National Transportation Safety Board
Office of Research and Engineering
Washington, D.C. 20594

Radar Performance Study

Specialist Report
Timothy Burtch

A. ACCIDENT

Location: Akron, OH
Date: November 10, 2015
Time: 1952 GMT (2:52 pm EST)
Airplane: Hawker 125B-700A, N237WR
NTSB Number: CEN16MA036

B. GROUP

No vehicle performance group was formed.

C. SUMMARY

On November 10, 2015, about 1452 eastern standard time (EST), Execuflight flight 1526, a British Aerospace HS 125-700A, N237WR, departed controlled flight while on approach to landing at Akron Fulton International Airport (AKR) and impacted an apartment building in Akron, Ohio. The Captain, First Officer, and seven passengers died; no ground injuries were reported. The airplane was destroyed by the crash and a post-crash fire.

The airplane was registered to Rais Group International NC LLC and operated by Execuflight under the provisions of Title 14 Code of Federal Regulations (CFR) Part 135 as an on-demand charter flight. Instrument meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan was filed. The flight departed from Dayton-Wright Brothers Airport (MGY), Dayton, Ohio, about 1413 EST and was destined for AKR.

D. THE AIRPLANE

A picture of the accident airplane, a Hawker 125B-700A, is shown in Figure 1. The airplane was equipped with conventional, reversible flight controls and two Honeywell TFE-731 turbofan engines. The accident airplane was not equipped with a flight data recorder, but a cockpit voice recorder (CVR) was recovered from the wreckage.

Originally developed by de Havilland and initially designated as the DH125 Jet Dragon, the airplane entered production as the Hawker Siddeley HS.125. This was the airplane designation until 1977. More recent variants of the type were marketed by Hawker, now joined with Cessna under parent company Textron.

E. WEATHER OBSERVATION

[Note: Times in the report are quoted in EST as well as Greenwich Mean Time (GMT or "Z"): EST = GMT – 5 hr.)]

IFR/LIFR SPECI KAKR 102005Z AUTO 24011KT 1 1/4SM -RA BR OVC006 11/09 A2995 RMK AO2 RAB05 CIG 003V009 P0000 T01060094

Accident at 1952/1452 EST

Akron-Fulton International Airport special weather observation at 1505 EST (2005Z), automated, wind from 240° at 11 knots, visibility 1 1/4 statute mile in light rain and mist, ceiling overcast at 600 feet agl, temperature 11° Celsius (C), dew point 9° C, altimeter 29.95 inches of mercury (Hg). Remarks: automated observation system, rain began at 2005 EST, ceiling 300 variable 900 feet agl, hourly precipitation less than 0.01 inches or a trace, temperature 10.6° C, dew point 9.4° C.

F. RADAR STUDY

Figure 2 highlights the radar ground track along with paraphrased communications from the CVR. The accident flight approached the airport from the southwest and received vectors to turn the airplane for the AKR localizer approach to runway 25. The airplane checked in with Cincinnati Approach over HOVER intersection at 9,000 ft. The flight crew was instructed to maintain 5,000 ft, then 4,000 ft, and finally 3,000 ft at a speed of 170 kt. Vectors to fly heading 350˚, then 360˚ (because of traffic ahead on the same approach), and finally 280˚were also provided with final instructions to maintain 3,000 ft until established on the approach and to intercept the runway 25 localizer along 249˚.

Air Traffic Control (ATC) instructed the flight crew to switch to (the airport) advisory frequency and to cancel their IFR flight plan on the current frequency or remotely on the ground[1]. The crew acknowledged. That was the last radio transmission between the accident flight and ATC.

Figure 3 shows a more detailed overview of the accident site with select landmarks and features. After striking the tree branches, the airplane hit power lines adjacent Mogadore Street before banking sharply to the left and traveling through the middle of three apartment 4-plex buildings. The airplane finally came to rest on an embankment that was located behind the middle apartment building. While most of the wreckage was consumed by fire, all "four corners" of the airplane were located on or near the embankment.

Figure 4 shows the altitude and airspeed derived from radar and meteorological data. Paraphrased CVR communications are also included. The minimum descent altitude (MDA) for the localizer runway 25 approach is 1,540 ft above mean sea level (msl) and is marked in

[1] AKR is an uncontrolled airport and does not have a control tower.

the figure[2]. Figure 5 is the published approach for which N237WR had been cleared by ATC.

