

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

April 13, 2010

Addendum
Sound Spectrum Study Cockpit Voice Recorder - 12

Group Chairman's Report
By James Cash

A. EVENT

Location: Weaverville California
Date: August 5, 2008, 1941 PDT
Aircraft: Sikorsky S-61N, N612AZ
Operator: Carson Helicopters, Helitanker 766
NTSB Number: LAX08PA259

B. GROUP
N/A

C. SUMMARY

On August 5, 2008, about 1941 Pacific daylight time,¹ a Sikorsky S-61N helicopter, N612AZ, impacted trees and terrain during the initial climb after takeoff from Helispot 44, located at an elevation of about 6,000 feet in mountainous terrain near Weaverville, California. The airline transport pilot, the safety crewmember and seven firefighters were killed; the commercial copilot and three firefighters were seriously injured.² Impact forces and a post crash fire destroyed the helicopter. The helicopter was being operated by the United States Forest Service (USFS) as a public use flight to transport the firefighters from Helispot 44 to another location. The helicopter was registered to Carson Helicopters, Inc. (CHI) of Grants Pass, Oregon, and leased to Carson Helicopter Services, Inc. (CHSI) of Grants Pass. The USFS had contracted with

¹ All times in this report are expressed in terms of a 24-hour clock and Pacific daylight time unless otherwise noted.

² The safety crewmember was a USFS Inspector Pilot.

CHI for the services of the helicopter.³ Visual meteorological conditions prevailed at the time of the accident, and a company visual flight rules flight plan had been filed.

D. DETAILS OF INVESTIGATION

To provide more background information, the original sound spectrum plots that correspond to the various takeoffs and landings are included in this report. Generally there are two sounds spectrum plots associated with each takeoff and landing event: (1) depicts the frequency ranges that are associated with the sound signatures of the helicopter's engines. (2) Depicts the frequency ranges associated with the rotor system of the helicopter.

All of the attached charts depict time in seconds along the horizontal axis, frequency in hertz along the vertical axis and sound intensity by the various colors on the chart. The spectrum chart labels found in this report correspond to the data plots found in the original sound spectrum report, "A" being the lower frequency rotor system chart and "B" being the chart associated with the engine sound signatures. Additionally a time conversion is needed to convert the elapsed time shown on the charts to CVR time. Each chart set ("A", "B") share the same time conversion. The following table lists the conversions needed:

TABLE 1

Chart 3 A-B 1 st Takeoff From H36	1750:47
Chart 4 A-B Wave off from H44	1758:13
Chart 5 A-B 1 st Takeoff from H44	1814.01
Chart 6 A-B 2 nd Takeoff from H36	1828:29
Chart 7 A-B 2 nd Takeoff from H44	1842.01
Chart 8 A-B 3 rd Takeoff from H36	1853:35
Chart 9 A-B Landing at Trinity	1905:11
Chart 10 A-B Takeoff from Trinity	1923:00
Chart 11 A-B Accident Takeoff from H44	1939:22.5
Chart 16 A-B "Power Check" enroute to H36	1742:24

Additionally a chart 16 is being added to the Sound Spectrum Report. This chart depicts the "power check" that was accomplished at the very beginning of the CVR recording as the aircraft was inbound to the 1st landing at H36. The power check was accomplished at 17:42:29 PDT. Additionally the sound spectrum charts "A" and "B" that are associated with the "power check" are included:

James Cash
Electronics Engineer

³ Initially, the NTSB was informed that the contract was between the USFS and CHSI. For further information refer to the Operations Factual Report.

