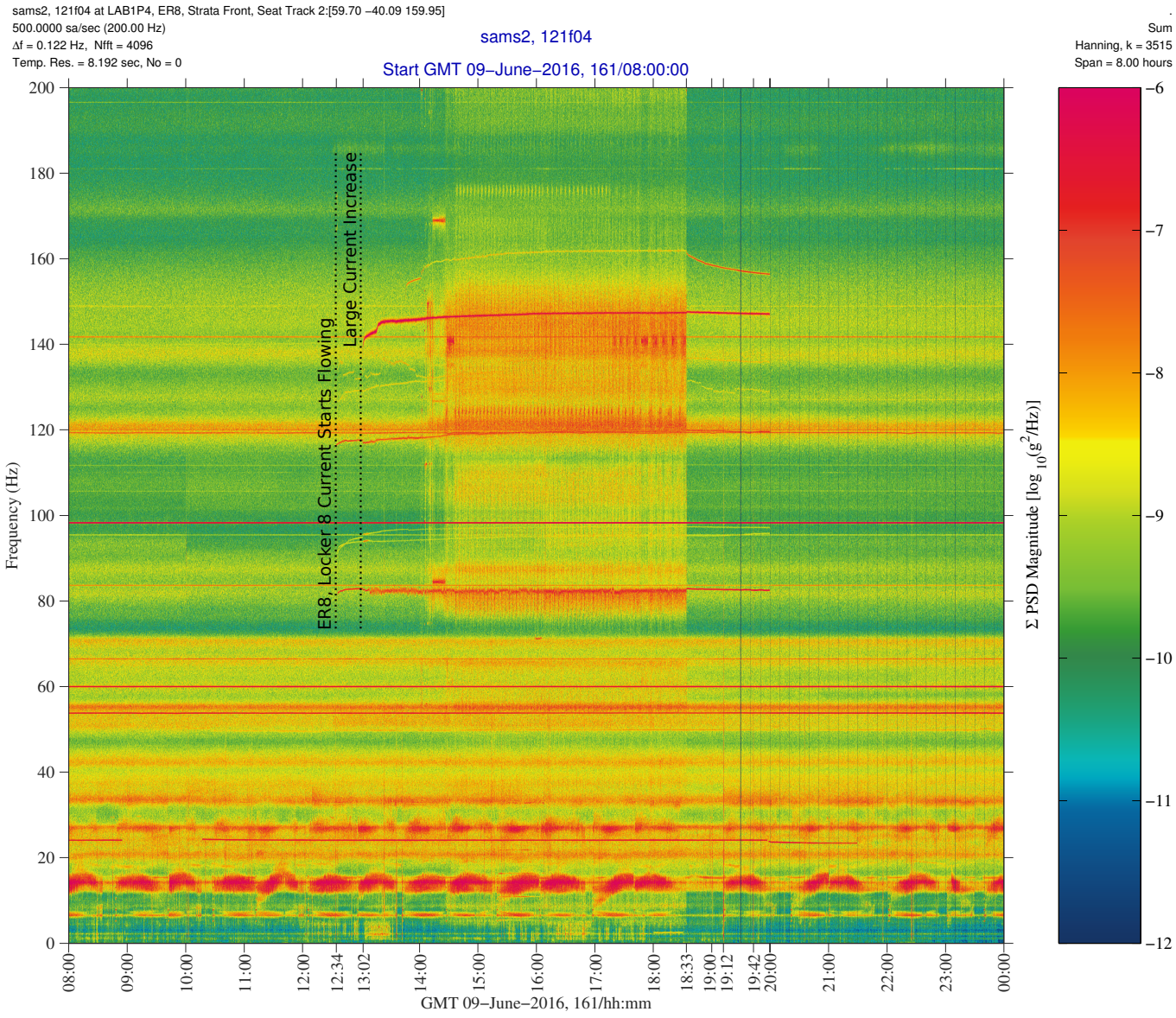
# Manufacturing Device 2016-06-09 Qualify



