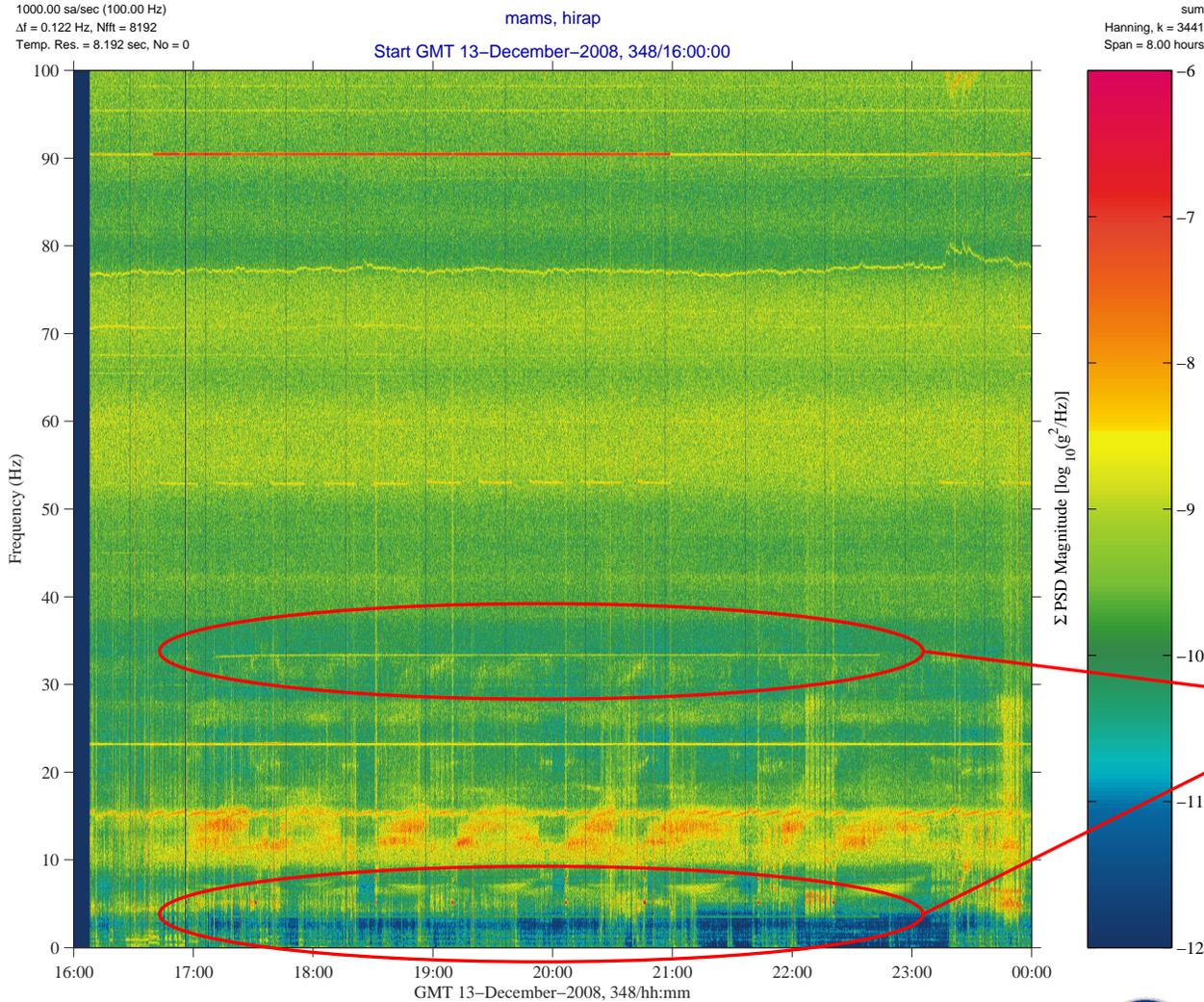


Urine Processing Assembly (UPA) Qualify

mams, hirap at LAB102, ER1, Lockers 3,4:[138.7 -16.2 142.3]
1000.00 sa/sec (100.00 Hz)
 $\Delta f = 0.122$ Hz, Nfft = 8192
Temp. Res. = 8.192 sec, No = 0

mams, hirap
Start GMT 13-December-2008, 348/16:00:00



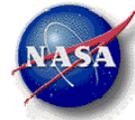
Description	
Sensor	HiRAP 1000.0 sa/sec (100.00 Hz)
Location	LAB102, ER1, Lockers 3,4
Orientation	Space Station Analysis (SSA)
Inc/Flight	Increment: 18, Flight: ULF2
Plot Type	Spectrogram

NOTES:

- The Urine Processing Assembly (UPA) was installed in LAB1P4 during ULF-2 as part of the Water Recovery System (WRS).
- The UPA contains 3 known potential microgravity disturbers: Distillation Assembly (DA) centrifuge, Fluids Control & Pump Assembly (FCPA) and the Pressure Control & Pump Assembly (PCPA).
- MAMS HiRAP captured a DA centrifuge signature during a 5 hour run on GMT 348. The spectrogram on the left shows two distinct traces at 3.6 Hz and 33.3 Hz during this run. Data acquired from ISS telemetry confirms the DA centrifuge speed near 220 rpm.
- No signature for PCPA is seen, which was known to be operating intermittently at 2500 rpm during the run. (~42 Hz).
- Whether the FCPA was operating at this time was not determined.



