



## Qext of HOMs of S1-Global cavities

2010/07/27 : S1-G web-ex meeting

K. Watanabe



# About the HOM couplers



Module C: TESLA cavities (AES-004, ACC-011, Z108, Z109)

\* Asymmetry cell shape, Beam pipe =  $\Phi$  78 mm

\* The location of HOM couplers is same.

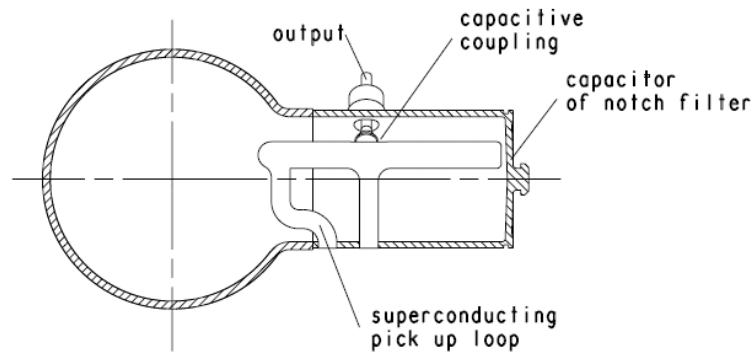
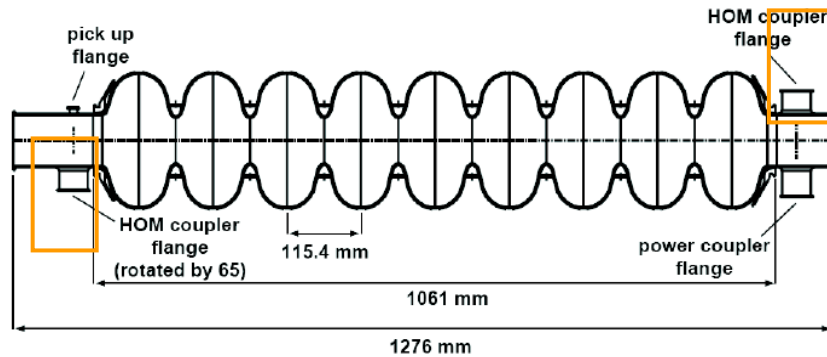
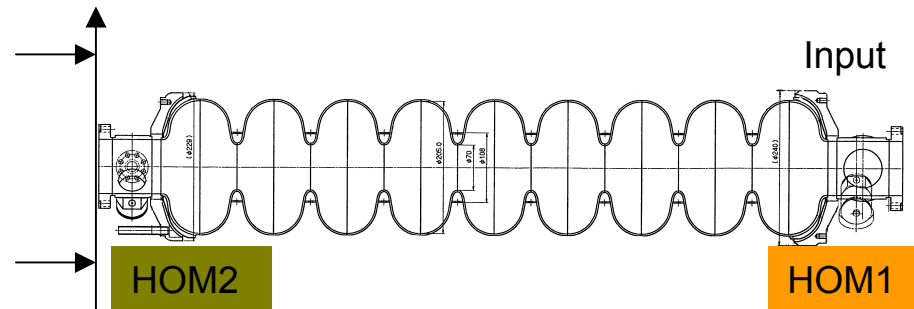


Figure 2.1.20: Cross-section of the higher order mode (HOM) coupler.

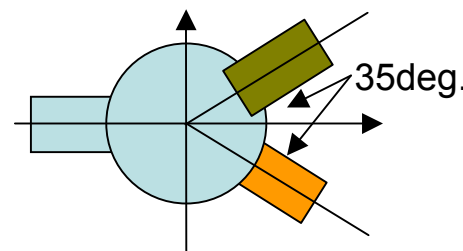
Module A: TESLA-like cavity (MHI-05, MHI-06, MHI-7, MHI-9)

\* Symmetry cell shape, Beam pipe =  $\Phi$  80 mm

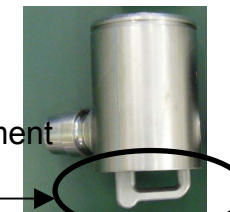
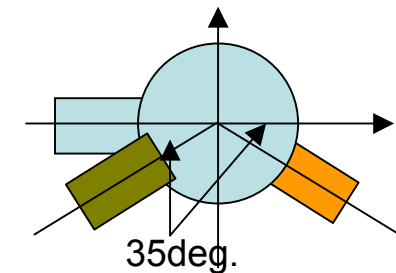
\* The location of HOM couplers and the structure of the coupling loop are different.



