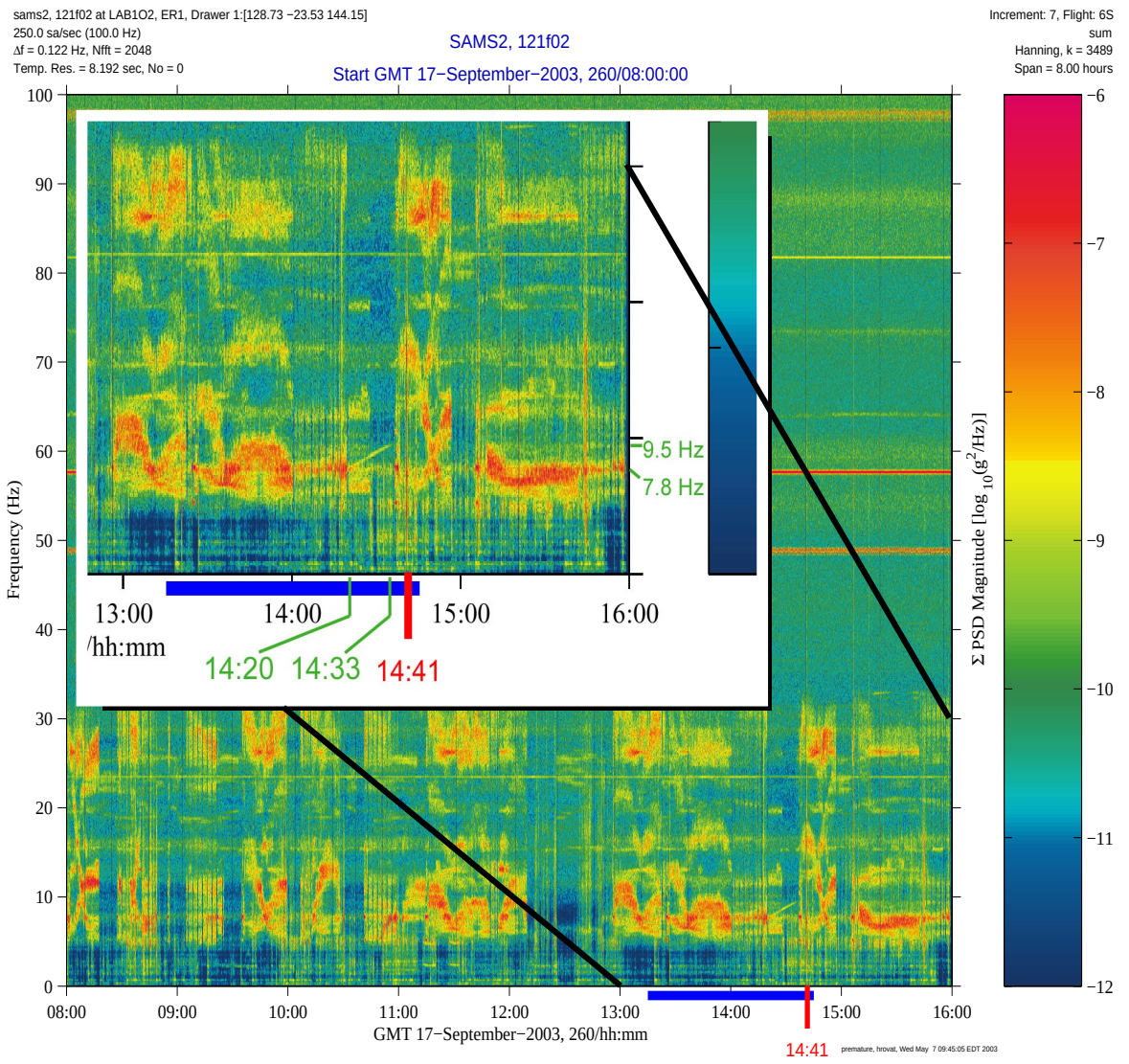
# Hand Posture Analyzer (HPA)
# Qualify




| Data Description | |
|---|---|
| Sensor | SAMS 121f02<br>250.0 sa/sec (10.0 Hz) |
| Location | LAB1O2, ER1, ER1 Drawer 1 |
| Inc/Flight | Increment: 7 Flight: 6S |
| Plot Type | spectrogram |

**Notes:**
According to the on-orbit satus report for GMT 17-Sep-2003, “Ed Lu performed the Hand Posture Analyzer (HPA) experiment for the first time, using the posture acquisition glove (PGA). Since it has delicate sensors attached to the tops of the fingers, pressure should only be applied to the "palm side" while donning and doffing. The research objective of the ASI/Italy (Kayser Co.) designed HPA is to investigate the performance degradation of the human upper limb muscle-skeletal apparatus and its morphological-functional modifications during long term exposition to zero-G and to study the role of gravity in the planning and execution hierarchy of reaching, grasping, manipulating and transporting objects. The HPA facility consists of a Hand Grip Dynamometer (HGD), a Pinch Force Dynamometer (PFD), the instrumented PAG with 15 degrees of freedom, allowing the measurement of the bending angles on individual phalanxes, coupled to a Wrist Electronic Box (WEB) housing an inertial tracking system in order to acquire tri-axial acceleration and rotation of the forearm.” No positive identification of these equipment manifest in the vibratory acceleration data collected in the US Lab has been made yet. This figure (particularly the inset), however, shows a distinct signal near the end of the scheduled time for these operations. The signal ramped from 7.8 to 9.5 Hz between 14:20 and 14:33 as annotated in this figure. The vertical red hash at 14:41 marks a relatively strong transient near the end of scheduled operations.

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|---|---|
| Regime: | Vibratory |
| Category: | Crew |
| Source: | Hand Posture Analyzer (HPA) |