

A HIGH PASS TYPE TW ACCELERATING STRUCTURE

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An alternative semi-lumped conductance structure is presented.

Motivation:

1. The structure resented last time (Sep. 08) has the disadvantage of the difficulties on supporting and cooling.
2. Coils (formed by a copper pipe) directly connecting to the wall to from a high pass filter can also be an accelerating structure.

The captions and/or descriptions of enclosed figures on the presentation:

Fig.1 The conceptual diagram, effective circuit and their voltage vectors.

Fig.2 The mesh design for MAFIA simulation.

Fig.3 One resultant E field (E_{re}) of MAFIA simulation showing maximum transverse field with the longitudinal field being minimum.

Fig.4 The field pattern (E_{im}) 90 degree phase difference from those of Fig.3, showing the maximum longitudinal field and minimum transverse field.

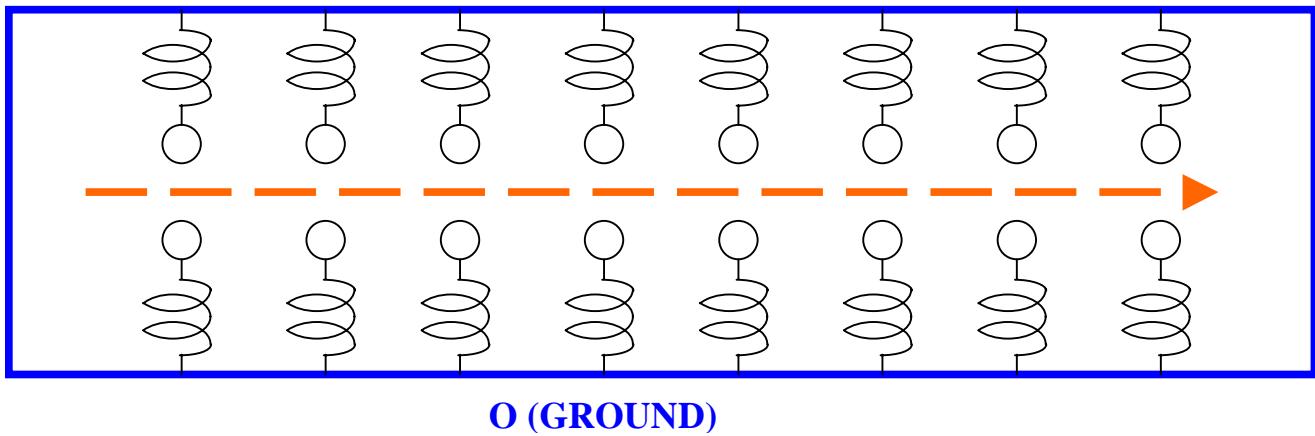
Fig.5 The $\omega-\beta$ diagram of a 2-turns coil structure, of which the frequency is close to 30 MHz.

Fig.6 Q value of the same structure, note this result not a precise one.

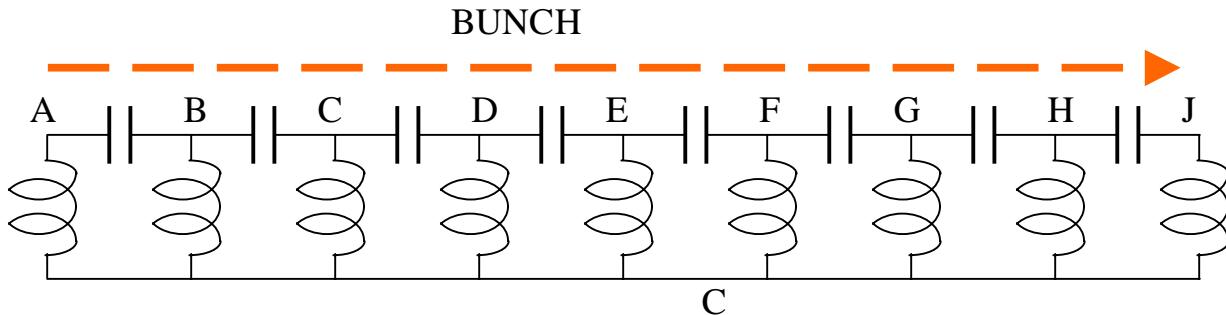
Fig.7 The impedance curves. Note the results are from the integration on one cell only, the maximum on 90 degree is considered not correct.