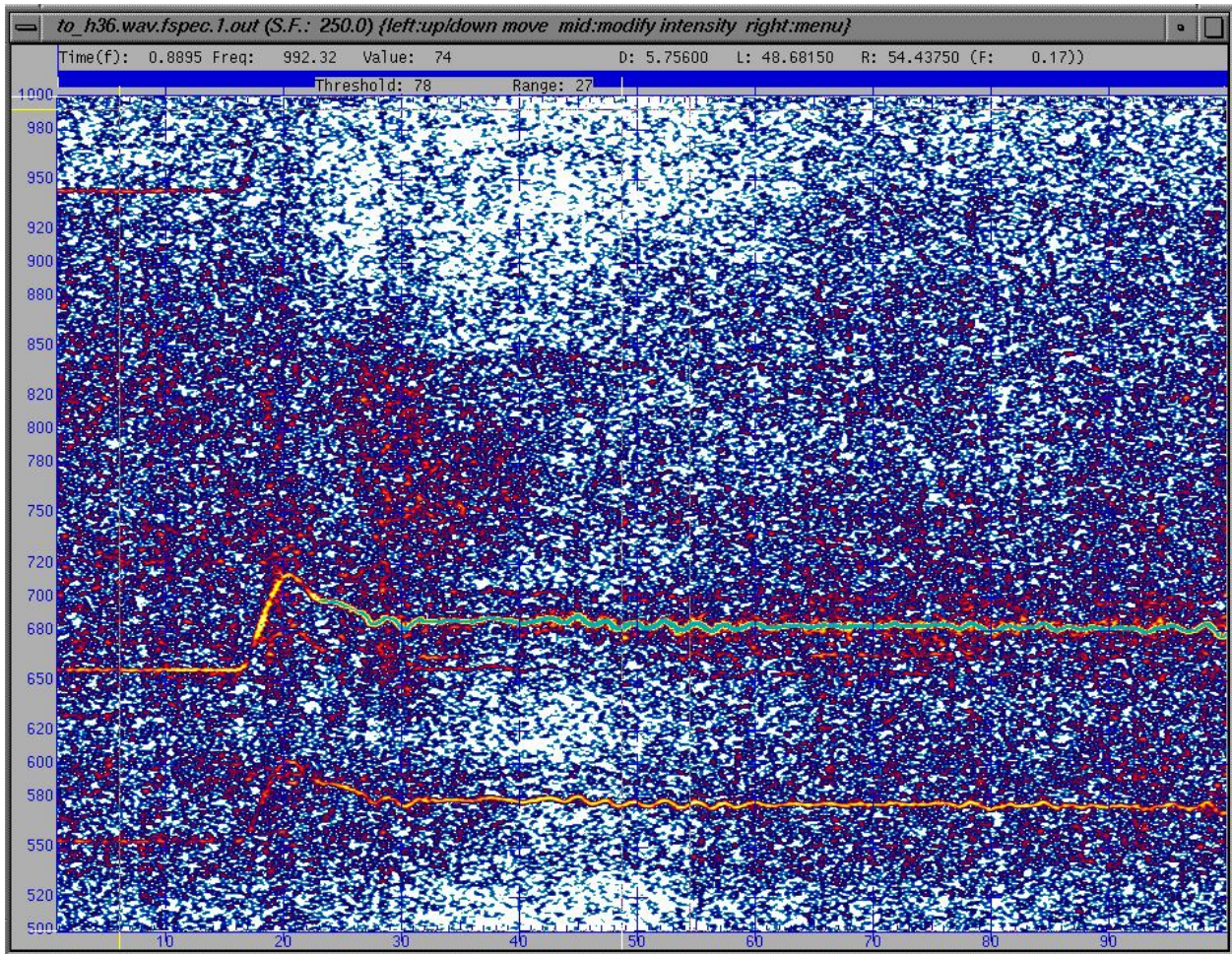


Chart 3A Takeoff from H36

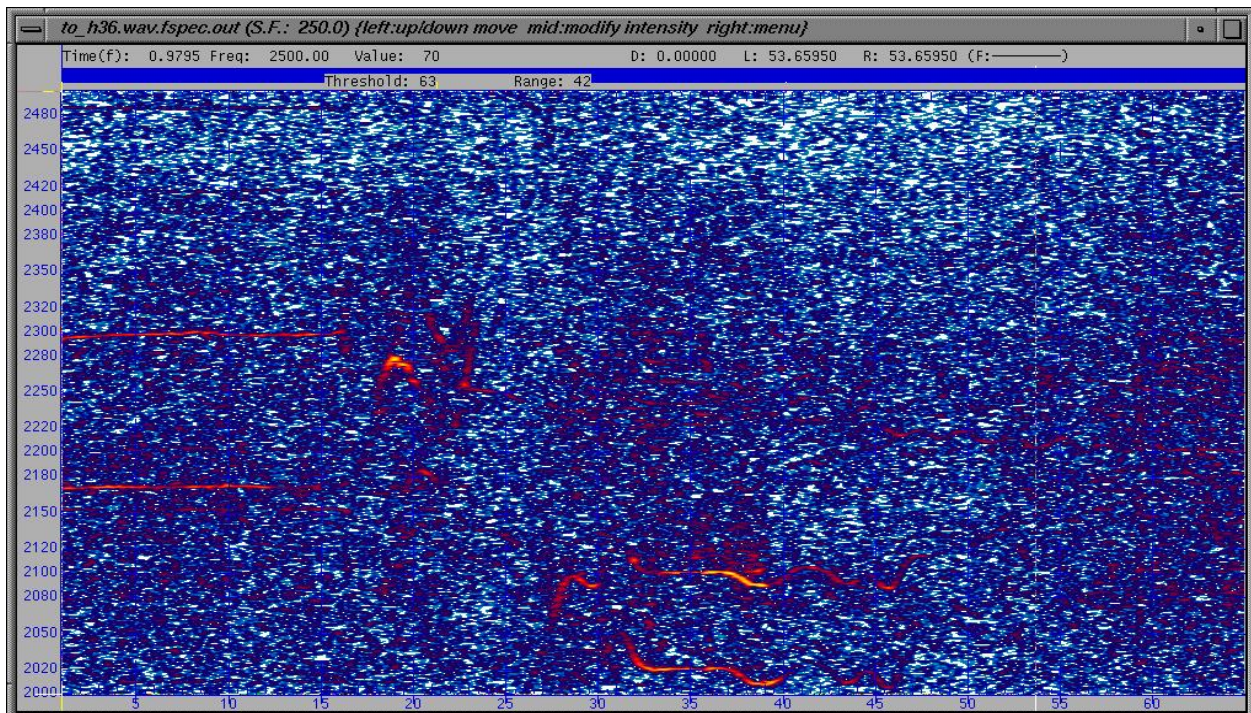


Chart 3B Takeoff from H36

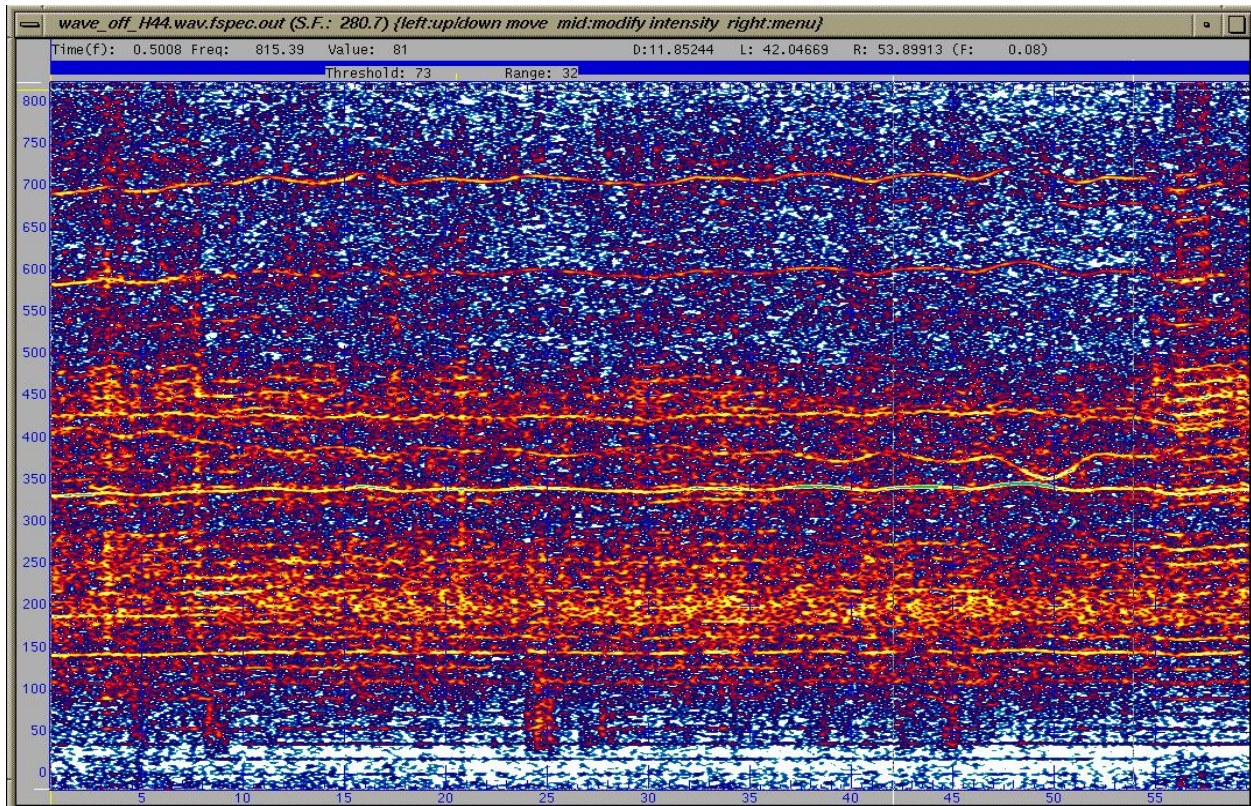


Chart 4A Wave off from H44