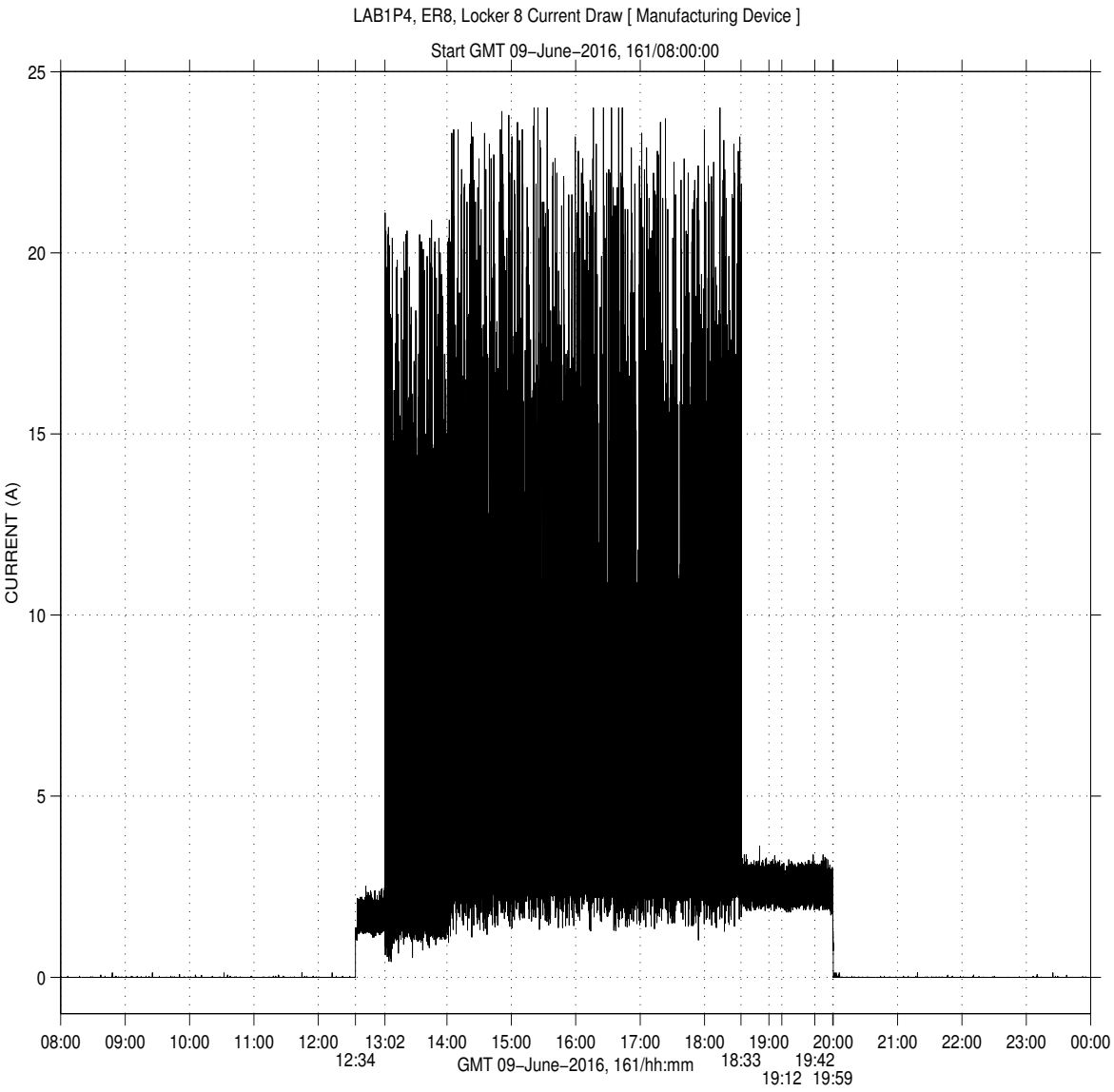

| Description | |
|---|---|
| Sensor | SAMS 121f04<br>500.0 sa/sec, 200.0 Hz |
| Location | LAB1P4, ER8, Strata Front, Seat Track 2 |
| Plot Type | Spectrogram |