Fig. 8 R/Q/L curves. Same argument as above applies.

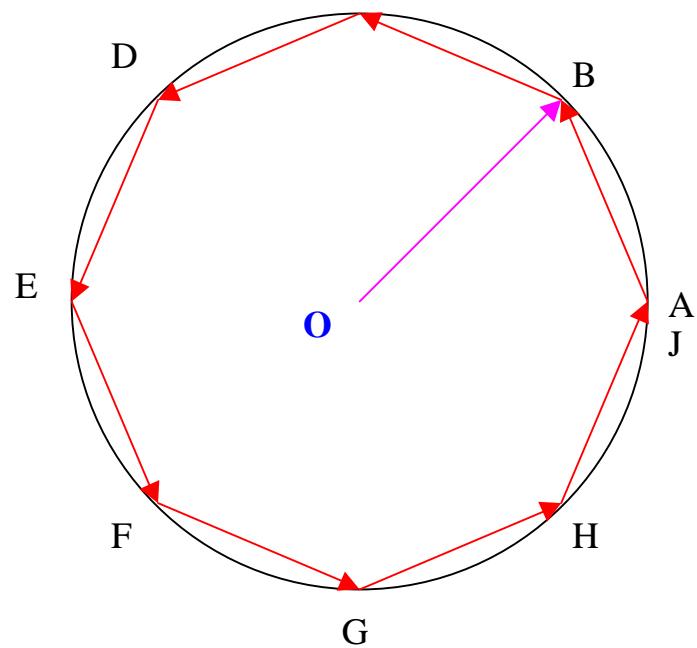
HIGH PASS TW ACCELERATOR (CONCEPTUAL DIAGRAM)



EFFECTIVE CIRCUIT



VOLTAGE VECTOR DIAGRAM



MAFIA

FRAME: 2 05/10/99 - 11:49:14

VERSION[v323.B]

HP1004.DRC

HIGH PASS TRAVELING WAVE STRUCTURE
QUARTER [RFZ]

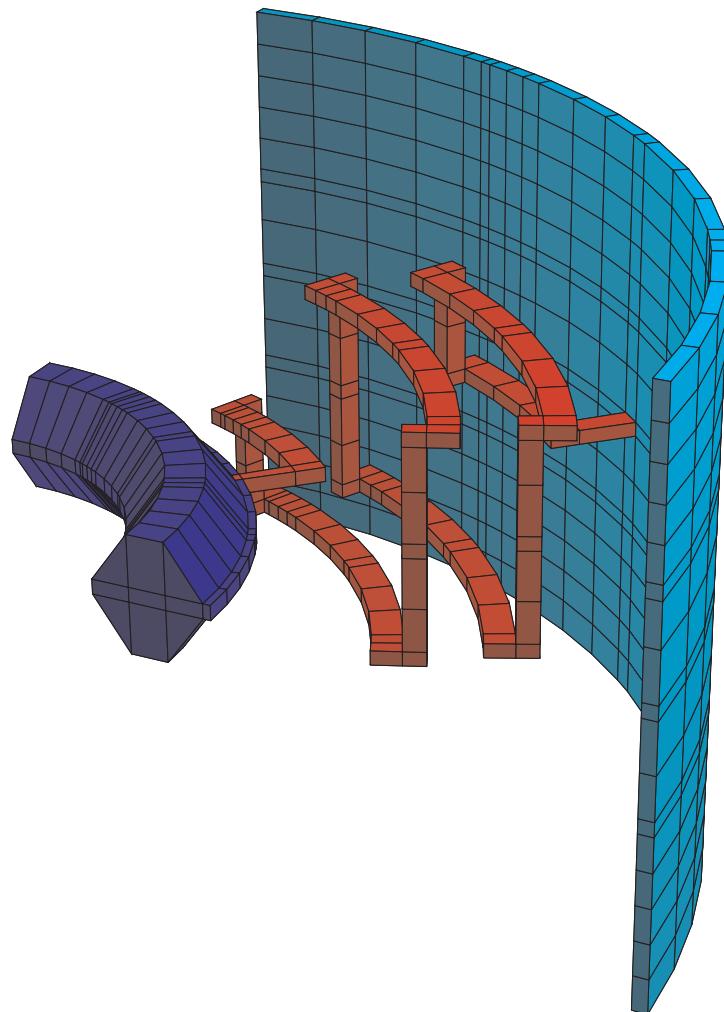
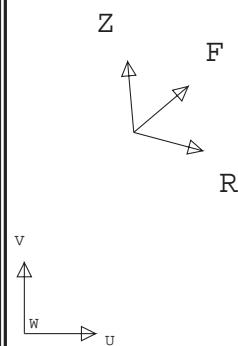
3D PLOT OF THE MATERIAL DISTRIBUTION IN THE MESH