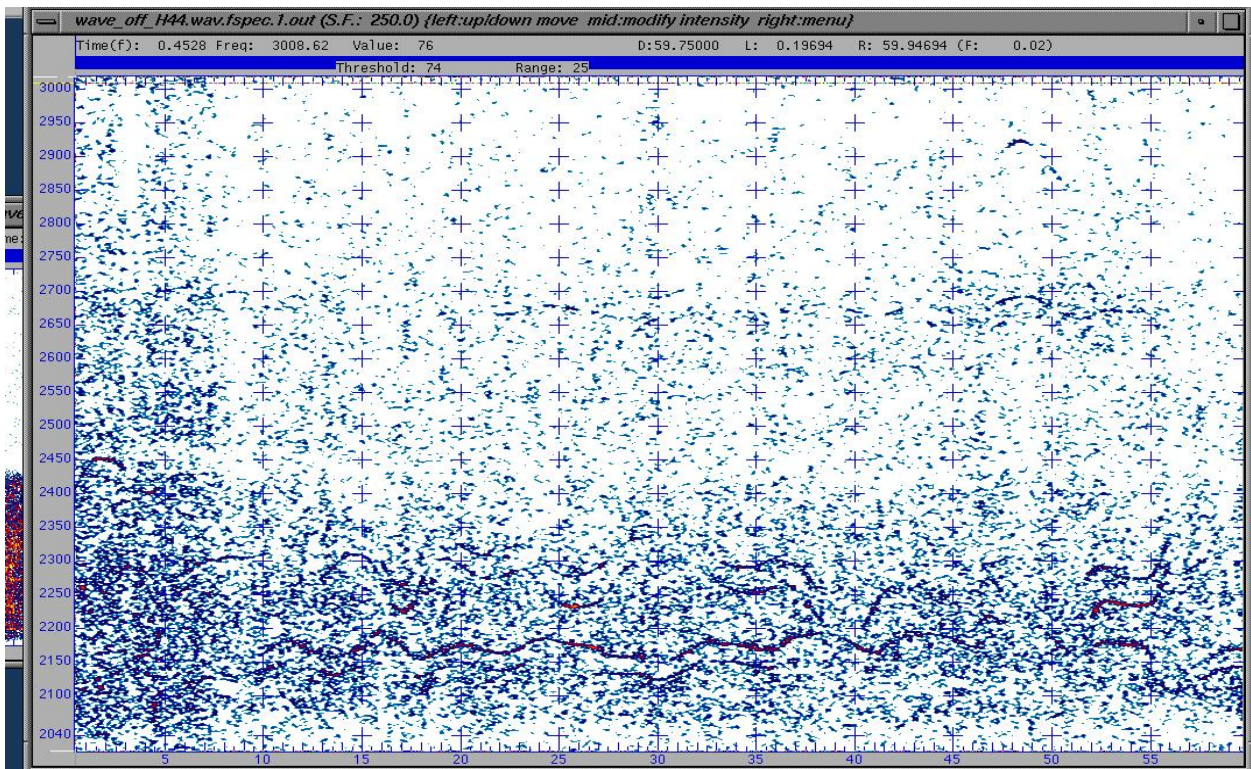


Chart 4B Wave off from H44

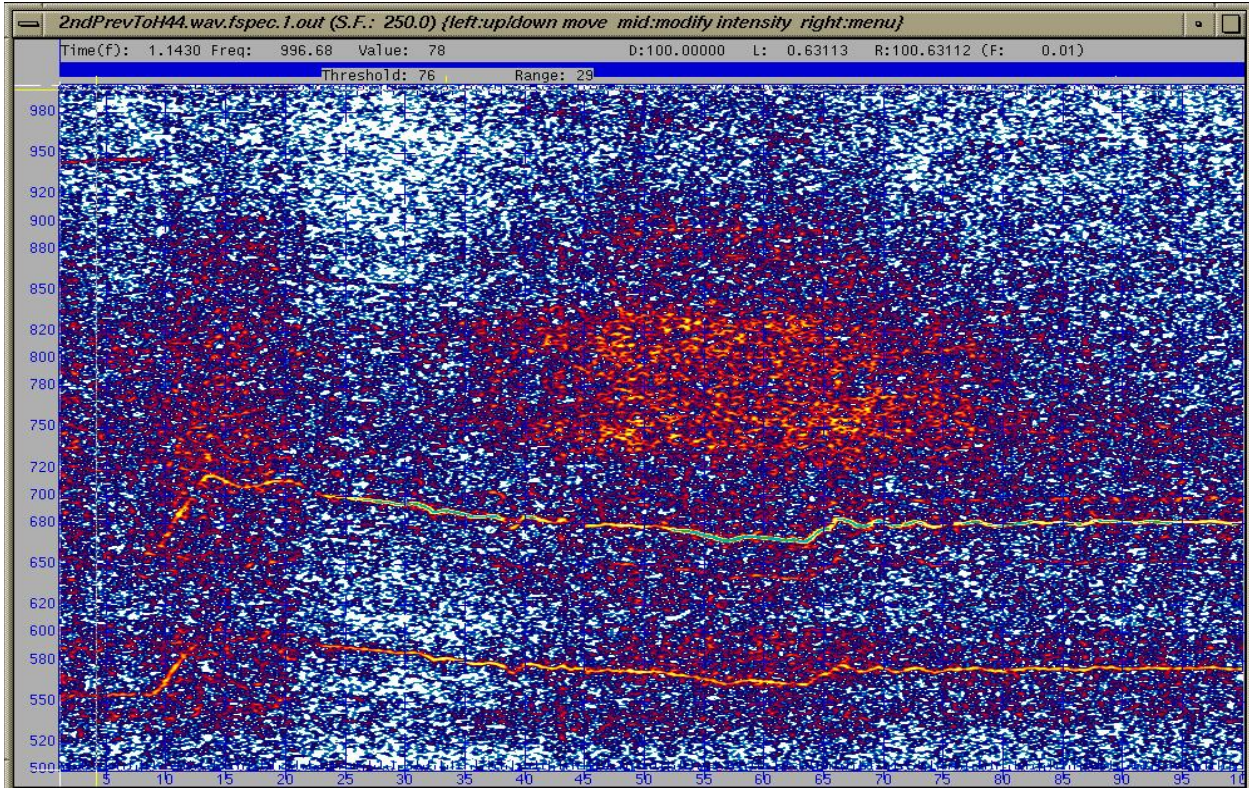


Chart 5A 1st Takeoff from H44

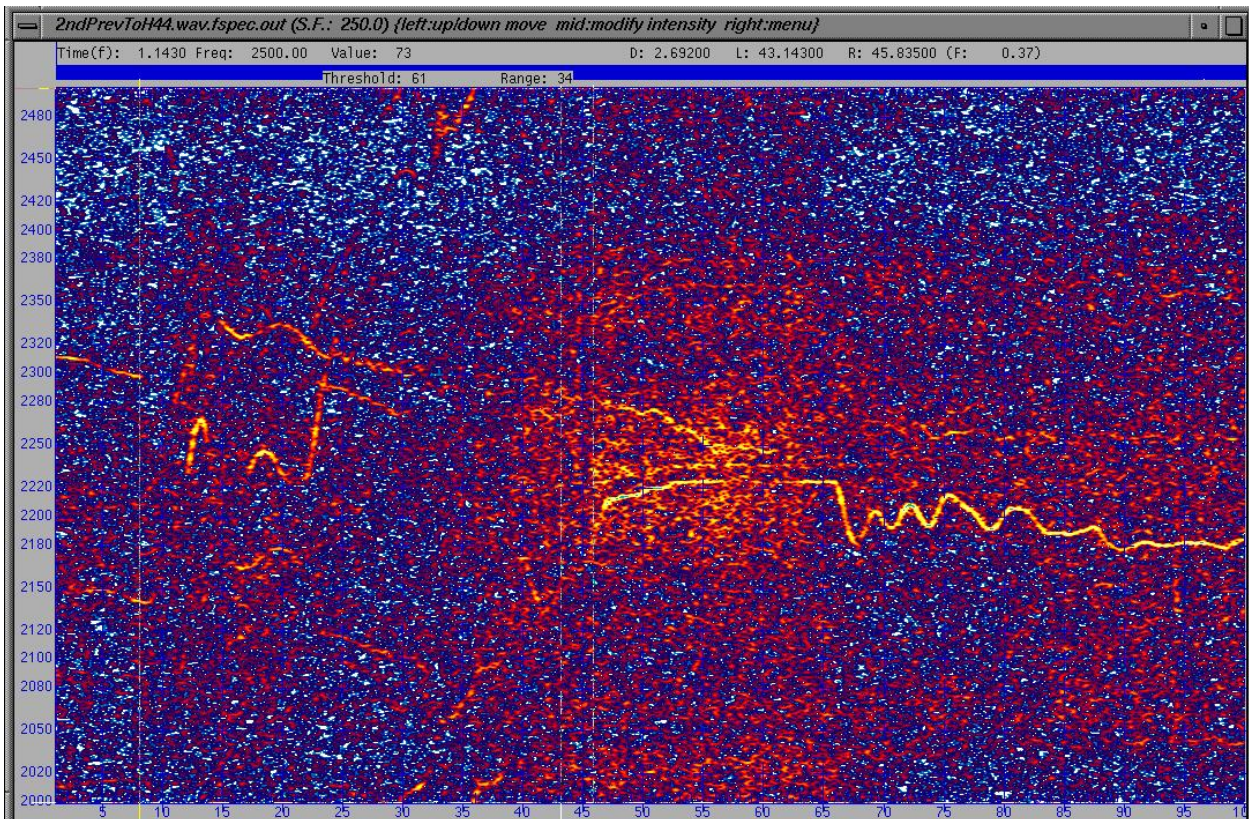


Chart 5B 1st Takeoff from H44

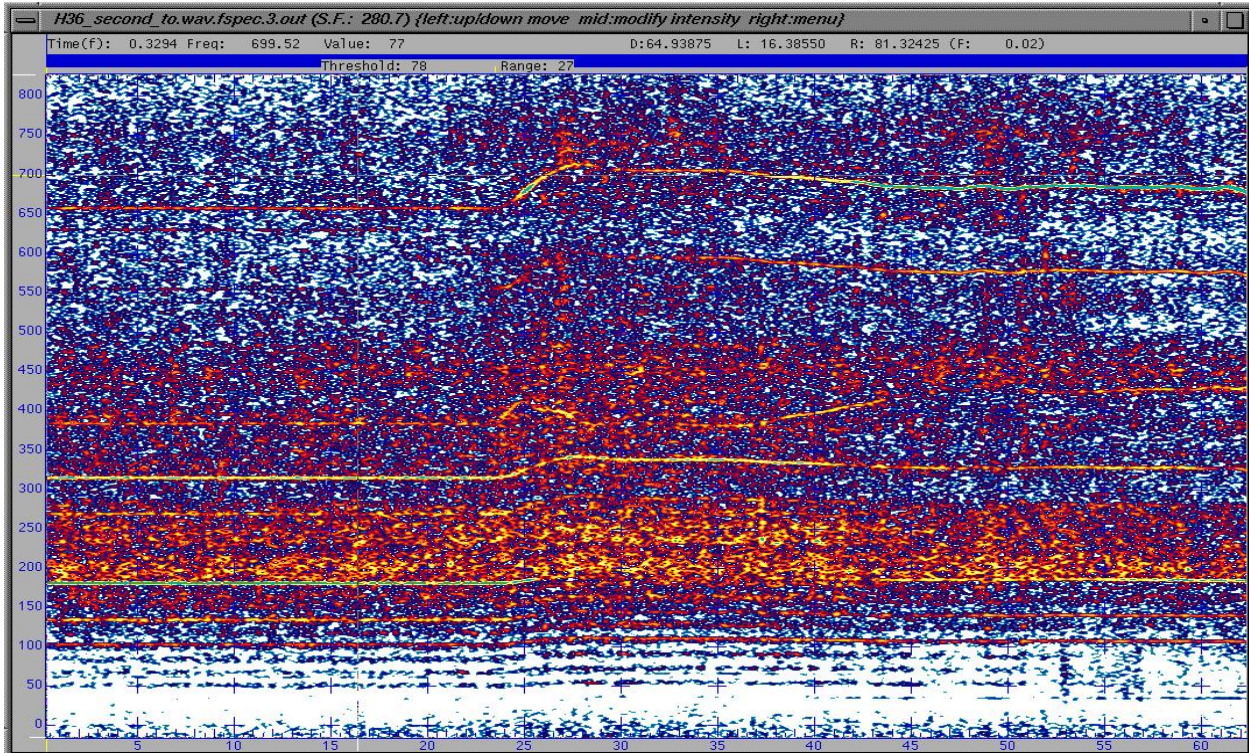