Figure 6 includes the pitch, roll, and heading angles derived from radar data from the final minutes of the flight. Figure 7 shows an estimate of angle-of-attack and load factor also based on radar.

Finally, Figure 8 shows a profile view of the accident approach as described by radar. A localizer approach is a Non-Precision approach and does not include vertical guidance: the 3˚ glide slope depicted in the figure is provided only for reference.

The radar data in Figure 8 show that N237WR was approximately 700 ft above the minimum 2,300 ft final approach fix (FAF) altitude in the approach procedure. Shortly after crossing over the FAF, the airplane descended at rates of up to 2,000 ft/min before impacting trees and a power line.

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National Transportation Safety Board

[2] The MDA is the specified altitude for a Non-Precision or Circling Approach below which descent must not be made without the required visual reference.

G. FIGURES

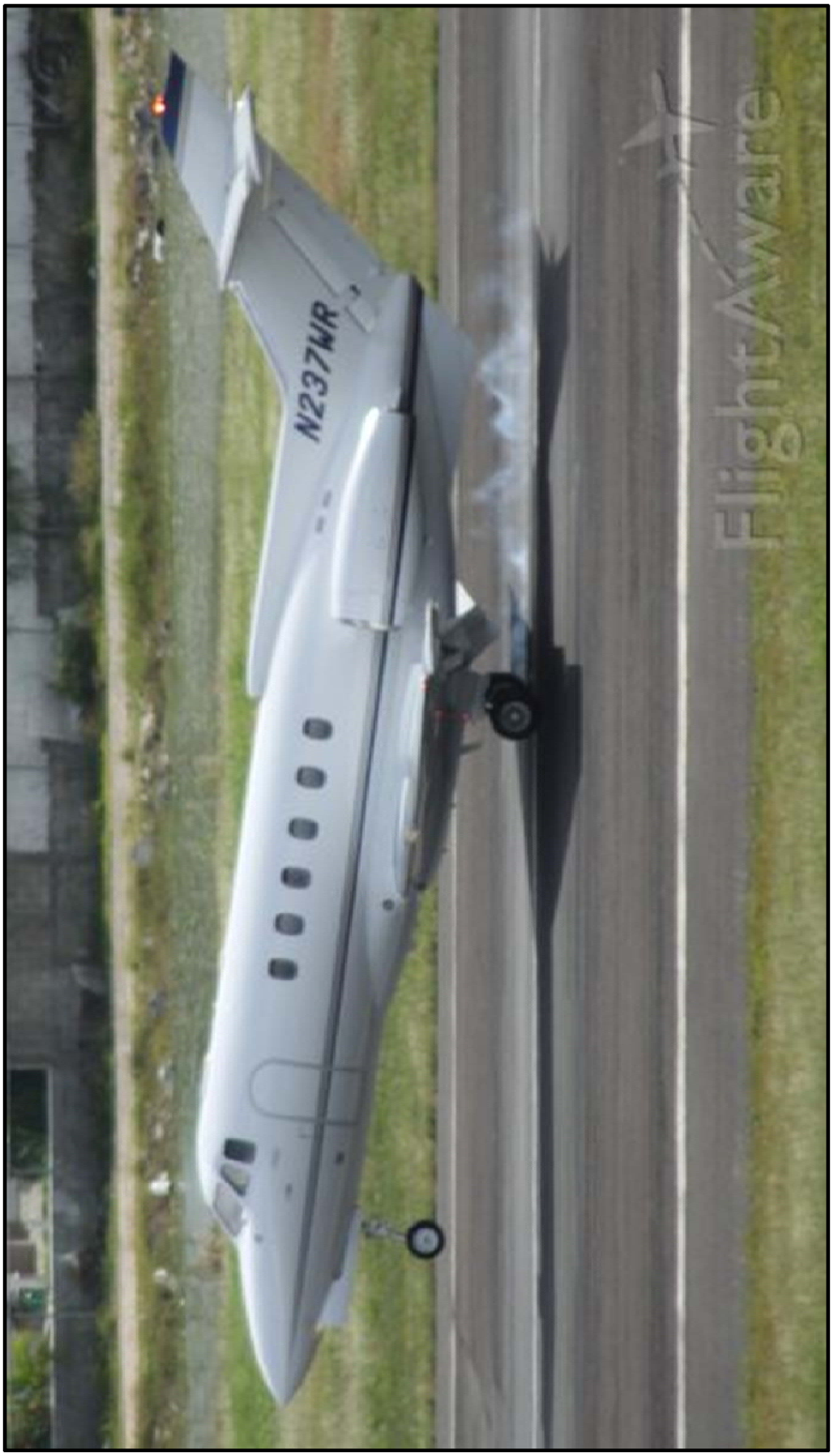