M--: 3.23

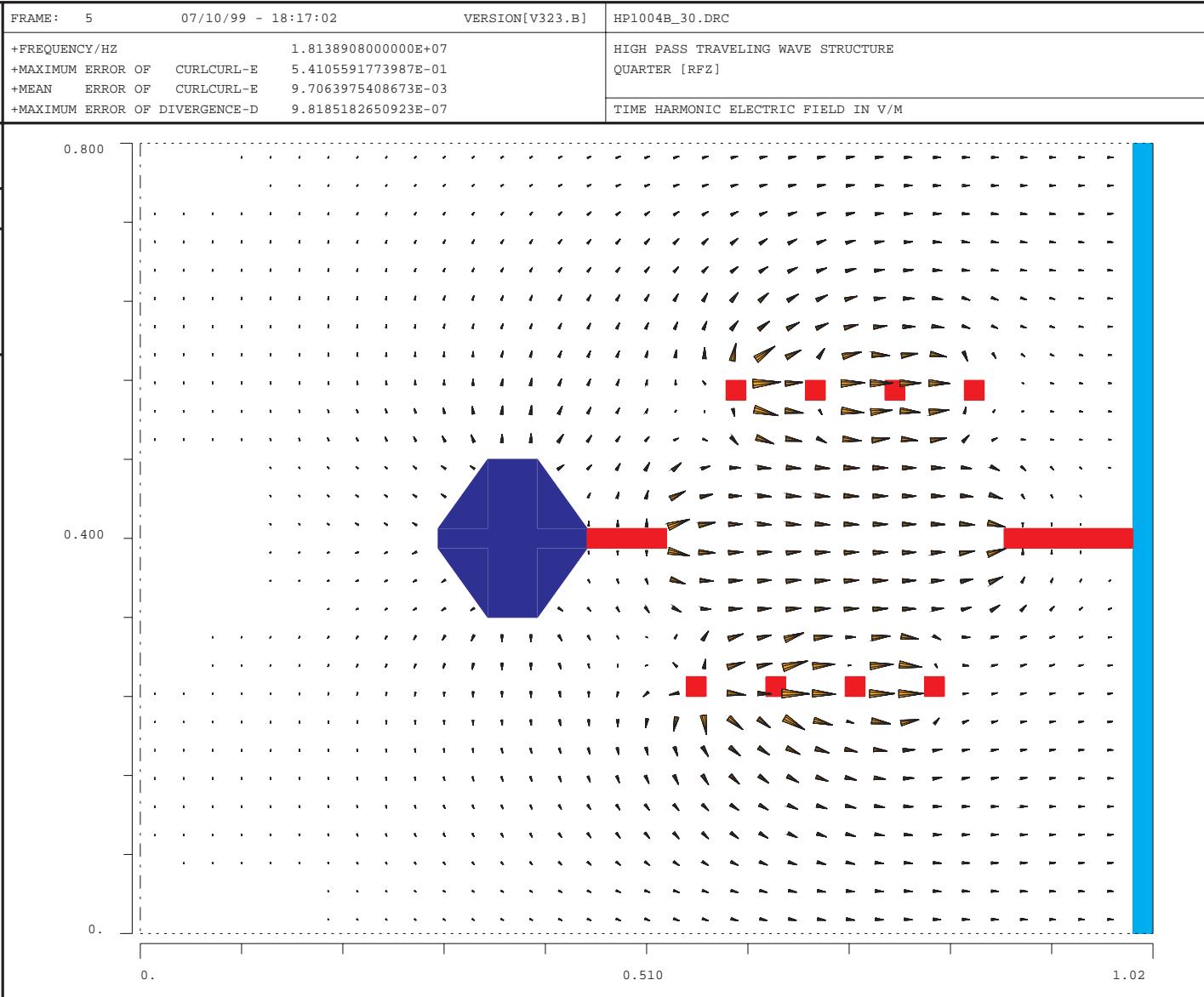
#VOLUME

COORDINATES/M
FULL RANGE / WINDOW
R[0.0000, 1.0200]
[0.0000, 1.0200]
F[0.0000, 90.000]
[0.0000, 90.000]
Z[0.0000, 0.80000]
[0.0000, 0.80000]