Chart 6A 2nd Takeoff from H36

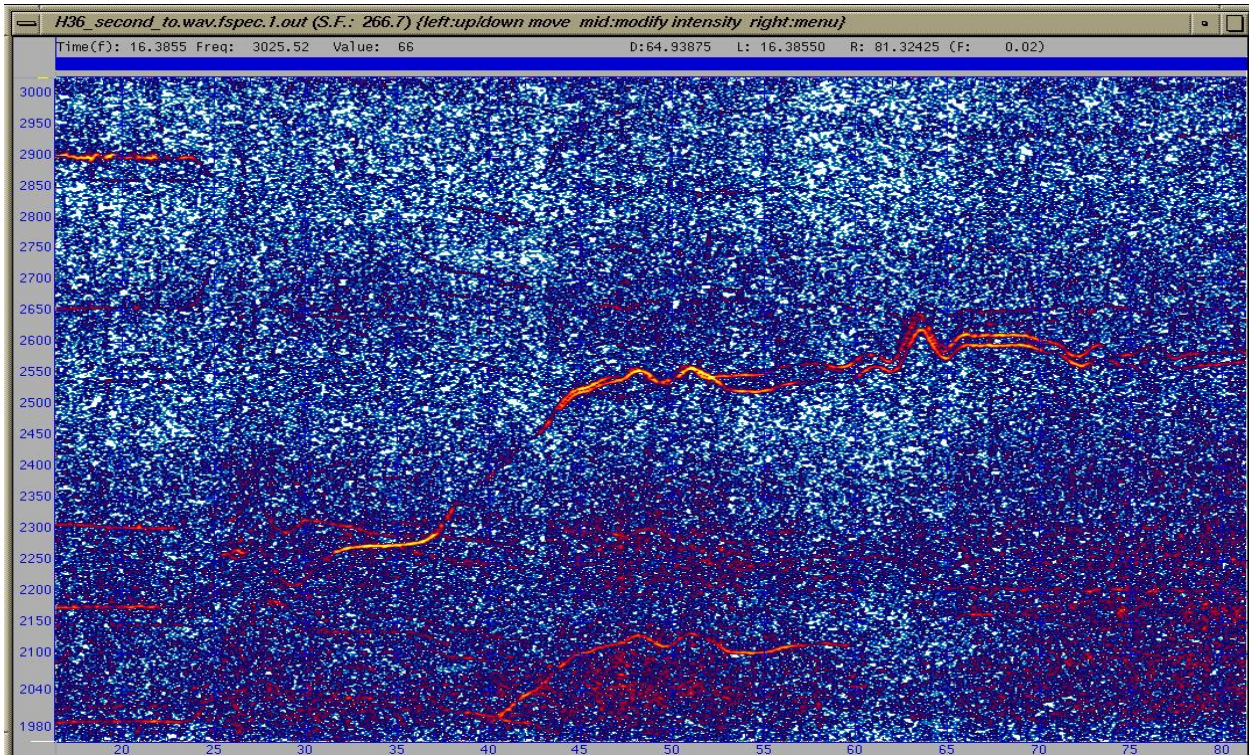


Chart 6B 2nd Takeoff from H36

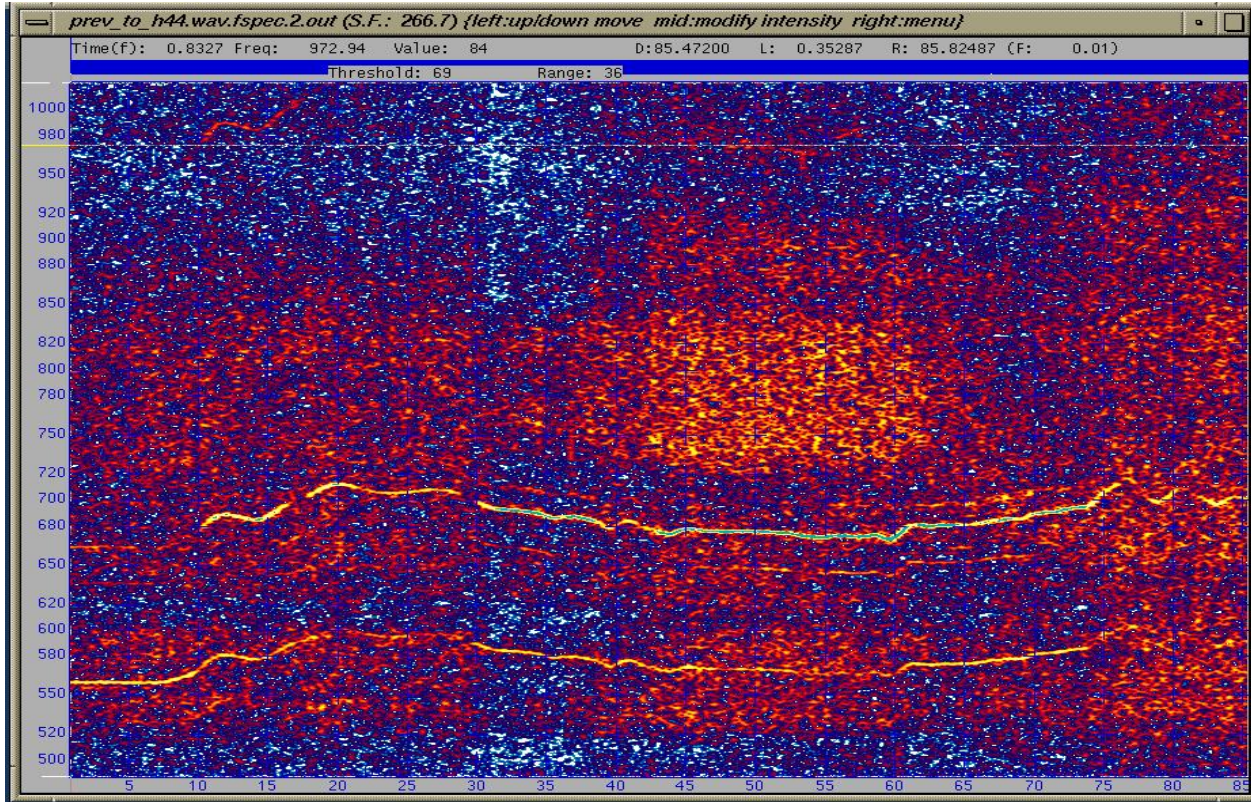


Chart 7A 2nd Takeoff from H44

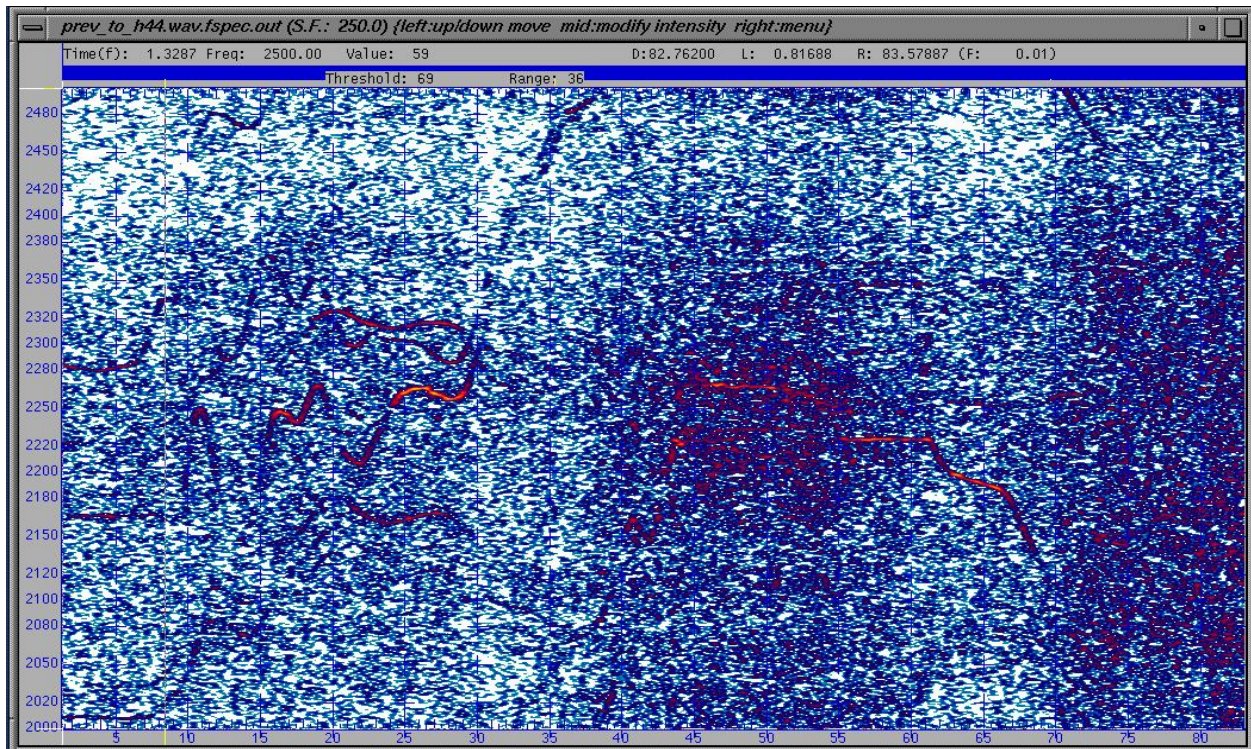


