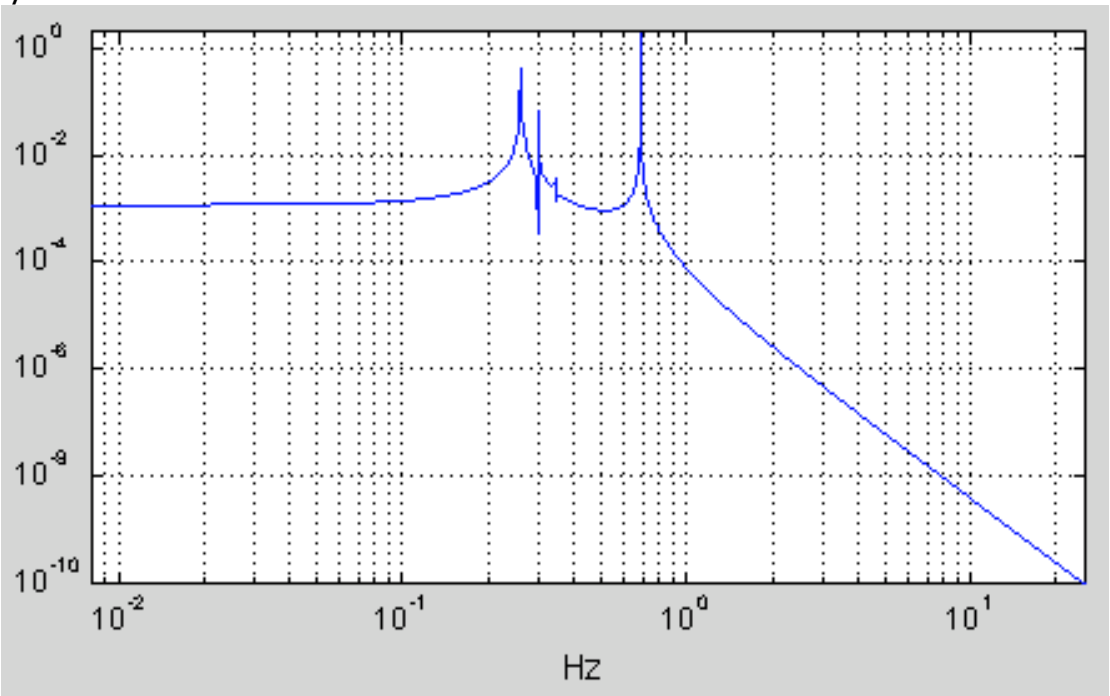




3D comparison, OK (using clamp point of IM wire @ COM)

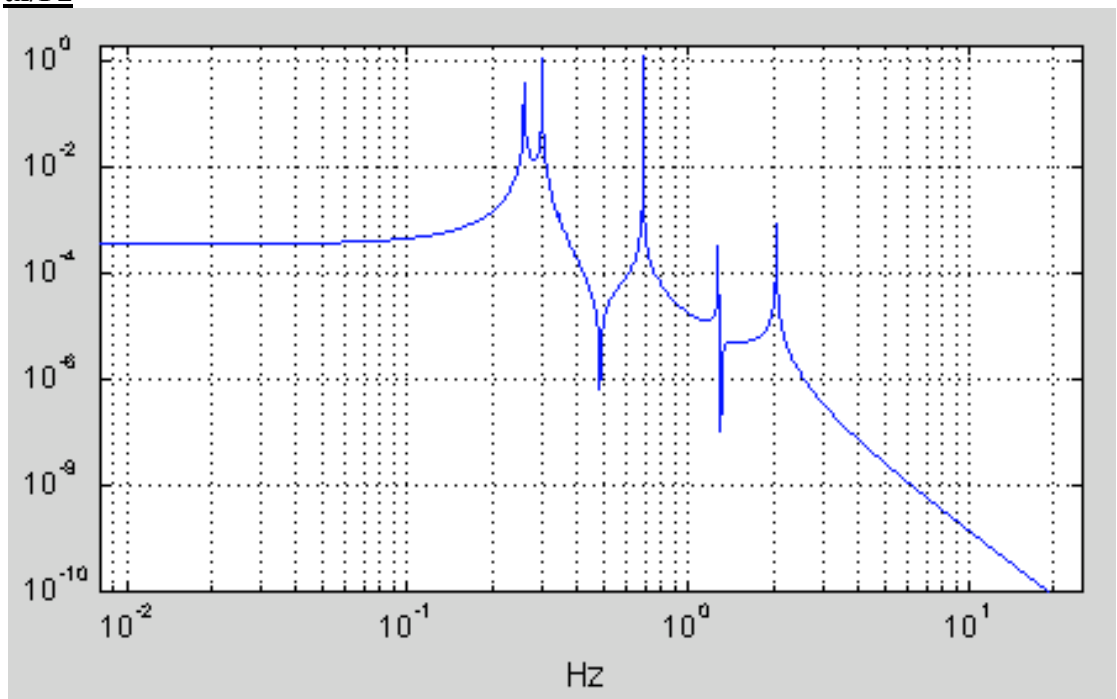
PAGE 10 of Takanori's document BIS: check of pitch lowest freq by clamping IM wire -3 mm below IM COM