Microgravity Science Division



Glenn Research Center

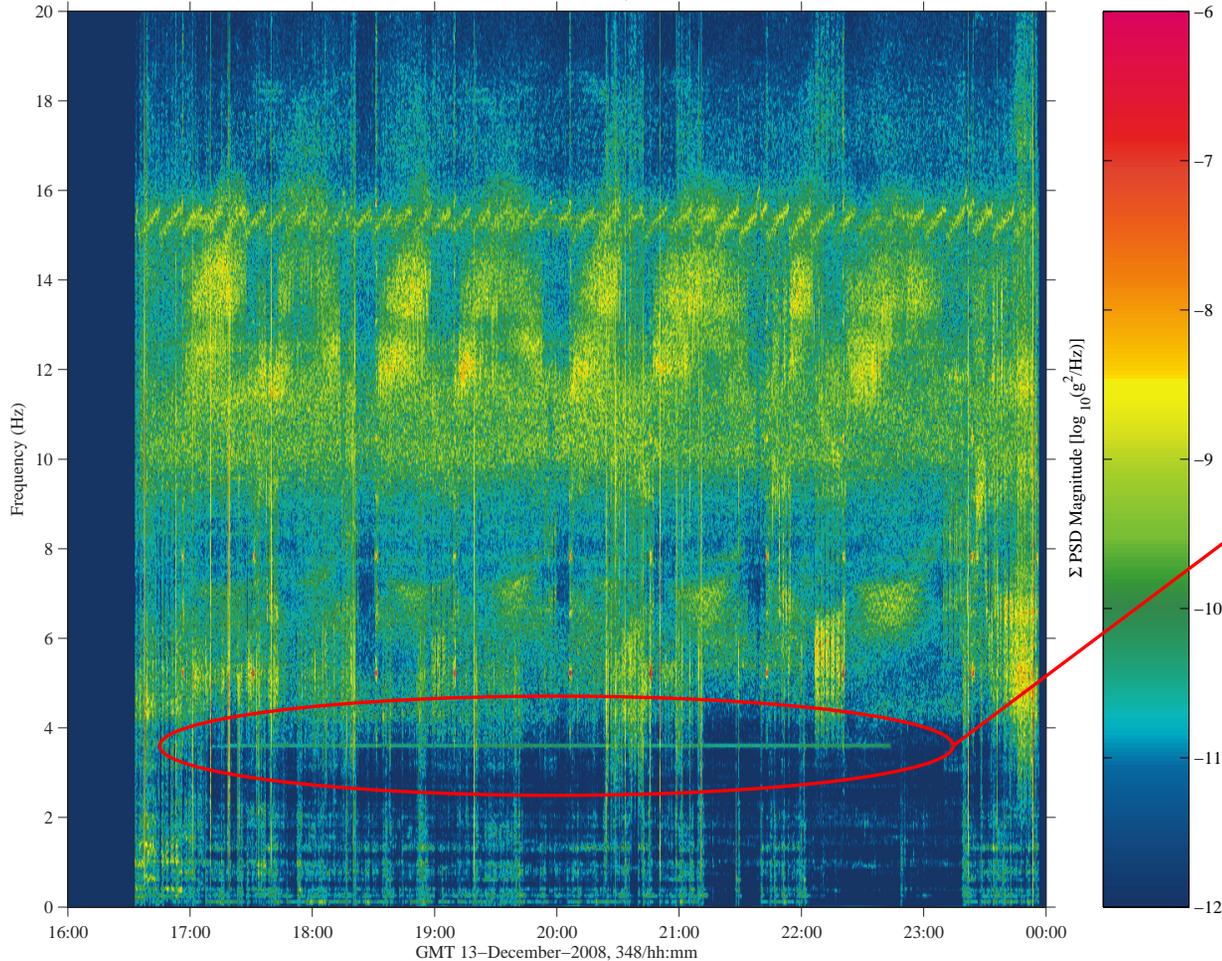
Regime:	Vibratory
Category:	Vehicle
Source:	Urine Processing Assembly