Chart 7B 2nd Takeoff from H44

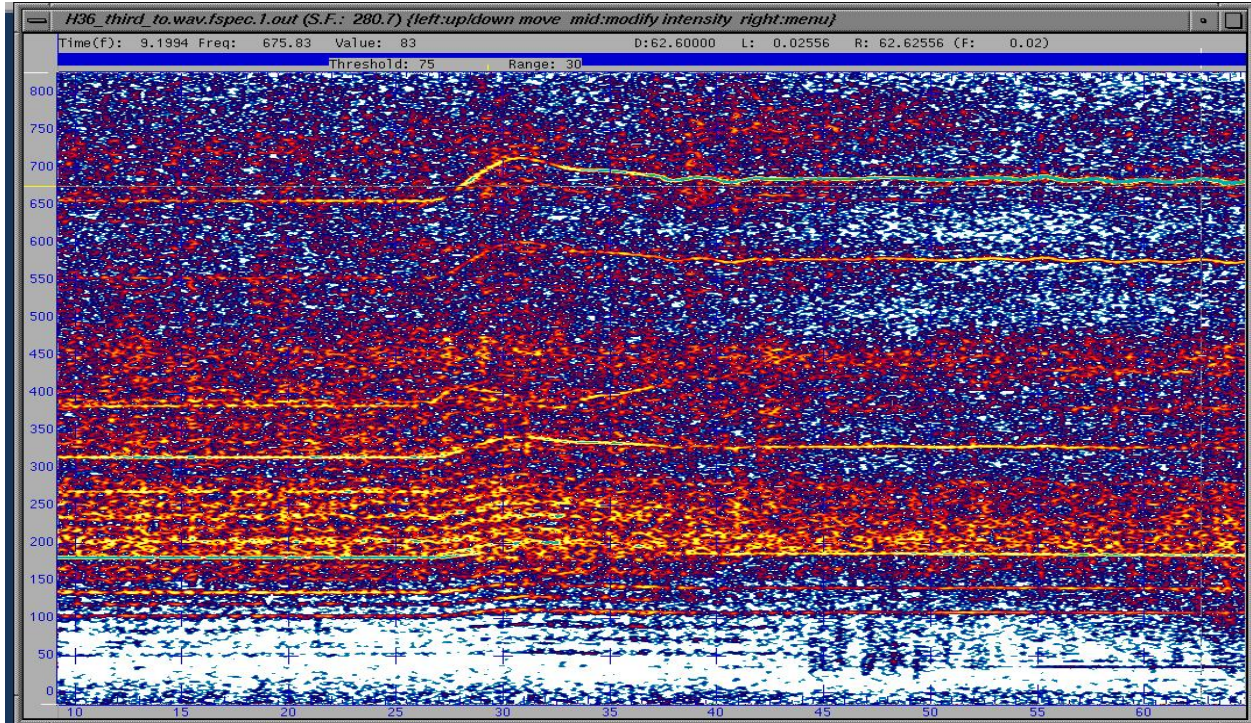


Chart 8A 3rd Takeoff from H36

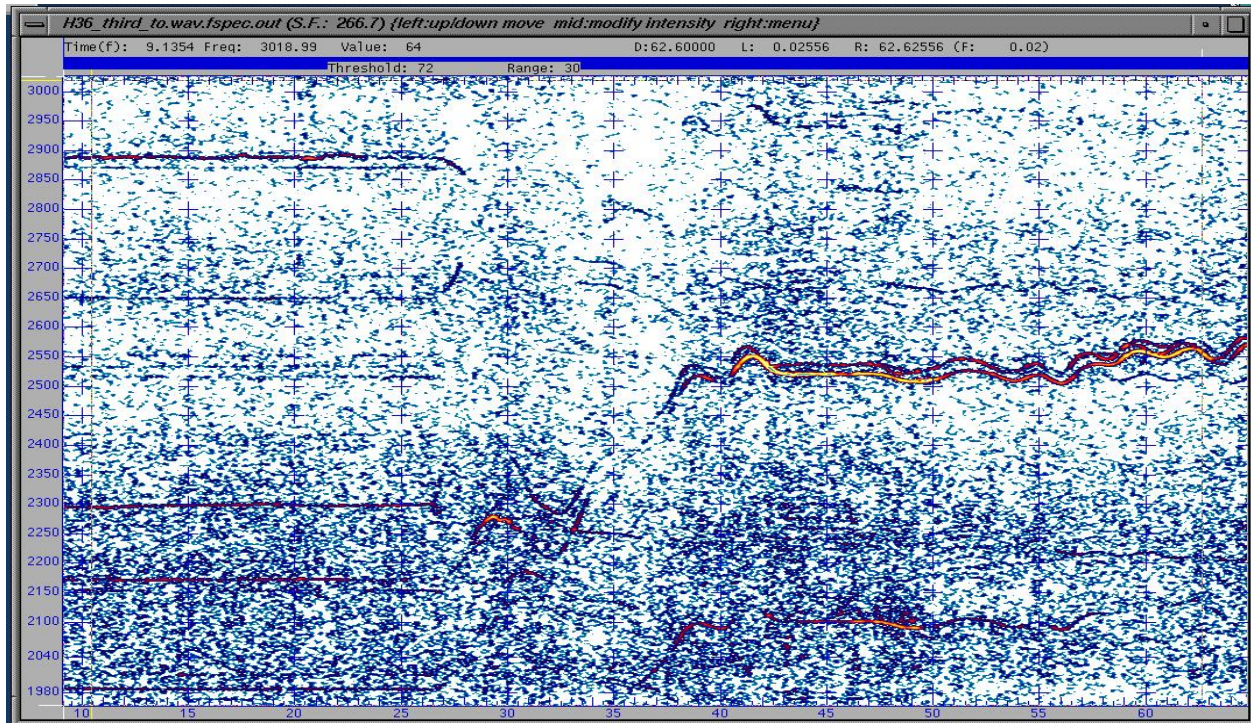


Chart 8B 3rd Takeoff from H36

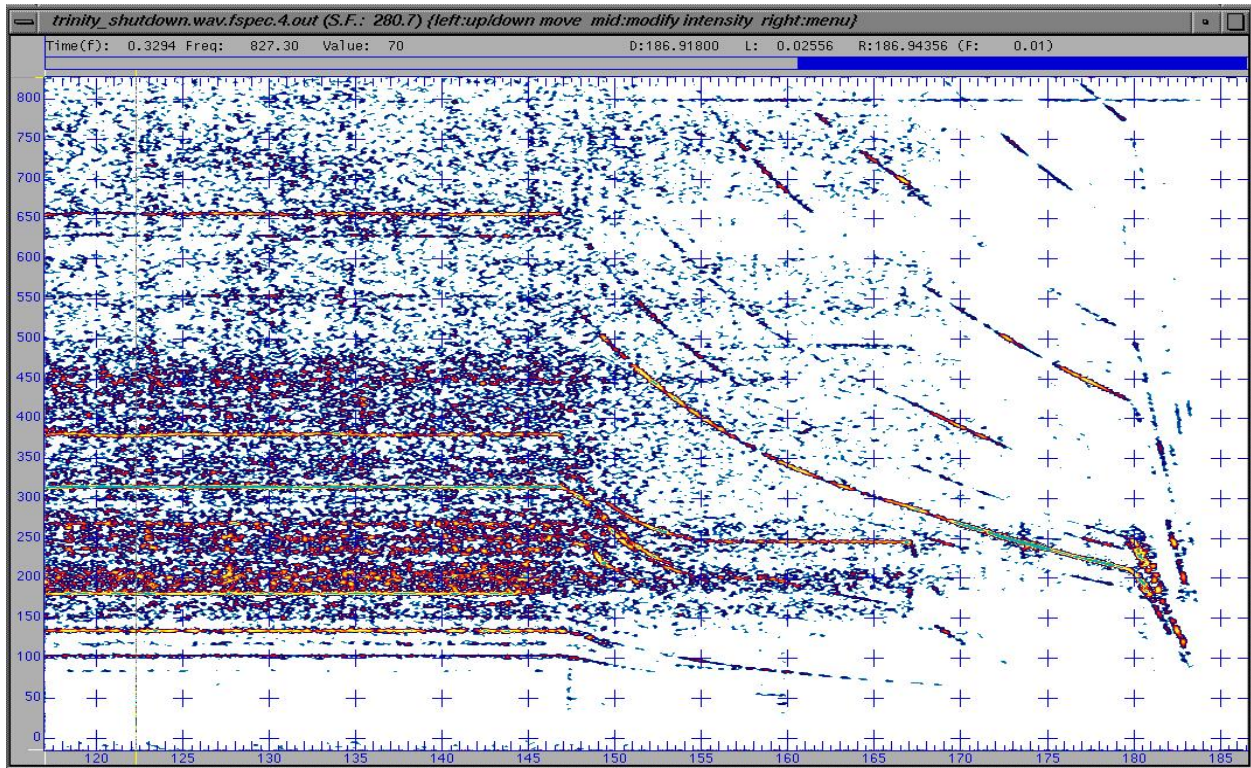