**Notes:**

- This color spectrogram spans16 hours starting at GMT 09-Jun-2016/08:00.
- This plot clearly shows a strong vibratory disturbance starting at 13:02 and ending at about 18:33 on this day.
- The first, black, vertical dashed line marks when current started to flow in the EXPRESS Rack 8 (ER8), Locker 8 location at about GMT 12:34.
- The second, black, vertical dashed line marks when the strong vibratory disturbance associated with Manufacturing Device activity in the ER8, Locker 8 location.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Equipment |
| Source: | Manufacturing Device 2016-06-09 |

# Manufacturing Device 2016-06-09
# Quantify

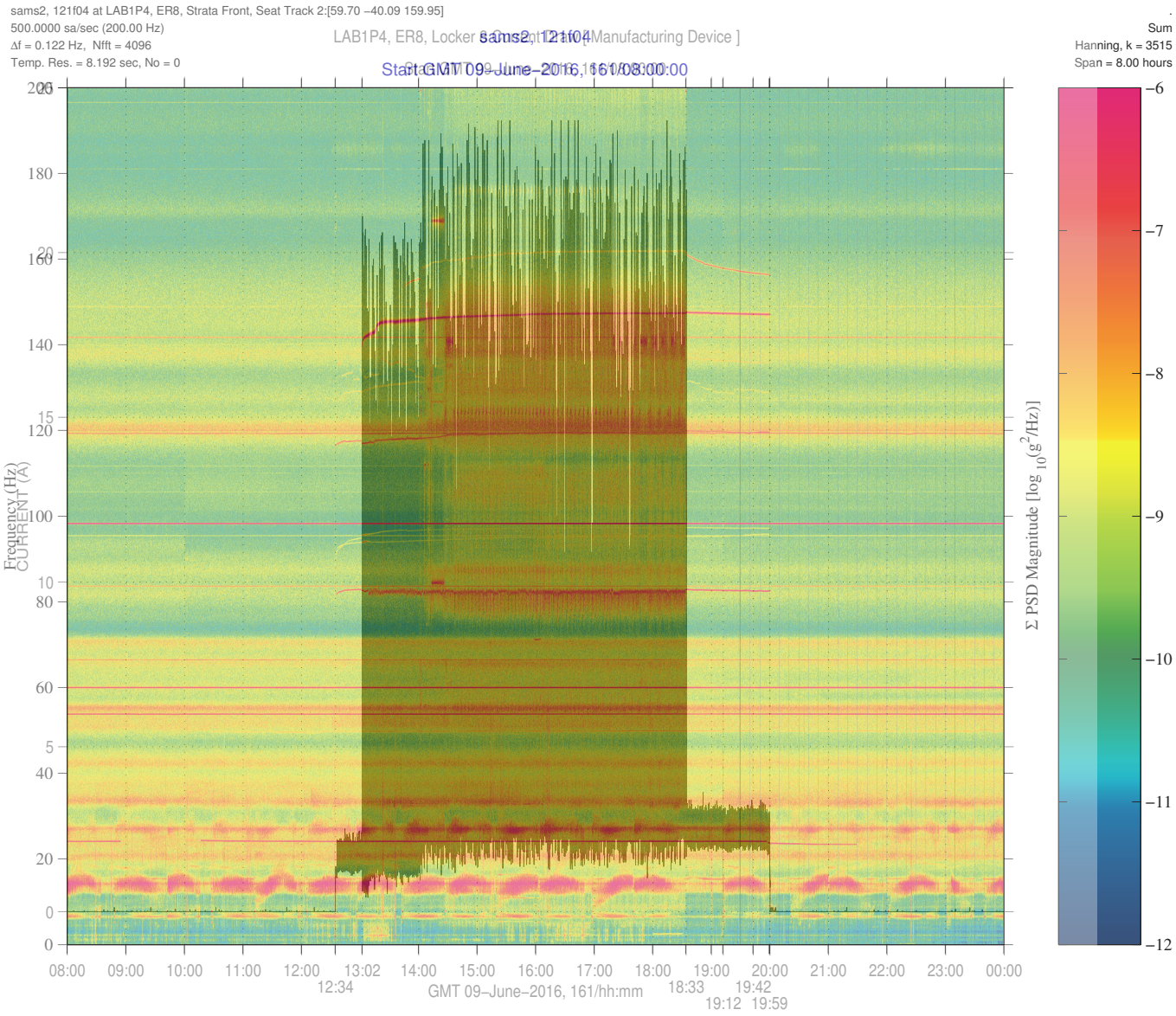



| Description | |
|---|---|
| Sensor | NRT List Request<br>1.0 sa/sec, 1.0 Hz |
| Location | LAB1P4, ER8, Locker 8 Current |
| Plot Type | Current vs. Time |