z/Fz



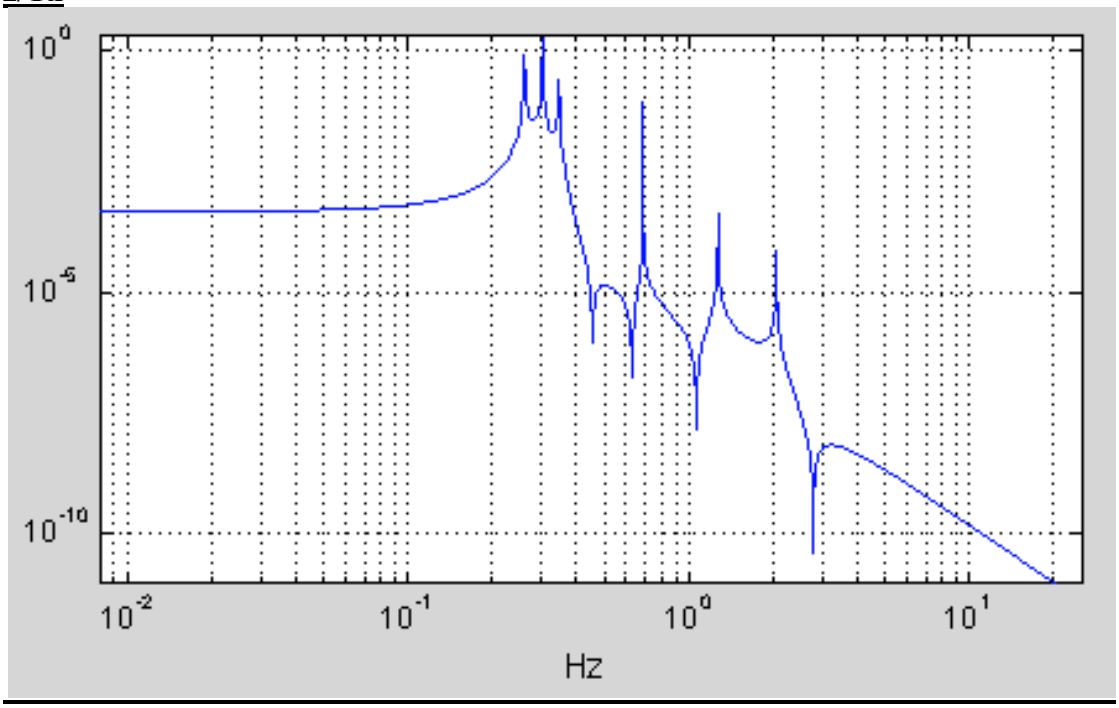
PAGE 11 of Takanori's document BIS: check of pitch lowest freq by clamping IM wire -3 mm below IM COM

tx/Fz



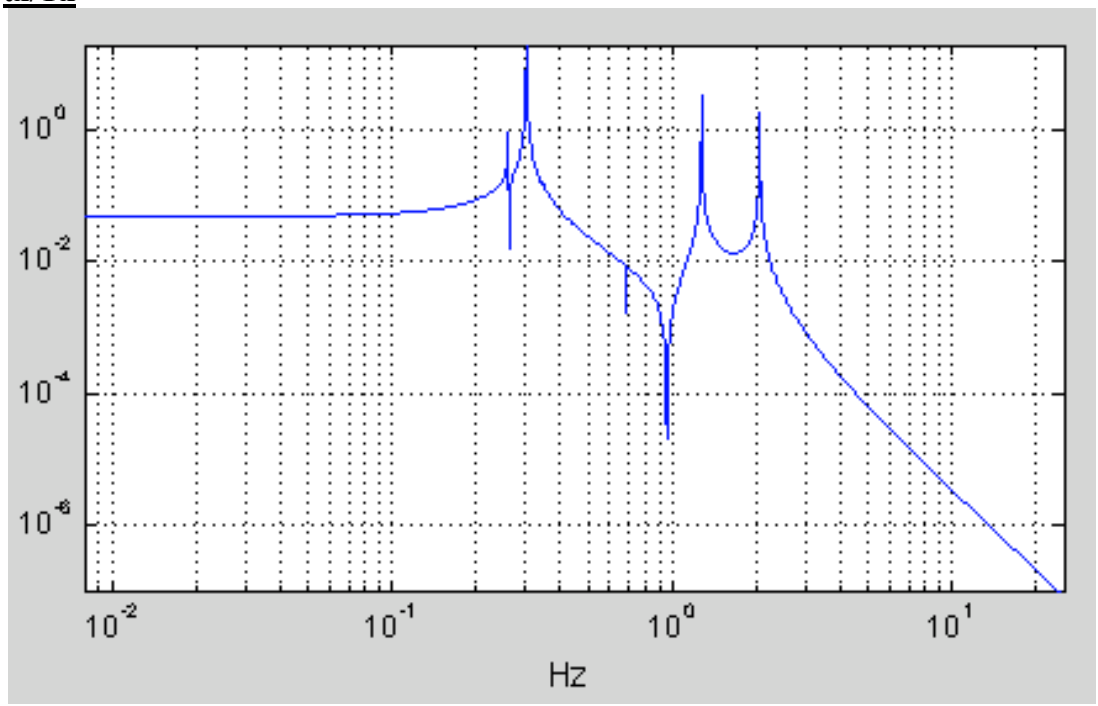
PAGE 12 of Takanori's document BIS: check of pitch lowest freq by clamping IM wire -3 mm below IM COM

z/Tx



PAGE 13 of Takanori's document BIS: check of pitch lowest freq by clamping IM wire -3 mm below IM COM

tx/Tx



The comparison enlightens very tiny differences between couplings and slightly larger difference between tx/Tx due probably to vertical gap in 3D plots by Takanori.