Chart 9A Landing and engine shutdown at Trinity Base

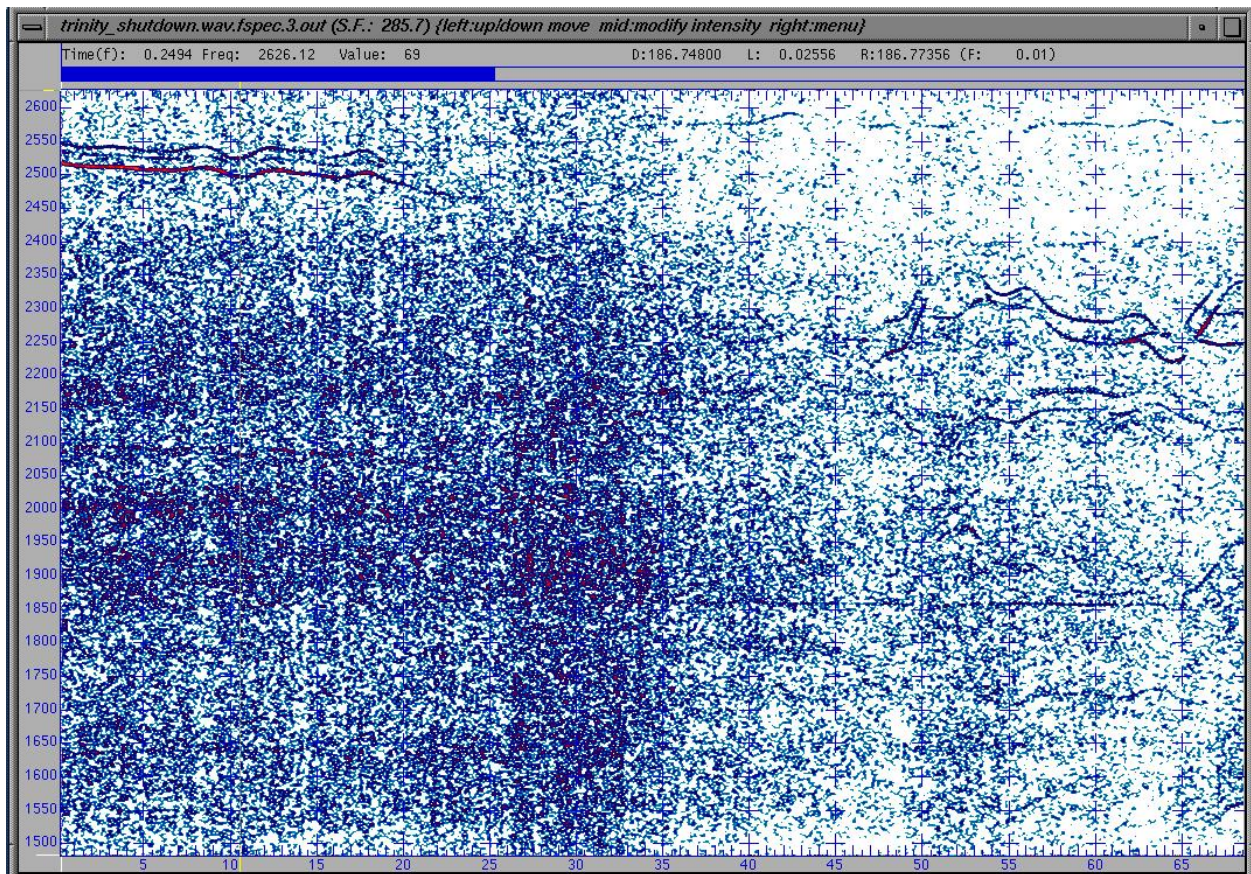


Chart 9B Landing and engine shutdown at Trinity Base

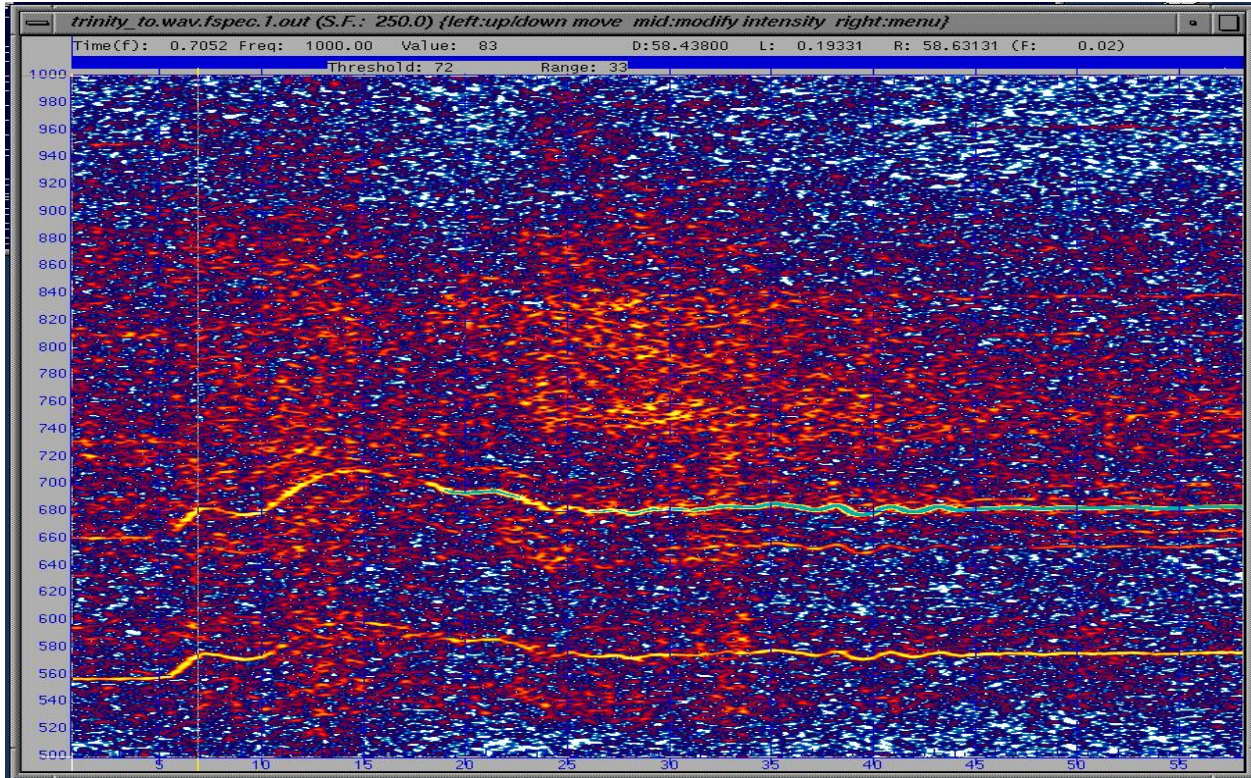


Chart 10A Takeoff from Trinity Base

