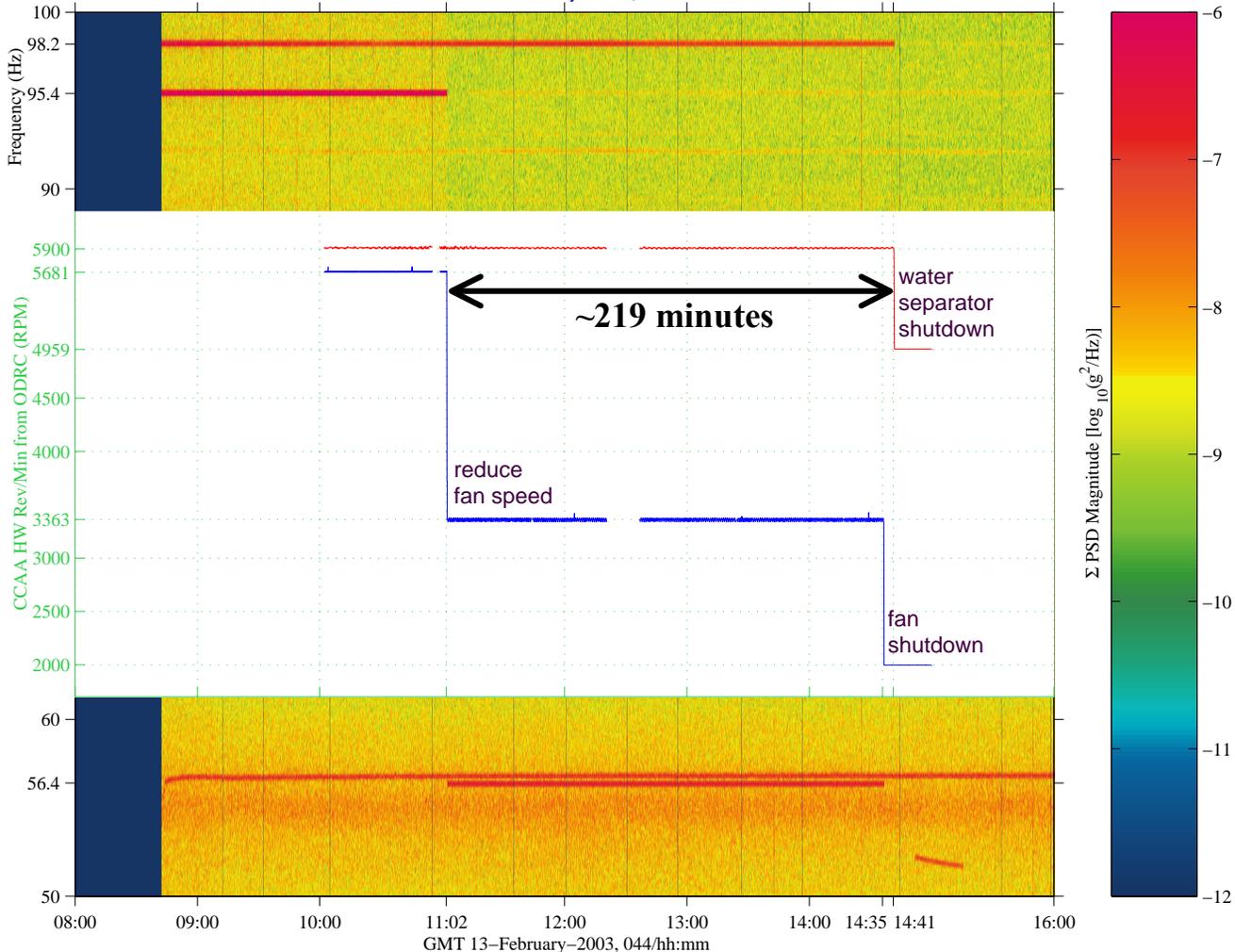


# Common Cabin Air Assembly (CCAA) Qualify

sams2, 121f03 at LAB1O1, ER2, Lower Z Panel:[191.54 -40.54 135.25]  
500.0 sa/sec (200.00 Hz)  
Δf = 0.122 Hz, Nfft = 4096  
Temp. Res. = 8.192 sec, No = 0

SAMS 121f03

Start GMT 13-February-2003, 044/08:00:00



Data Description	
Sensor	SAMS 121f03 500.0 sa/sec (200.00 Hz)
Location	LAB1O1, ER2, Lower Z Panel
Inc/Flight	Increment: 6, Flight: 11A
Plot Type	spectrogram

**Notes:**  
The Common Cabin Air Assembly (CCAA) in the U.S. On-Orbit Segment modules (port CCAA in LAB1P6, and starboard CCAA in LAB1S6) of the ISS provides the capability to control the cabin air temperature, maintain the cabin air humidity level within desired limits, and generate ventilation air flow. During a normal shutdown operation of the CCAA, the inlet orbital replacement unit (ORU) fan speed is reduced from about 5700 RPM (~95 Hz) to about 3400 RPM (~57 Hz). At that point, the water separator ORU continues to operate at about 5900 RPM (~98 Hz) for approximately 200 minutes to accomplish dry-out prior to final shutdown. Both fans are then shutdown during the transition from port to starboard CCAA duty. It should be noted that the water separator operates at a fixed fan speed of 5900 ± 118 RPM (98 ± 2 Hz) and the inlet is a variable speed fan that operates between 3208 to 7668 RPM (53.5 to 127.8 Hz).