**Notes:**

- This plot of ER8, Locker 8 current versus time spans the same time frame as the spectrogram from the previous page.
- This plot shows that current draw starts at about 12:34 and that very large current draw starts at about 13:02, which is coincident with the strong, vibratory disturbance shown qualitatively on the previous page.
- The large electrical current and strong vibrations documented on these first 2 pages implies that the Manufacturing Device was quite active for about 5.5 hours this day.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Equipment |
| Source: | Manufacturing Device 2016-06-09 |




# Manufacturing Device 2016-06-09 Qualify

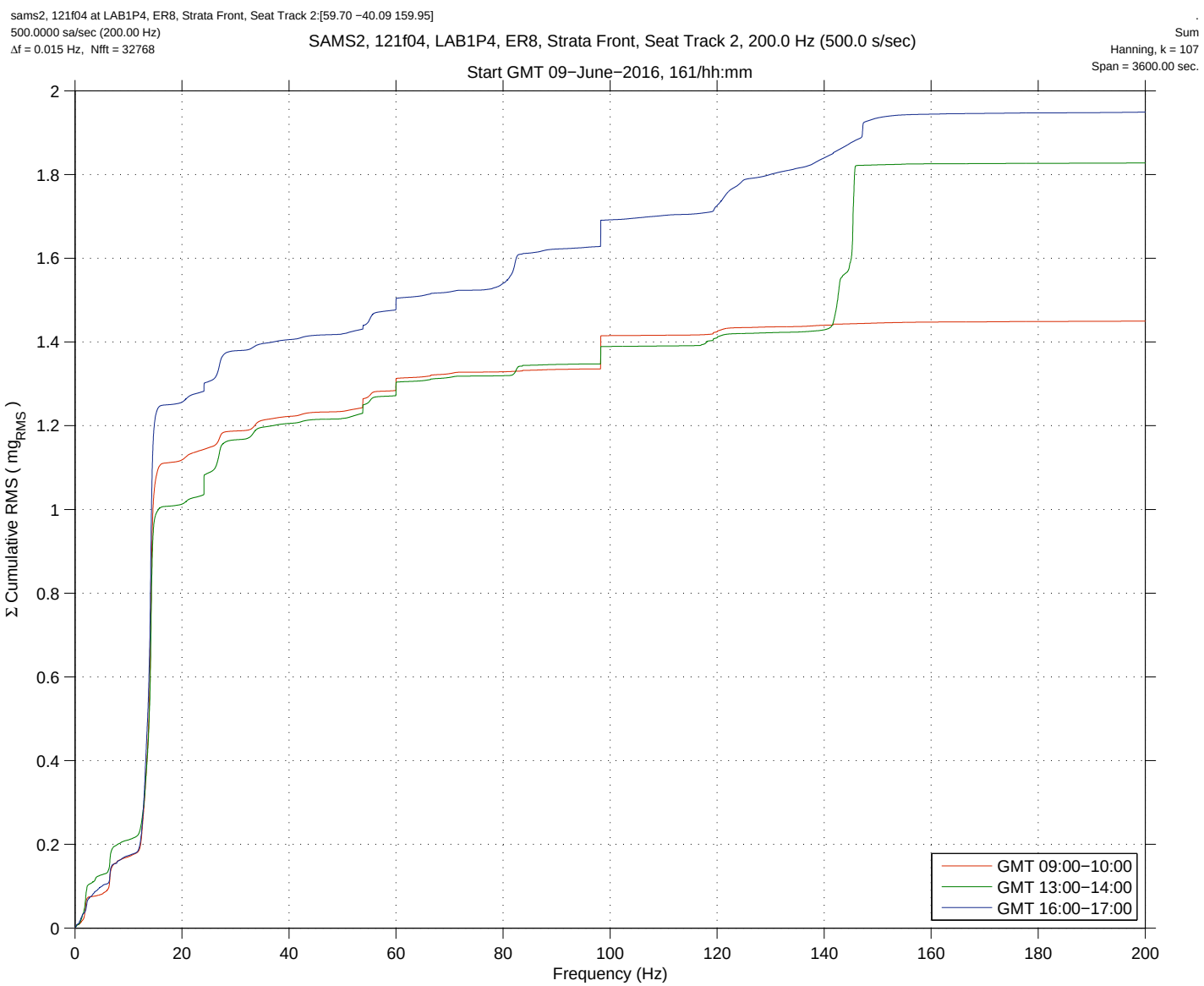
| Description | |
|---|---|
| Sensor | SAMS 121f04<br>500.0 sa/sec, 200.0 Hz |
| Location | LAB1P4, ER8, Strata Front, Seat Track 2 |
| Plot Type | Spectrogram |

