

Subject: [Aligo_sus] Fwd: some (depressing) results of the coupled SEI-SUS structure
From: Dennis Coyne <coyne@ligo.caltech.edu>
Date: Tue, 13 Apr 2004 10:08:35 -0700
To: aligo_sus@ligo.caltech.edu

More explanatory text and results will be added soon.
The most relevant pages are 13 and 16. These pages show the actuation to motion transfer functions, i.e. displacement (Horizontal, tangential and vertical, respectively) for a unit force amplitude (tangential and vertical respectively) with assumed hysteric (structural) damping of 1% ($Q = 100$). H for horizontal and V for vertical. The phase lag for non-colocated H actuation/sensing (push at H3, sense at H1 and H2) is much less than the 90 deg requirement. However the phase lag for the V transfer function is much greater than 90 deg.

With an assumed Q of 25 (4% damping), the vertical transfer function phase is ~90 deg.

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Those interested can view some transfer functions for non-colocated actuation/sensing on the SEI platform with a quad structure payload here:
http://www.ligo.caltech.edu/~coyne/AL/SYS/ref_docs/T04xxxx-00_coupled_SEI_quad_dynamics.doc
(2.2 MB)
still a work in process.
dc

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