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Subject: Weekly Suspension Meeting, 6/3  
X-RAVMilter-Version: 8.4.1(snapshot 20020919) (acrux)  
X-RAVMilter-Version: 8.4.2(snapshot 20021217) (becrux)

Dear All,

This is a notice for tomorrow's weekly suspension meeting.  
The meeting is every Tuesday at 9am Pacific/Noon Eastern/5pm UK.  
CIT - meet in the SCR  
Caroline and others will be called at 44 141 330 5880  
Justin will be called at 44 123 544 5297  
US callers dial 1 888-422-7101, participant code 433 950, host code 927 161

Agenda:

- 1) Review Notes from last week's meeting
- 2) Schedule
- 3) MC Controls Prototype status
  - a) LED failure
  - b) output channel failure
- 4) Hybrid osem status
  - a) testing
  - b) reliability

Minutes from the 5/27 weekly suspension meeting are as follows:

Attendees: Caroline, Jim, Ken S., Mike P., Russell, Mike P-L (Glasgow), Norna (Star

Agenda:

- 1)Review of last week's meeting notes
- 2)Lei & Katie's MIT sus work
- 3)How to do document updates
- 4)Blade test update
- 5)Hybrid osem update

Blade test facility

blades for quad -- thicker (up to 5 mm) -- want to understand better longest lead element in the sus

Eoin Elliffe & Mike Plissi (UG ) doing Ansys FEA analysis

model internal modes also, plus experiment & damping

gathering ideas on what tests should be done & how & who

R&D only, or used in production also -

Mike Plissi reported on his analysis. He's writing up a report now to compare the b  
matching of blades and adjustments required of the suspension.

Quad tasks

by 8/1 address:

- mass
  - cg
  - footprint
  - 1st modes > 150 Hz
- for all sus types

develop a list of quad tasks to address above

- add eddy current damping (Calum)
- stiff structure design
- MC catcher FEA (Caroline & Janeen)
- pending
- BS suspension, conceptual design (Norna)
- upper mass (Calum, Mike P-L)
- Mike Perreurlloyd & Calum -- upper mass layout for ETM
- picture of latest on SUS web page
- Norna checked mass moments of inertia -- looks OK
- blades (Calum, Mike P.)
- Large blade (MIT quad size) testing? Mike Plessy & Calum recommend making & tes  
CIT has already bought maraging steel plate stock  
CIT to contract blade forming (bending) -- expected costs are ~\$6K for 12 blades  
\*\*\* Eoin and Mike P. to send blade drawings to Calum/Janeen for RFQ.

- tablecloth, with eddy current dampers (Calum & Norna)

\*\*\* Dennis to issue optics table & sus weight limits, as rev 01 - pending. He ho

\*\*\* Robert Schofield to work with who? (David & Dennis to define) at  
Stanford to make magnetic field measurements

Robert Schofield and Mark Barton are tentatively going to Stanford July 7-11 for these measurements.  
David suggests bolting an alum. frame together for this test.

|| Eddy Current Dampers

\*\*\*Janeen & Mark will explore FEA analysis of the damper, particularly designs wi

\*\*\*Mark will run more analysis for a disc magnet that is 3mm and 5mm thick

as opposed to the ones used now which are 10mm thick.

Mark looked into using flatter magnets. It improves the geometry but loses out in magnetic strength by about the same amount. He suggests that to get the full effect plus reduction in weight of 30%, make a copper sandwich with a lightweight insulator in the middle. Calum has a sandwich design ready for the workshop. Ken suggested that eddy current dampers may only be used for some degrees of freedom - say vertical - but Calum said that the mass of the eddy current dampers is the problem. He'll compare a regular eddy current damper with a sandwich design to make sure the sandwich design has the same damping.

| 3) Hybrid Osem Update - Russell Jones

Russell worked hard last week to get the osem's in the mail. (Thank You!) They were delivered during the meeting. Janeen will deliver them to Bob Taylor today. The next 12 are going to the anodizer tomorrow, to be back on Friday.

#### Lei and Katie's Work

David reported that they are manufacturing engineering grad students under Samir Nayfeh. They built a tuned mass damper. They looked at topologies for eddy current dampers and will provide a proposal for eddy current dampers for damping pendulum modes. Dennis will provide their paper on a 2 DOF system and a PowerPoint presentation on a 6 DOF system. David will report on their progress.

#### Electronics /OSEM meeting in UK

Caroline reported that there was a meeting with Dave Hoyland, Clive Speake and Nick Lockerbie from the Univ. of Birmingham last week. They're trying to put together a development plan to reduce sensor noise and improve sensitivity of the osem's. Their goal is a factor of 100 but a factor of 10 would be interesting. A coarse and fine dynamic range system is being considered. Possibly considering a new design if cost for complex unit causes it. Ken wants a "pure" sensor development. VIRGO approach may be considered as part of a number of approaches. Their aim is to choose to use a bit more complex sensor, or eddy current damper, or a different sensor algorithm, or a combination.

#### Document Updates

Ken's sensor noise paper is derived requirements for the conceptual design. Part of the document is to provide education to the UK Team. David talked about making a document revision that includes italics or red-colored text to highlight the changes to the previous document. Everyone seemed to agree on this approach. Talk focused on how to address fluid issues. These are issues that have interactions with other requirements or other subsystem requirements. David will ask Peter to look at the 10 Hz cutoff paper with respect to the systems requirements document. Norna will update the conceptual design document with different quad curves. She'll use links to a web page for the curves.