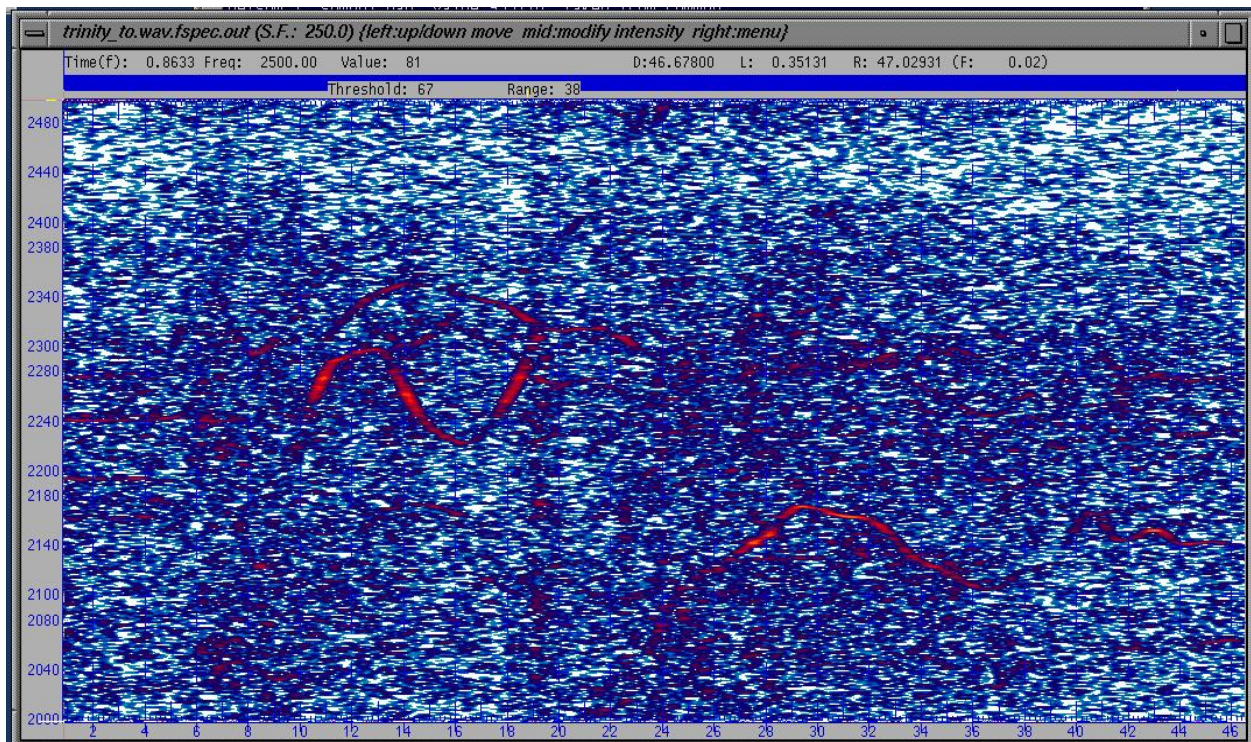


Chart 10B Takeoff from Trinity Base

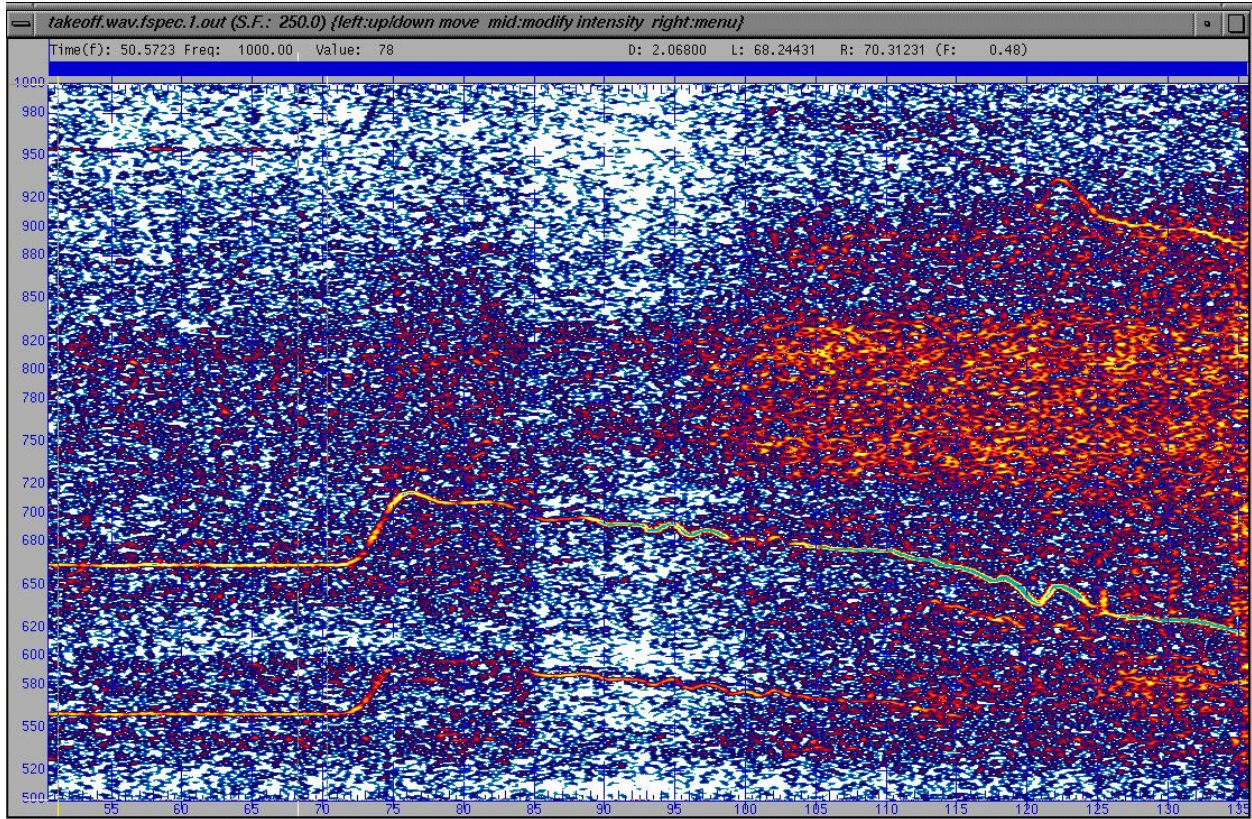


Chart 11A Accident Takeoff from H44

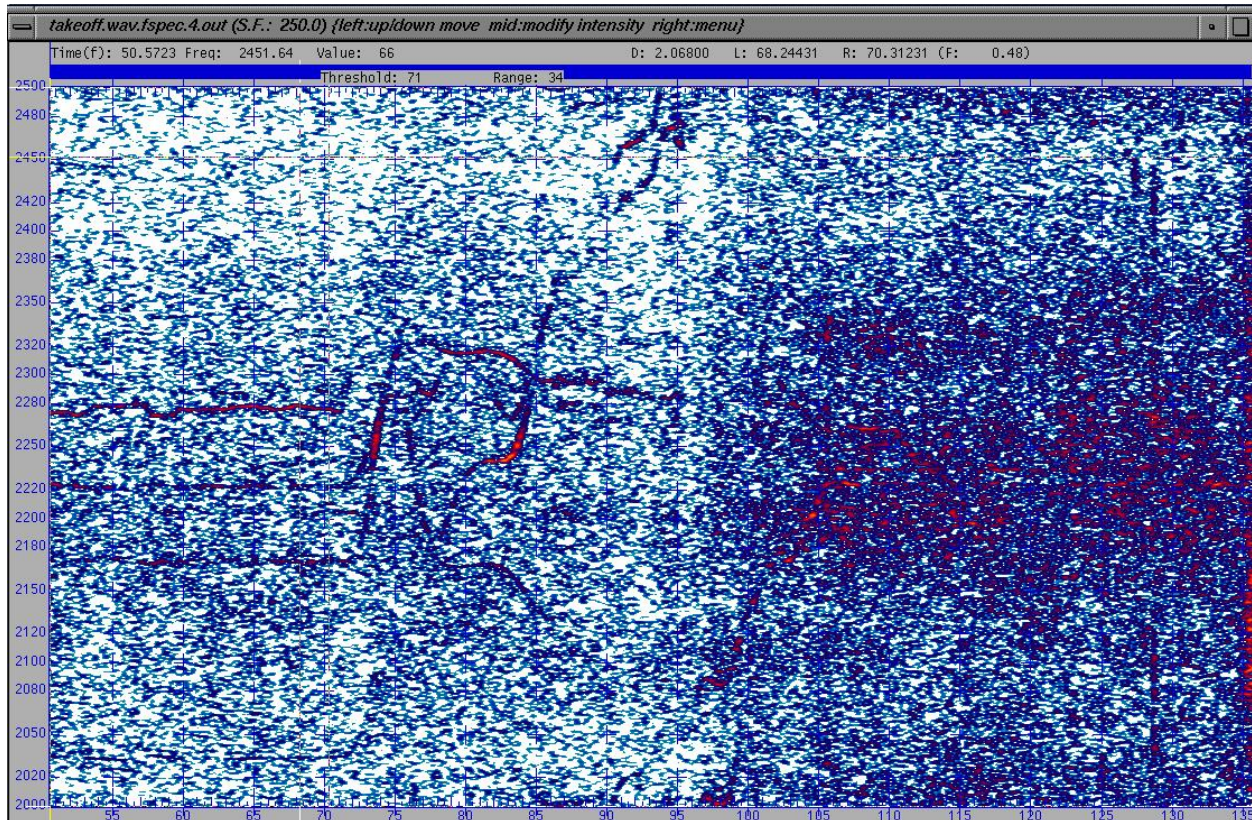
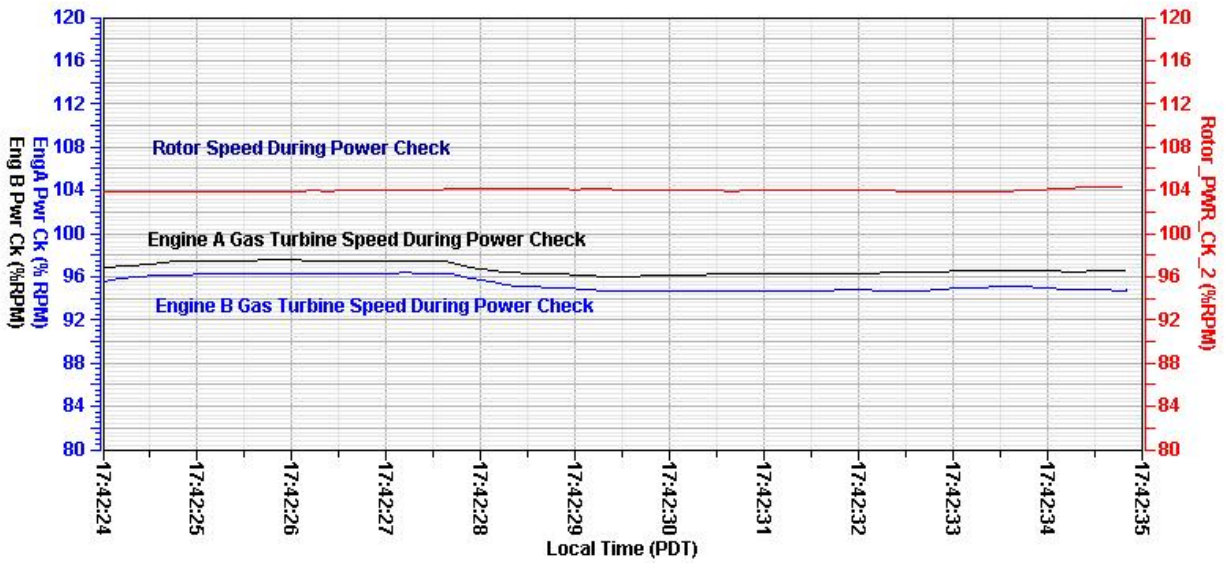