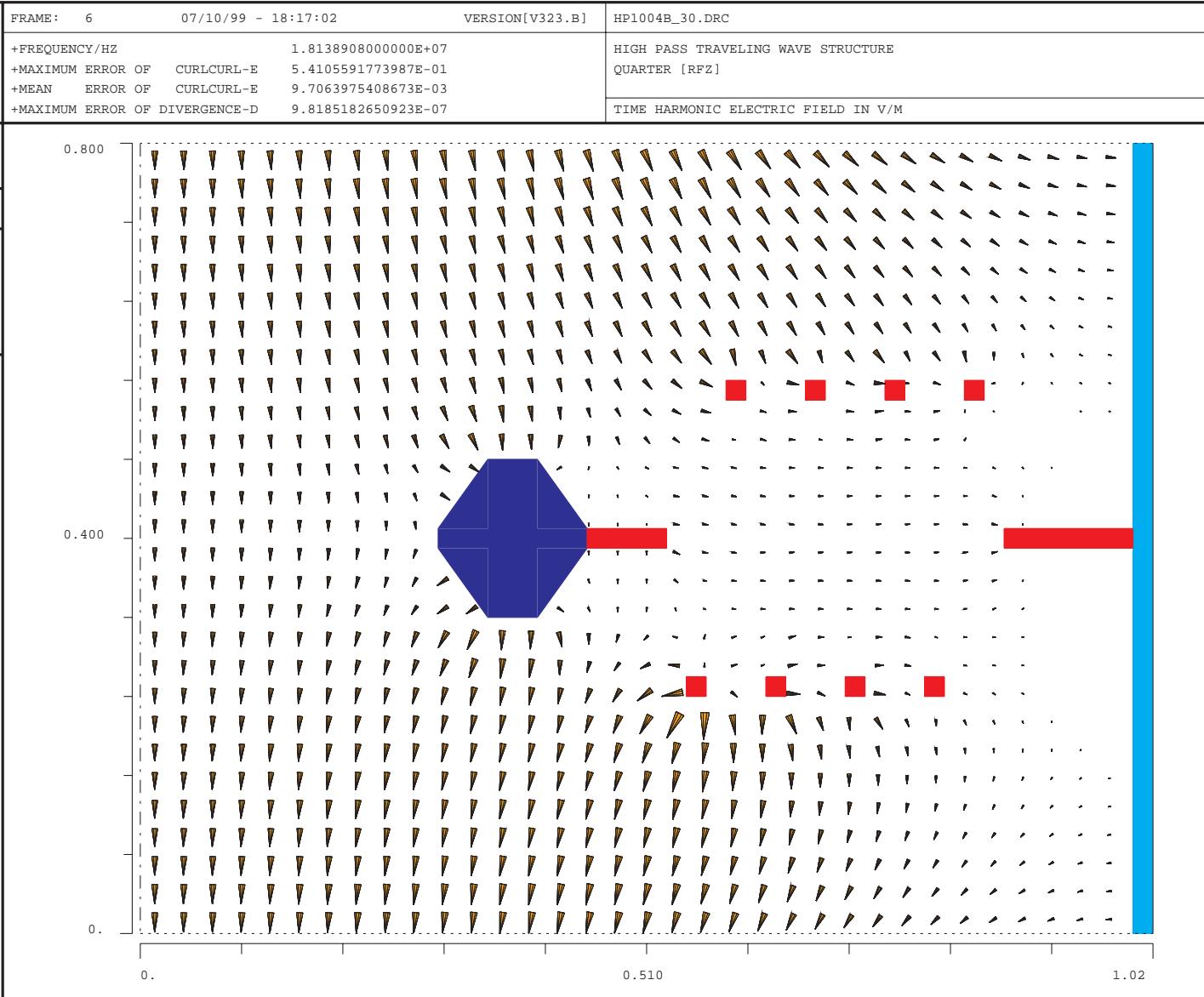
MATERIALS: 1, 2, 3,

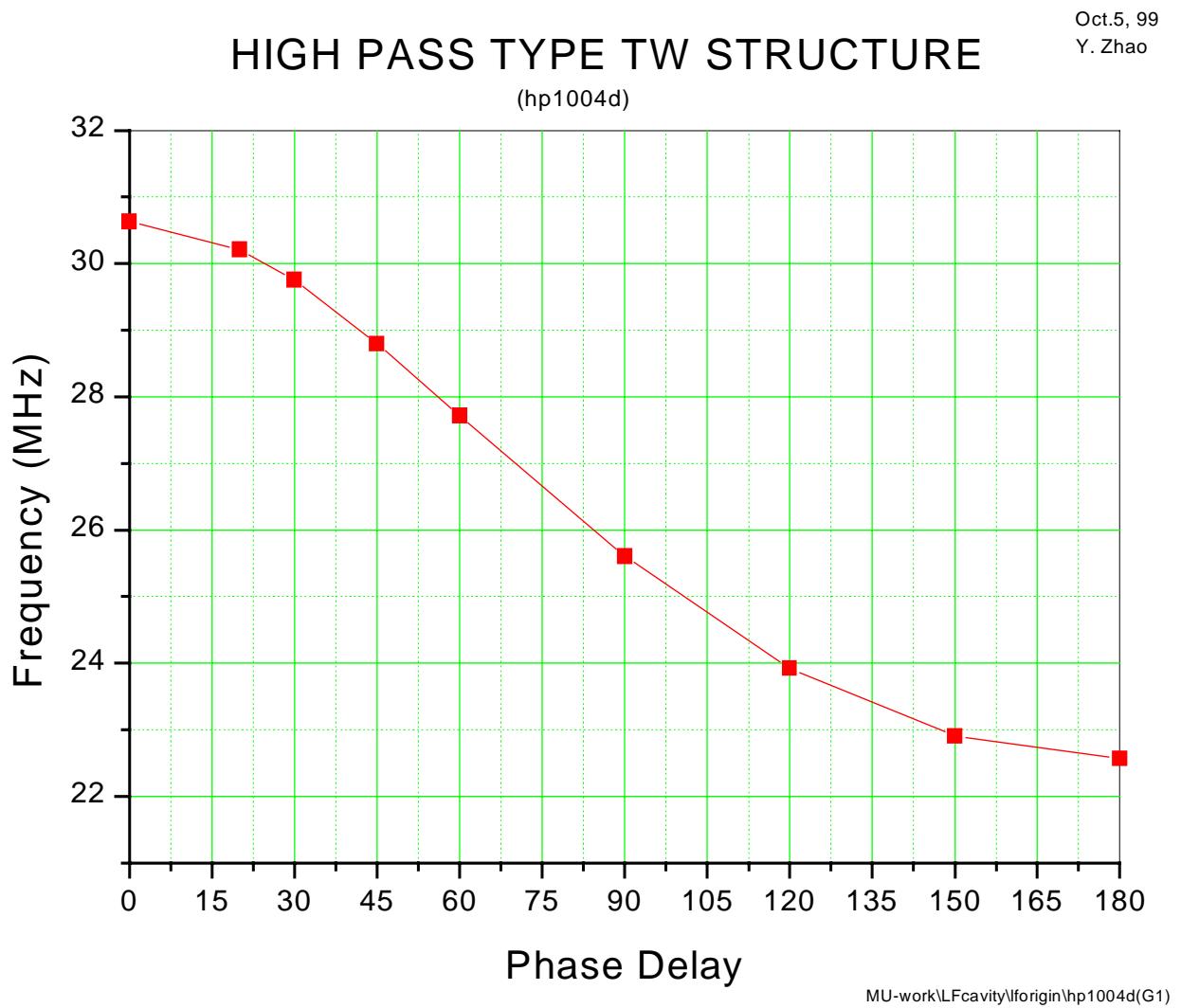