**Notes:**

- This plot is an overlay of the plots on the previous 2 pages.
- We see here a strong correlation between ER8, Locker 8 current draw and vibrations measured near Strata on that same rack.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Equipment |
| Source: | Manufacturing Device 2016-06-09 |

# Manufacturing Device 2016-06-09
# Quantify



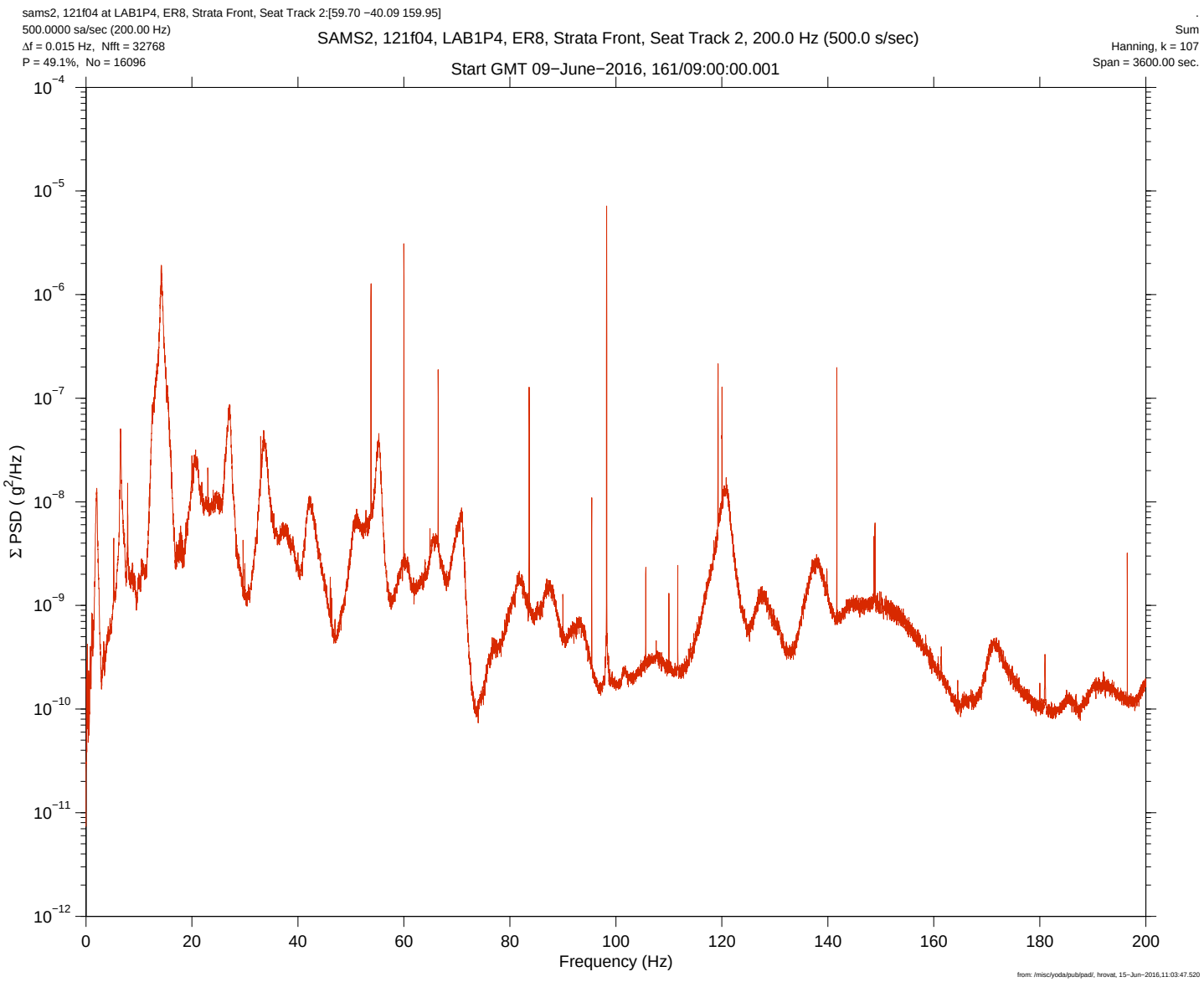

| Description | |
|---|---|
| Sensor | SAMS 121f04<br>500.0 sa/sec, 200.0 Hz |
| Location | LAB1P4, ER8, Strata Front,<br>Seat Track 2 |
| Plot Type | Cumulative RMS vs. Freq. |

**Notes:**

- This plot shows cumulative RMS versus frequency traces for 3 different one-hour GMT spans: (1) RED TRACE starting at 09:00, which was before ER8, Locker 8 starts drawing current for the Manufacturing Device, (2) GREEN TRACE starting at 13:00 when current was flowing, but it did not appear that the Manufacturing Device was fully active yet, & (3) BLUE TRACE starting at 16:00 when it was apparent that the Manufacturing Device was doing its thing.
- Strong spectral components mainly at about 145-147 Hz or so appear when there was appreciable current draw from the ER8 Locker 8 location of the Manufacturing Device, and this narrow frequency range accounts for much of the difference relative to no activity from that Locker 8 location.
- The blue trace shows higher RMS levels owing primarily to broadband (turbulent) vibrations when the Manufacturing Device was fully active.
- The traces here were computed from PSDs shown on the following pages.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Equipment |
| Source: | Manufacturing Device 2016-06-09 |