Regime:	Vibratory
Category:	Vehicle
Source:	Common Cabin Air Assembly (CCAA)



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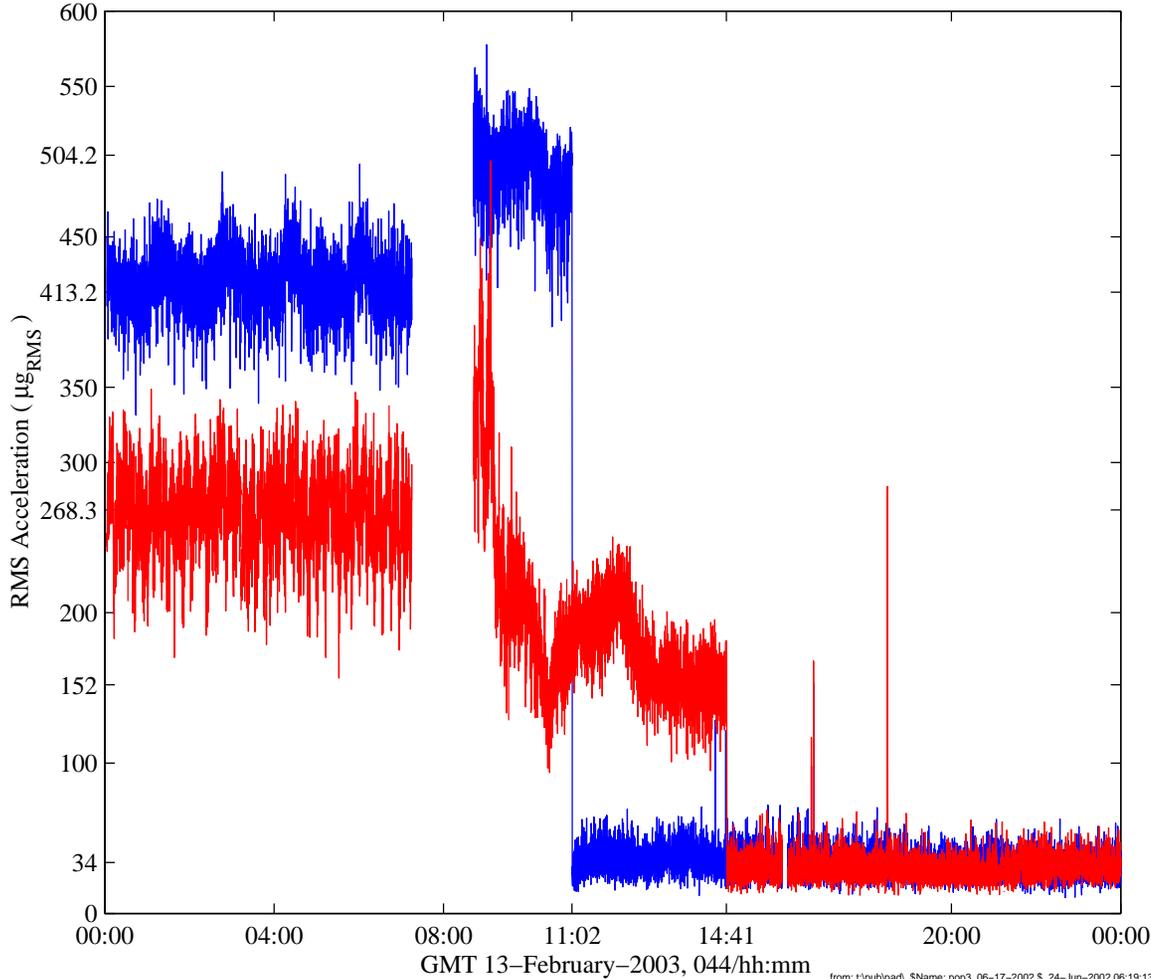


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## Common Cabin Air Assembly (CCAA) Quantify

sams2, 121f03 at LAB1O1, ER2, Lower Z Panel:[191.54 -40.54 135.25]  
 500.0 sa/sec (200.00 Hz)  
 $\Delta f = 0.122$  Hz, Nfft = 4096 Port CCAA Fan:  $95.2 < f < 95.7$  Hz, Water Separator:  $98 < f < 98.5$  Hz  
 Temp. Res. = 8.192 sec, No = 0 Start GMT 13-February-2003, 044/00:00:00

Sum  
 Hanning, k = 9783  
 Span = 24.00 hours



Data Description	
Sensor	121f03 500.0 sa/sec (200.00 Hz)
Location	LAB1O1, ER2, Lower Z Panel
Inc/Flight	Increment: 6, Flight: 11A
Plot Type	interval RMS

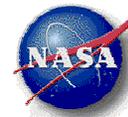
**Notes:**  
 In order to quantify the port CCAA (LAB1P6) shutdown event, the interval RMS curves for the 24-hours shown in this figure were computed. These curves show that the higher frequency (red trace) water separator transitioned from nominal RMS values of about  $268.3 \mu\text{g}_{\text{RMS}}$  to about  $152 \mu\text{g}_{\text{RMS}}$  during dry-out before returning this narrow portion of the spectrum to a baseline of about  $34 \mu\text{g}_{\text{RMS}}$ . The inlet fan operated between about  $413 \mu\text{g}_{\text{RMS}}$  during nominal operation up to  $550 \mu\text{g}_{\text{RMS}}$  before its step down to a lower frequency for dry-out. Note that the lower frequency operation of the inlet fan was not quantified due to its proximity to another strong, narrowband signal just above its operational rate.



Regime:	Vibratory
Category:	Vehicle
Source:	Common Cabin Air Assembly (CCAA)



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