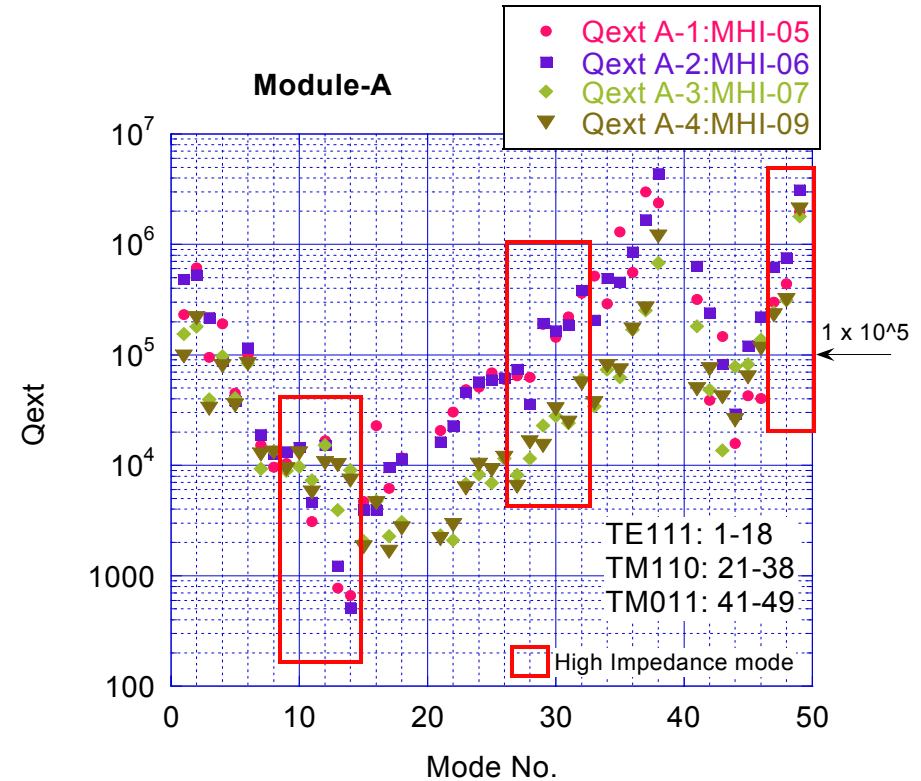
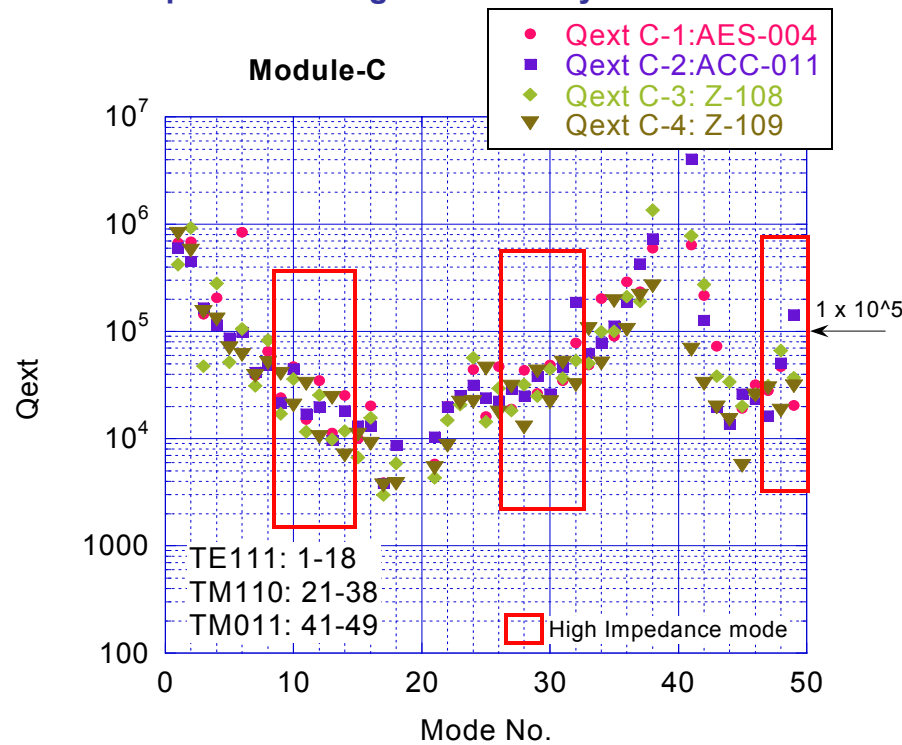
MHI-05, 06



MHI-07, 09



Improvement damping



Dipole Mode :

TE111 modes : All cavities are similar values.

TM110 modes : TESLA cavities, MHI-07 and MHI-09 are similar values.

Damping performance of MHI-05 and MHI-06 are order of magnitude weaker.

Monopole Mode :

TM011 modes : Damping performance of TESLA cavities are strong for TM011 passband modes.

In the MHI cavities, the damping performance of TM011-5, -6, -7, -8 and -9 is very weak due to symmetry structure.