# Manufacturing Device 2016-06-09
# Quantify



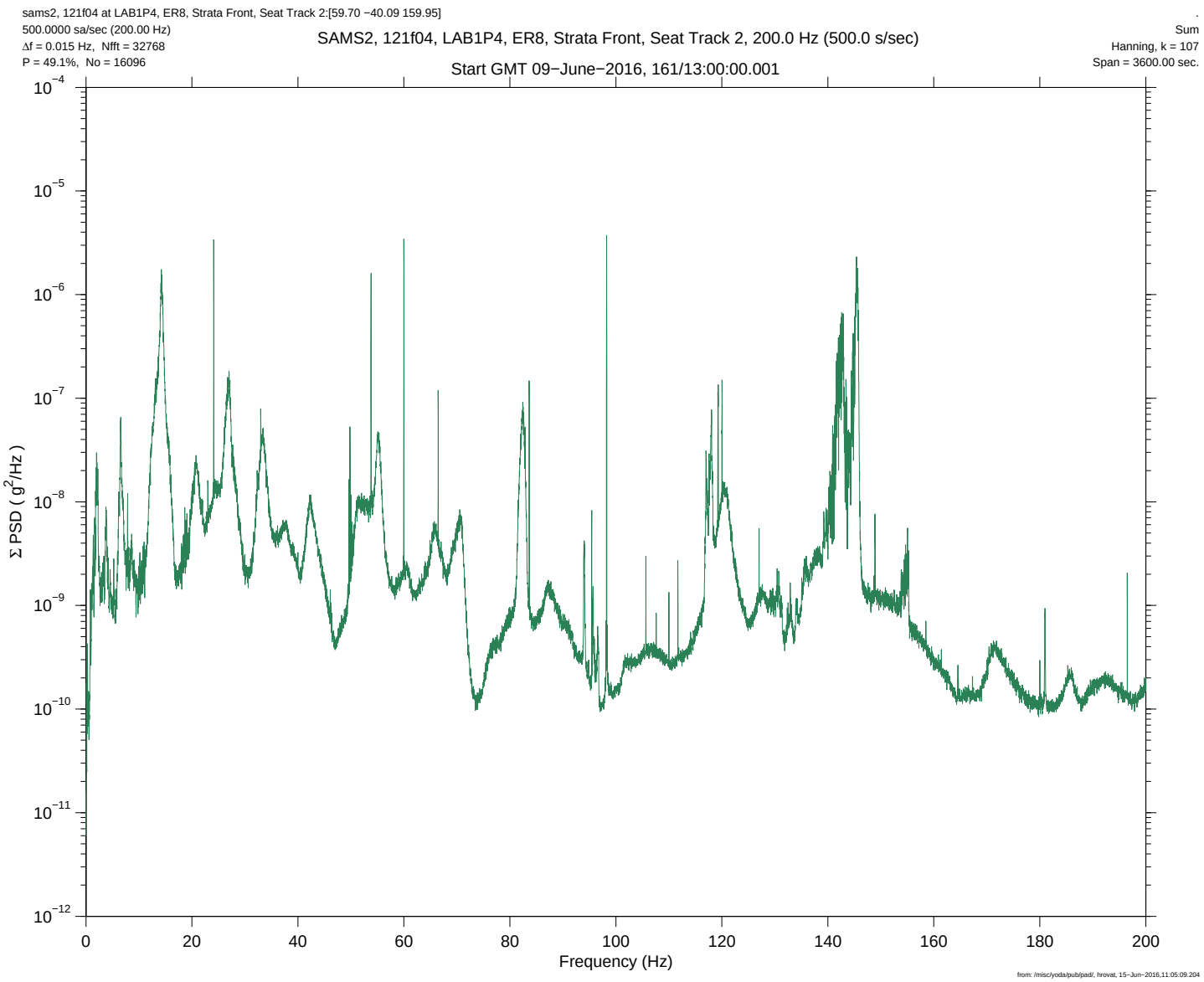

| Description | |
|---|---|
| Sensor | SAMS 121f04<br>500.0 sa/sec, 200.0 Hz |
| Location | LAB1P4, ER8, Strata Front,<br>Seat Track 2 |
| Plot Type | Power Spectral Density |

**Notes:**

- This is a plot of power spectral density calculated from acceleration measurements during a one-hour period starting at 09:00, which was before any current started flowing to the ER8, Locker 8 location where the Manufacturing Device is located.
- Parseval's theorem was used to compute the cumulative RMS versus frequency (red) trace on an earlier page.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Equipment |
| Source: | Manufacturing Device 2016-06-09 |