Chart 11B Accident Takeoff from H44

Carson S61 Gas Generator and Rotor Speeds During Power Check on Approach to H36

Location, Date: Redding California, 08/05/08

NTSB No. LAX08PA259



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National Transportation Safety Board

Chart 16 "Power Check" on approach to 1st landing at H36

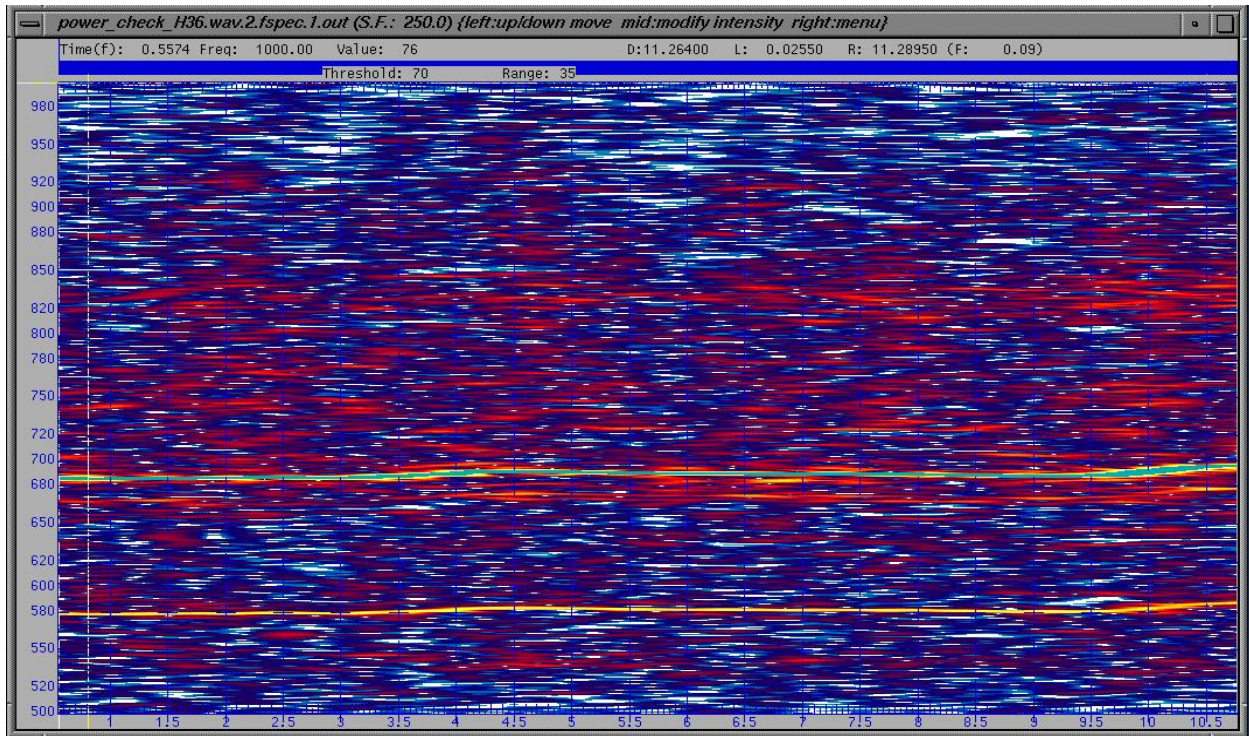


Chart 16A Power Check

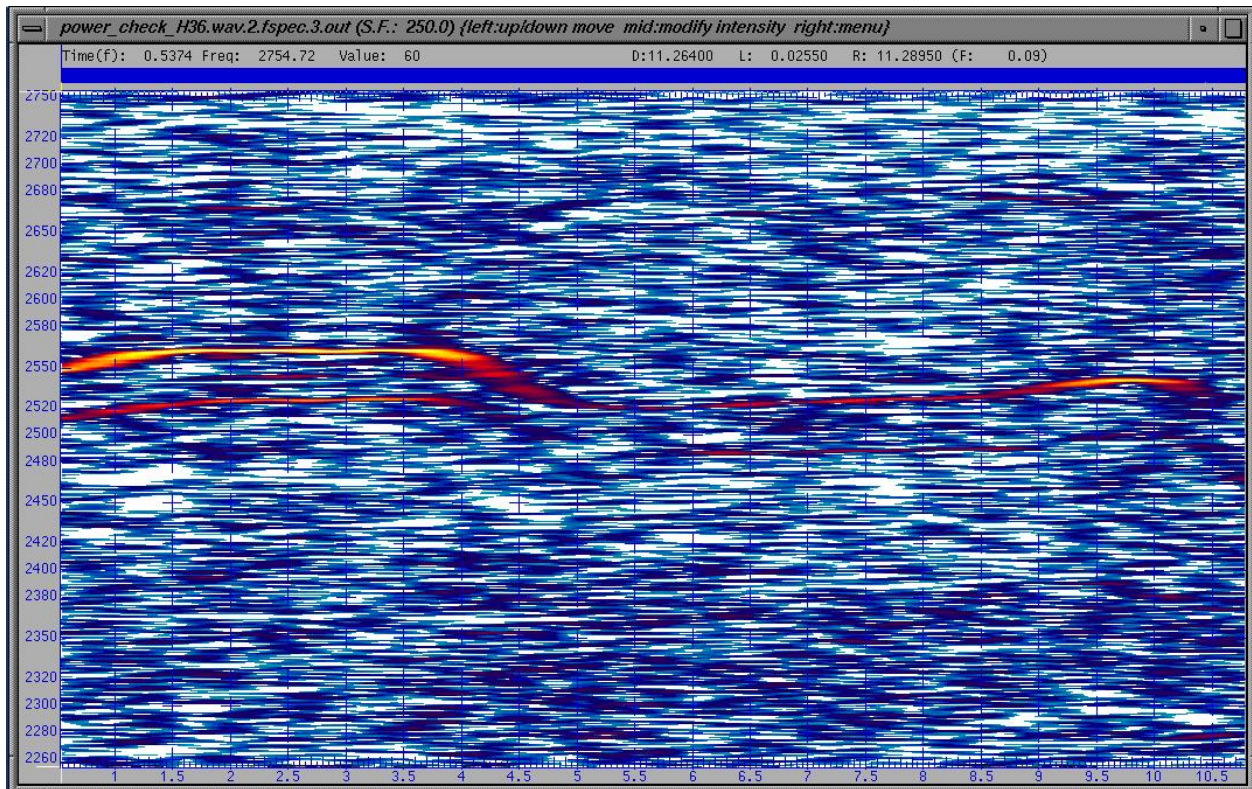


Chart 16B Power Check