

Top Mass for the ETM Controls Prototype Quad Pendulum Suspension

DESIGN BRIEF

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Revision 00: First revision of the brief.

The purpose of the Top Mass is to:

- Act as the topmost mass in a quadruple pendulum suspension chain.
- Support an Upper-Intermediate mass, Penultimate mass and Test mass/Mirror
- Provide an interface with the middle blades (cantilever springs)¹
- Provide an interface with the Upper-intermediate wires coming from the top blades.
- Provide an interface with the Local Control Dampers²
- Perform its function with geometry, mass and moment of inertia parameters that fall within the limits set by the MATLAB Quad Suspension model.

¹ The blade springs act as an interface for the wires going to the Upper-Intermediate Mass and help minimise the effects of vertical seismic noise on the suspension system.

² The local control dampers damp the low frequency suspension resonances.