# Manufacturing Device 2016-06-09
# Quantify



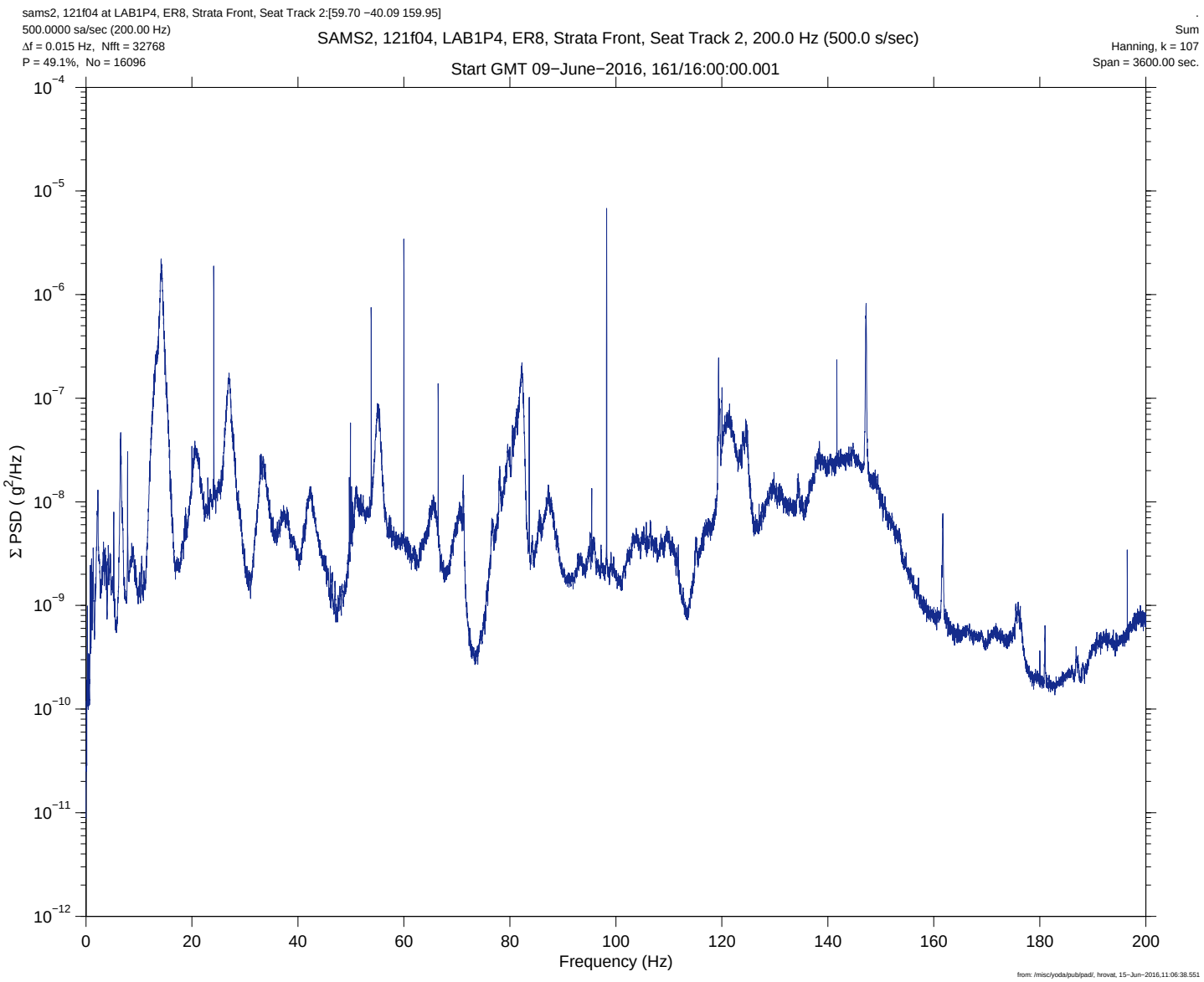

| Description | |
|---|---|
| Sensor | SAMS 121f04<br>500.0 sa/sec, 200.0 Hz |
| Location | LAB1P4, ER8, Strata Front, Seat Track 2 |
| Plot Type | Power Spectral Density |

**Notes:**

- This is a plot of power spectral density calculated from acceleration measurements during a one-hour period starting at 13:00, which was after current started flowing to the ER8, Locker 8 location but before any serious activity from the Manufacturing Device location.
- Parseval's theorem was used to compute the cumulative RMS versus frequency (green) trace on an earlier page.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Equipment |
| Source: | Manufacturing Device 2016-06-09 |

# Manufacturing Device 2016-06-09
# Quantify




| Description | |
|---|---|
| Sensor | SAMS 121f04<br>500.0 sa/sec, 200.0 Hz |
| Location | LAB1P4, ER8, Strata Front,<br>Seat Track 2 |
| Plot Type | Power Spectral Density |

**Notes:**

- This is a plot of power spectral density calculated from acceleration measurements during a one-hour period starting at 16:00, which was after current started flowing to the ER8, Locker 8 location and while we saw serious activity from the Manufacturing Device location.
- Parseval's theorem was used to compute the cumulative RMS versus frequency (blue) trace on an earlier page.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Equipment |
| Source: | Manufacturing Device 2016-06-09 |