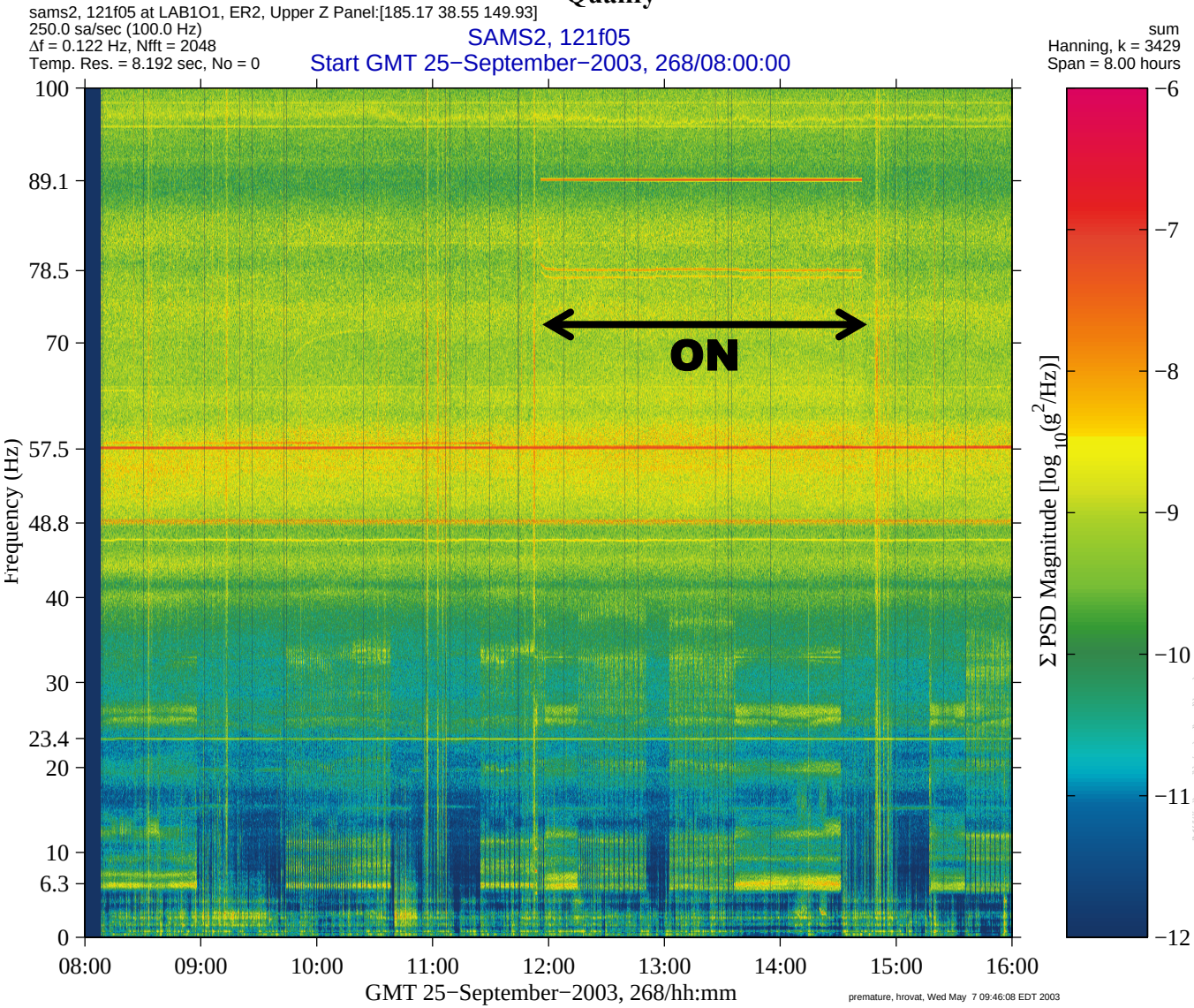
Ultrasound Operations Qualify



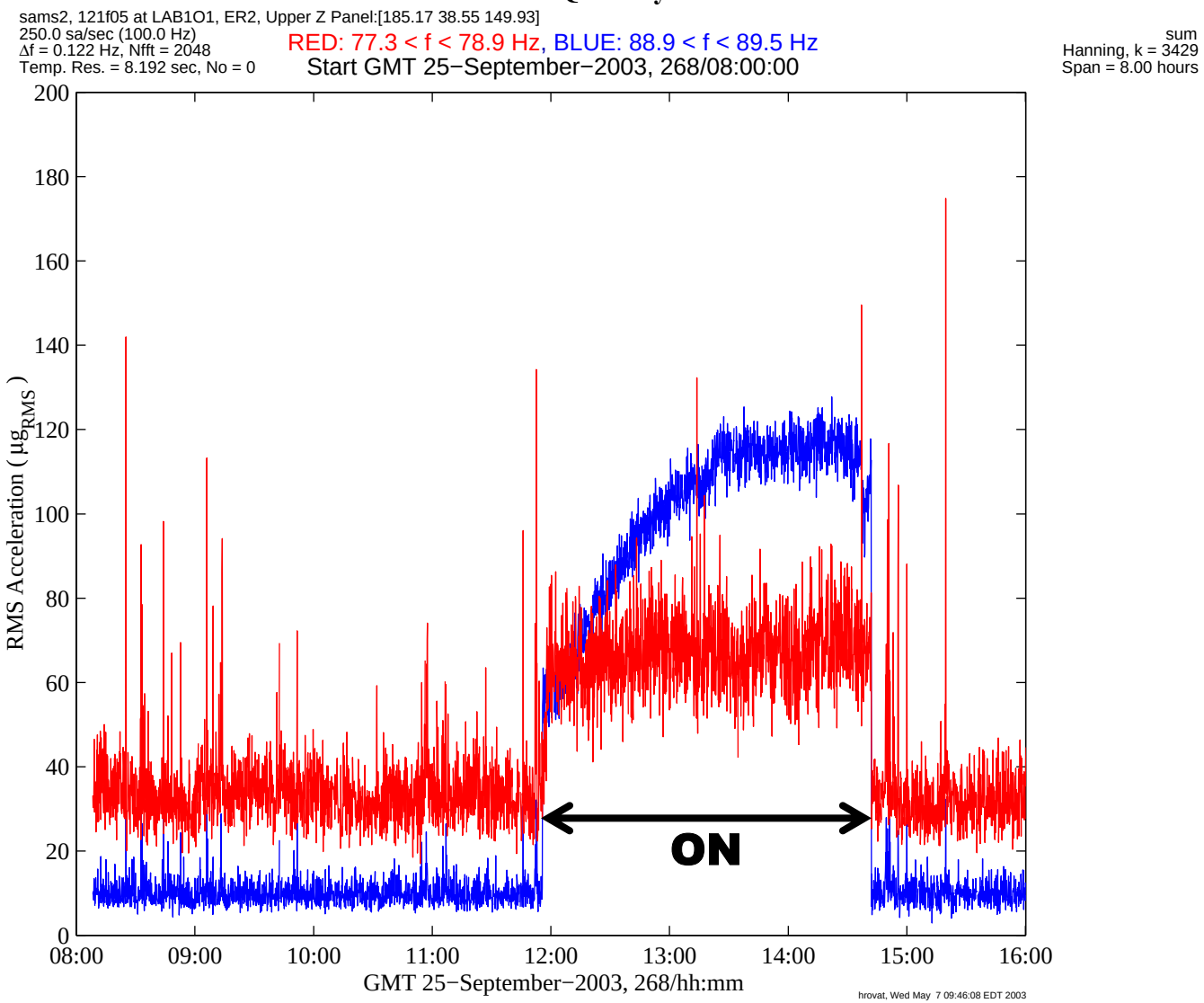
Data Description	
Sensor	121f05 250.0 sa/sec (100.0 Hz)
Location	LAB1O1, ER2, Upper Z Panel
Inc/Flight	Increment: 7, Flight: 6S
Plot Type	spectrogram

Notes:
This spectrogram shows three narrowband disturbances that appear related to ultrasound operations. The highest frequency component is centered at about 89.1 Hz (~5346 RPM), while there are twin lower frequency signals at about 77.7 and 78.6 Hz. All three signals turn on/off simultaneously, and analysis of the data set used to generate this figure indicates that the equipment was turned on at approximately GMT 11:55 and off at about GMT 14:42 for the duration of 2 hours and 47 minutes. Canvassing of the vibratory acceleration archive collected on the ISS shows the appearance of similar signatures for the following GMTs:

07-Feb-2002, 038/14:00-15:00
08-Feb-2002, 039/07:32-09:30
06-Mar-2003, 065/10:40-12:25
24-Jun-2003, 175/13:09-15:48
25-Sep-2003, 268/12:00-14:45

Regime:	Vibratory
Category:	Equipment
Source:	Ultrasound Operations

Ultrasound Operations
Quantify



Data Description	
Sensor	121f05 250.0 sa/sec (100.0 Hz)
Location	LAB1O1, ER2, Upper Z Panel
Inc/Flight	Increment: 7, Flight: 6S
Plot Type	Interval RMS

Notes:
It's interesting to note from the interval RMS plot shown that the higher frequency (blue trace) narrowband (~89.1 Hz) disturbance gradually climbs to a steady state RMS value over the first hour or two, while the higher frequency (red trace) disturbance, more or less, steps to its steady state RMS value. Referring back to the spectrogram used to qualify the ultrasound operations, note that the lower frequency disturbance consists of twin traces at about 77.7 and 78.6 Hz. Both of these contribute to the RMS level shown in the table below, which shows a comparison of these ultrasound-related disturbances.

	RMS Acceleration (μgRMS)	
Band (Hz)	**OFF**	**ON**
77.3-78.9	32.8	66.5
88.9-89.5	9.7	107.4

For some context, the RMS level for the entire passband (up to 100 Hz) was 296.6 μg_{RMS} for the entire day.

Regime:	Vibratory
Category:	Equipment
Source:	Ultrasound Operations