MAFIA

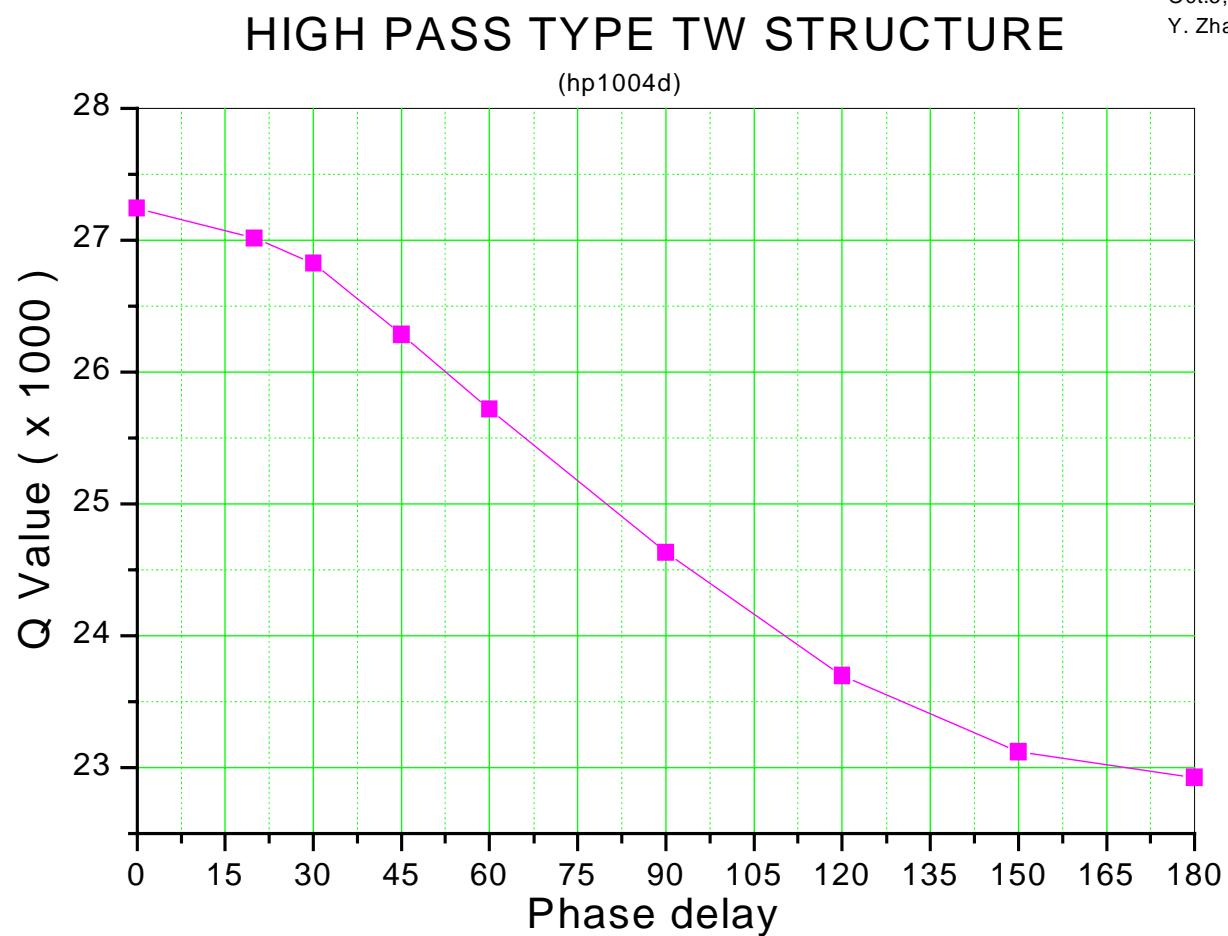


MAFIA

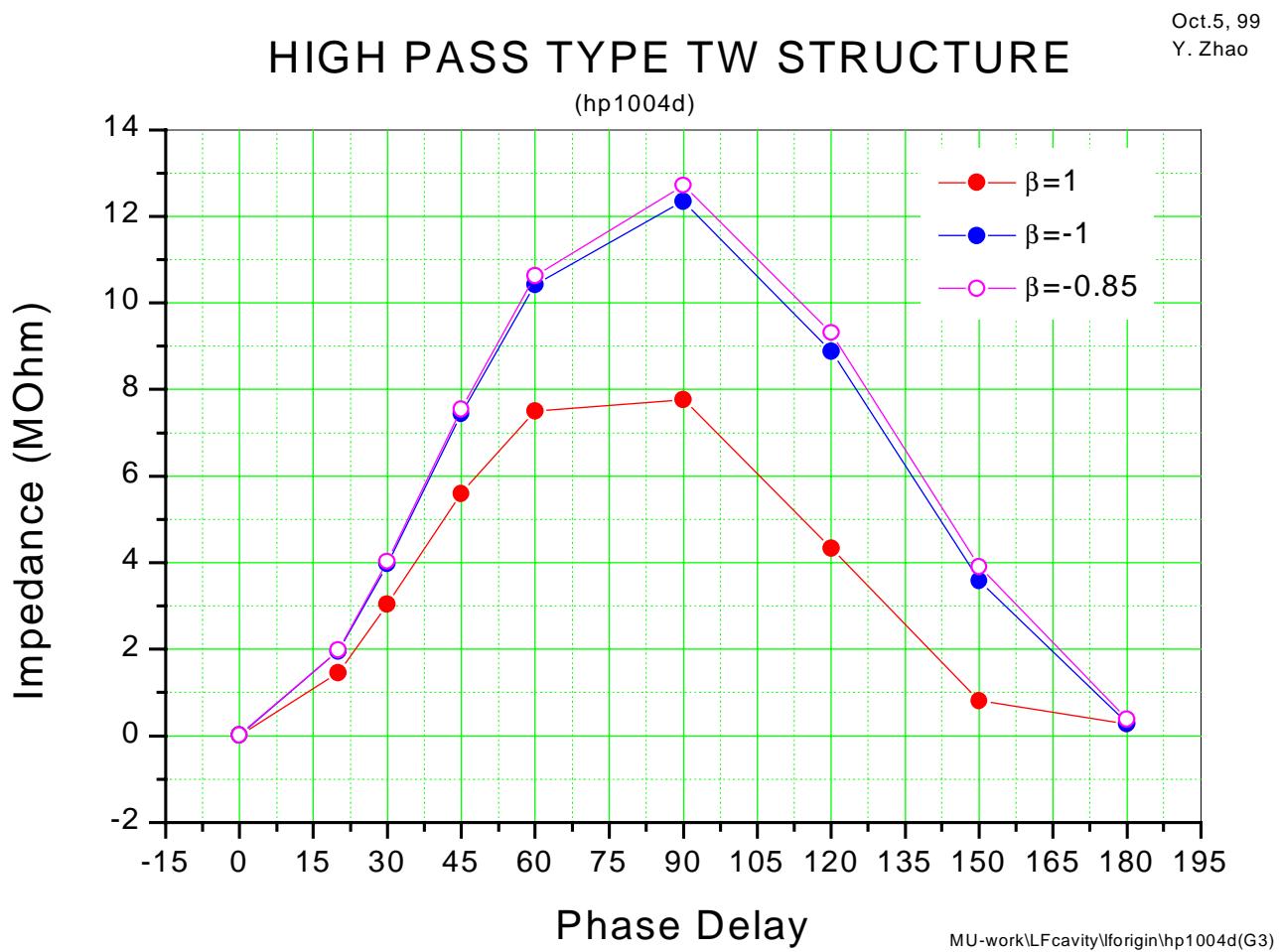




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RF video meeting Oct. 06 – Fig.7



RF video meeting Oct. 06 – Fig.8

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