Urine Processing Assembly (UPA) Qualify

mams, hirap020 at LAB102, ER1, Lockers 3,4[138.7 -16.2 142.3]
168.00 sa/sec (20.00 Hz)
 $\Delta f = 0.041$ Hz, Nfft = 4096
Temp. Res. = 24.381 sec, No = 0

mams, hirap020

Start GMT 13-December-2008, 348/16:00:00



sum
Hanning, k = 1091
Span = 8.01 hours

Description	
Sensor	HiRAP 1000.0 sa/sec (100.00 Hz)
Location	LAB102, ER1, Lockers 3,4
Orientation	Space Station Analysis (SSA)
Inc/Flight	Increment: 18, Flight: ULF2
Plot Type	Spectrogram

NOTES:

- The spectrogram at the left is of HiRAP data filtered at 20Hz, showing more clearly the 3.6 Hz operating frequency of the DA centrifuge.
- The DA was designed with isolators used for passive vibration isolation. By the time of the run on GMT 348, these isolators had been removed.
- The WRS racks were be moved to Node 3 on GMT 049/18-February-2010.



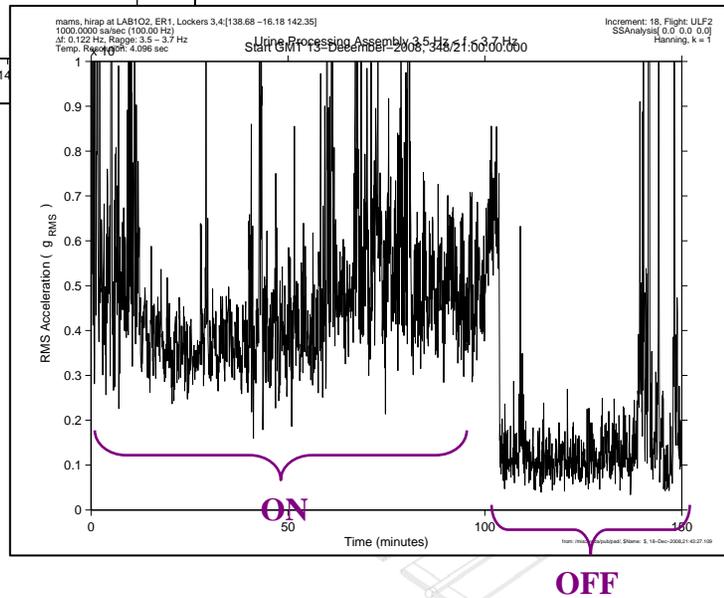
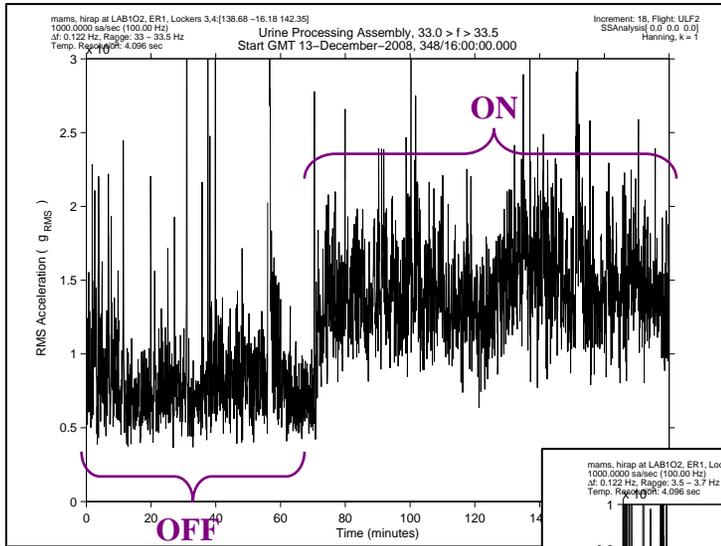
Microgravity Science Division



Glenn Research Center

Regime:	Vibratory
Category:	Vehicle
Source:	Urine Processing Assembly

Urine Processing Assembly (UPA) QUANTIFY



Freq (Hz)	RMS Acceleration (μg)	
	OFF	ON
3.5 - 3.7	2.23	5.22
33.0 - 33.5	8.48	14.55

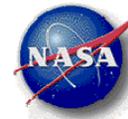
Description	
Sensor	HiRAP 1000.0 sa/sec (100.00 Hz)
Location	LAB102, ER1, Lockers 3,4
Inc/Flight	Increment: 18, Flight: ULF2
Plot Type	Cumulative RMS

NOTES:

- To quantify the impact of the DA centrifuge operation, RMS accelerations are compared during centrifuge operation to those periods when it was off. The time periods chosen, were during crew sleep to help isolate the effects of the centrifuge from any vehicle modes.
- The image below shows an undated photograph of the WRS racks on the ground. The DA is circled in orange.



Microgravity Science Division



Glenn Research Center

Regime:	Vibratory
Category:	Crew
Source:	TVIS