Acoustics
Critical Readiness Review

Kenny Ballard

Increment 23-24
February 4, 2010
## Hardware Status

<table>
<thead>
<tr>
<th></th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic Dosimeters</td>
<td>Nominal Use</td>
</tr>
<tr>
<td>Sound Level Meter</td>
<td>Nominal Use</td>
</tr>
<tr>
<td>Bose Headphones</td>
<td>Nominal Use</td>
</tr>
<tr>
<td>Earplugs</td>
<td>Nominal Use</td>
</tr>
</tbody>
</table>
Acoustic Dosimeters

- Capable of storing data internally and downloaded later via the Acoustic Dosimeter Data Receiver
Acoustic Dosimeters

• Operations:
  – Once/2 months/crew member
    - Day 1 - Crew-worn measurements: daytime and sleep (total 24-hours for all 3 crewmembers)
    - Day 2 - Static deploy measurements (minimum 12 hours in 3 locations)

• For the static deployment, a reference picture is needed of each dosimeter to get an idea of where the microphone is deployed for data analysis. This has been added to Annex 3.

• Console support is not necessary; however, a flight-like unit is available at my desk to support any console operations, BME training, or curiosity.
Acoustic Dosimeter Timeline

**Day 1**
- Sleep
- 1.5-hr post-sleep
- 12-hr day
- 2-hr pre-sleep
- 8.5-hr Sleep

Crew-worn Daytime Measurements (24 hrs)

**Day 2**
- 1.5-hr post-sleep
- 12-hr day
- 2-hr pre-sleep

Static Daytime Measurements (~12-15 hrs)

**Acoustic Dosimeter**
- Crew Worn - Setup (00:20) Part 1 of 4
- Crew Worn - Session close (00:10) Part 2 of 4
- Static - Setup (00:10) Part 3 of 4
- Static - Record and Stow (00:20) Part 4 of 4
Acoustic Dosimeter – Changes

- AD ops are monthly to accommodate 6 person crew with static deploy once/2months
- No more night time record and setup. There will only be 2 sessions, a crew worn and static deploy.
- 4 total activities
  - Activity 1 – AD Crew Worn Setup
  - Activity 2 – AD Crew Worn Session Close
  - Activity 3 – AD Static Setup
  - Activity 4 – AD Static Session Close, Data Xfer and Stow
- Acoustic Dosimeter Data Receiver will be used to transfer data from the AD to the SSC.
- The data transfer will be done before pre sleep
Sound Level Meter

- Operations:
  - Once/2 months
  - Each survey 120 minutes
  - Survey locations alternate each session
- If requested by BME, Engineering support can be provided in the MER for each SLM activity
- Data is downloaded to MEC and brought down to the ground for distribution.
- T61p certification is in work
Bose Headphones

- Old headsets will remain on board for general crew use and for IP Phones
- New headphones will be reserved for O-OHA operations
- There is no shelf-life or expiration date associated with the headphones
- Old ear pads are not compatible with new headphones, replacement ear pads for the new Bose Headphones flew on 17A
- 9 Bose Headphones are currently on-orbit
Bose Headphones Integrated Cable

- 7 Flew on ULF3
- Phase out the old ANR Headsets
- 5 main components
  - Battery simulator cable
  - Headphone Cover
  - Microphone Boom assembly and Audio Jack
  - PTT Box
  - SSC Interface Connections
- Microphone Boom and cables may be detached.
Bose Headphones Integrated Cable (cont’d)

- 3 BHIC’s were installed at ULF-3 bench review and are deployed
- Install procedure is on uplink shelf
- Currently stowed in Hearing Protection Hardware Bags at LAB1O5_G2
On-Orbit Hearing Assessment

- Operations:
  - Once before FD14 as baseline
  - Once every 45 days thereafter
  - Performed on each crewmember

- Earplugs are now being delivered in either the IMAK or any RTH Bag.

- O-OHA test performed on the MEC. Data is brought down to the ground and distributed.

- Software is being certified for T61p use.