Figure 1: Accident Airplane, N237WR, a Hawker 125B-700A

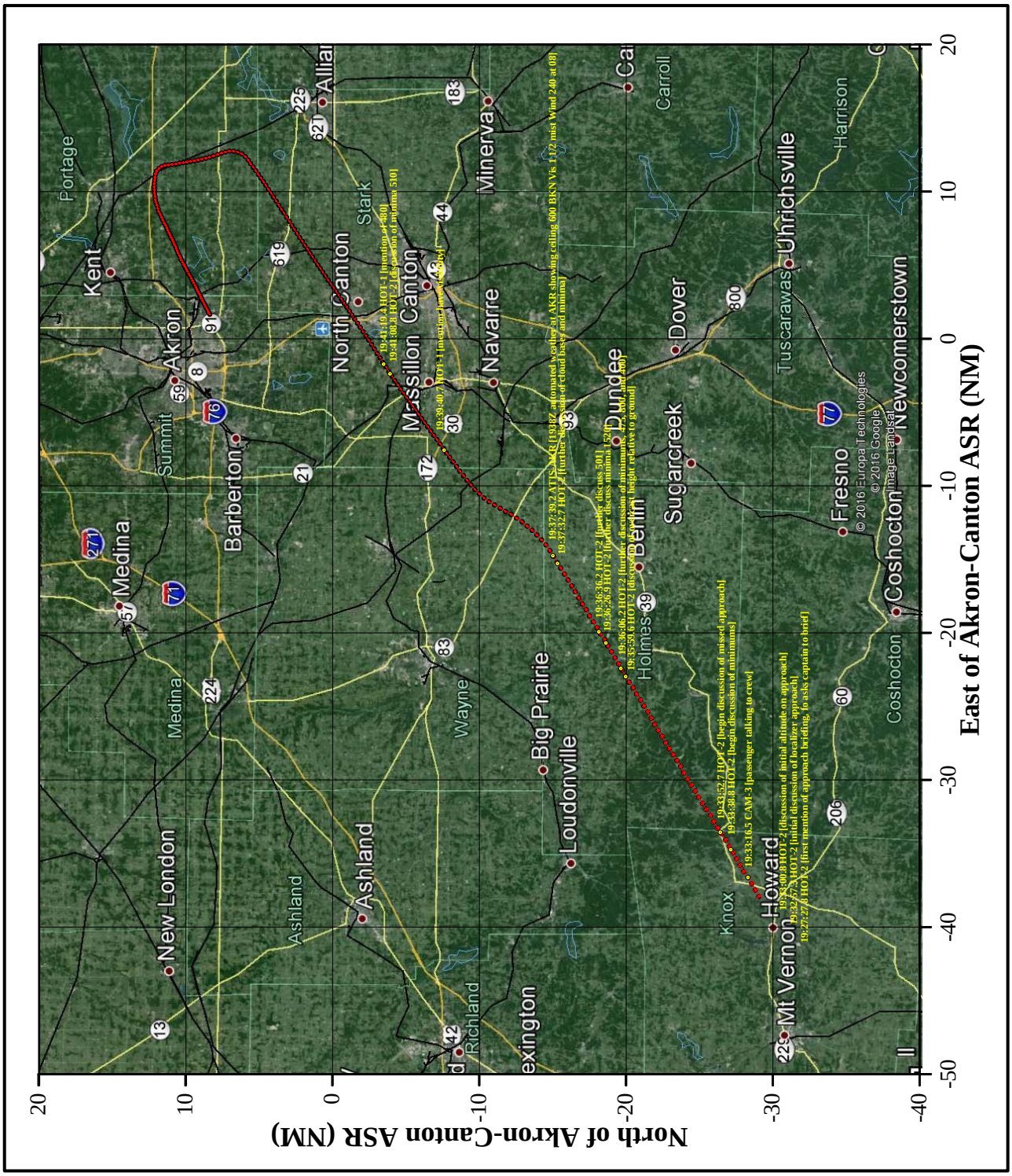

Figure 2a: Radar Ground Track with Paraphrased CVR Communications

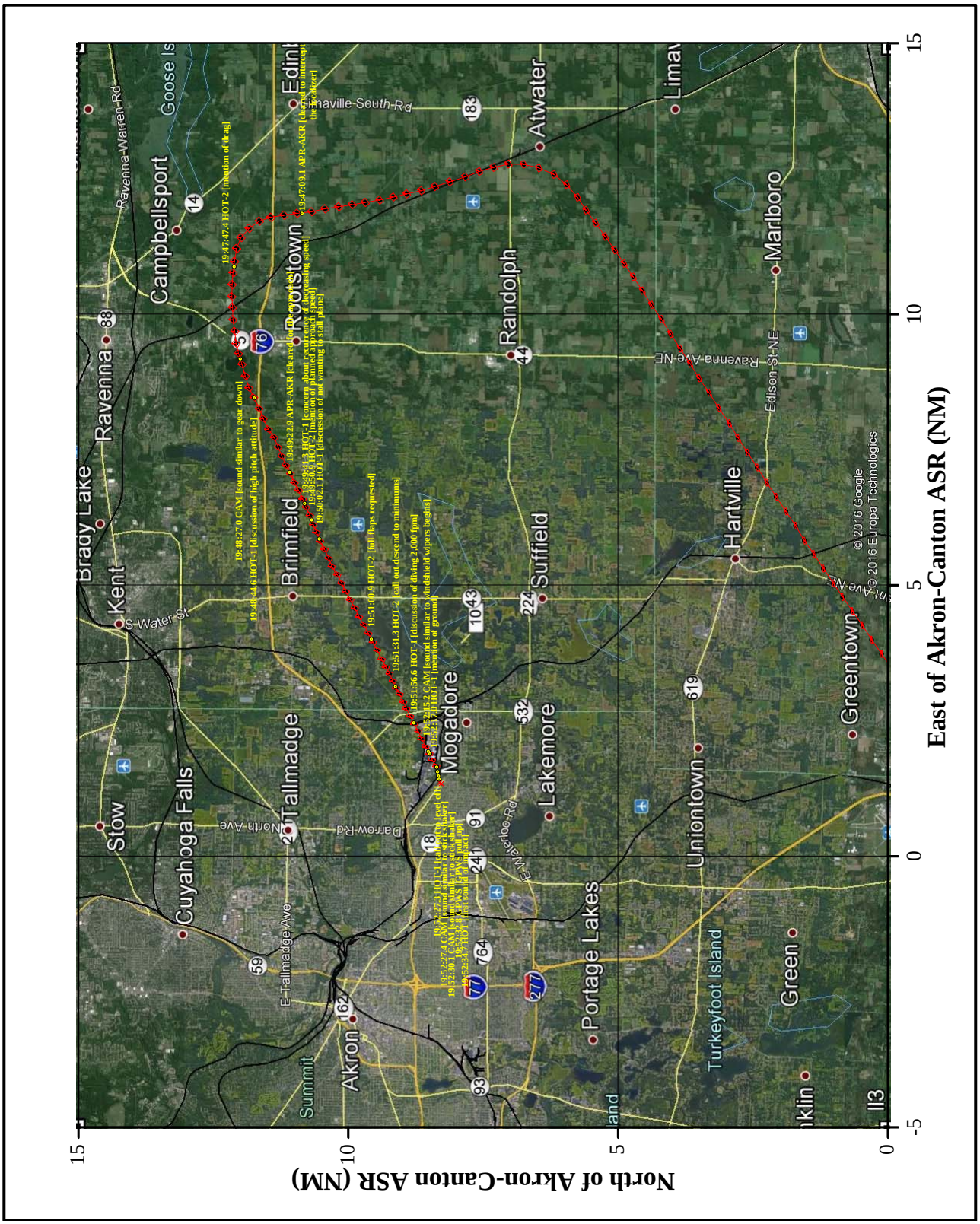

Figure 2b: Radar Ground Track with Paraphrased CVR Communications

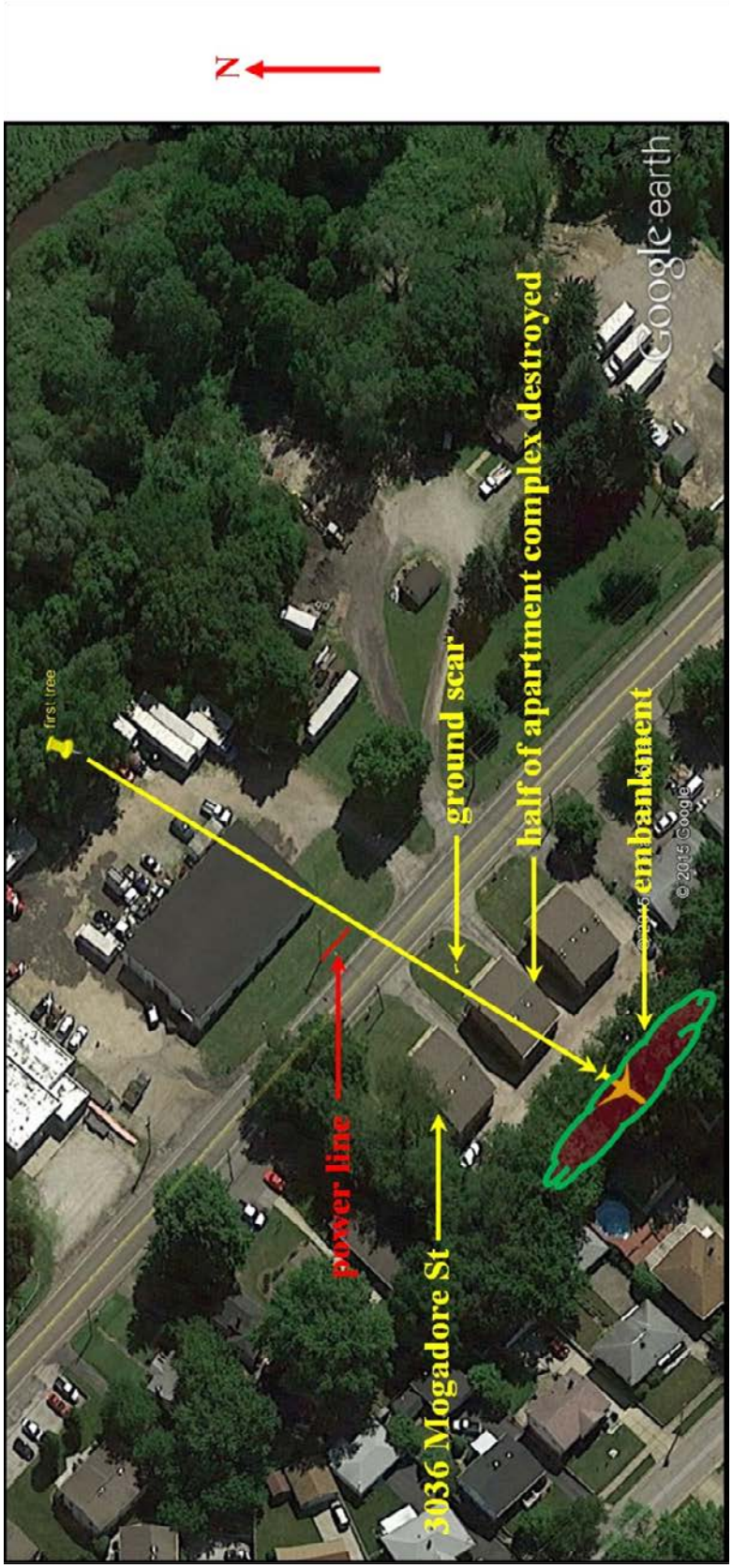

Figure 3: Overview of Accident Site

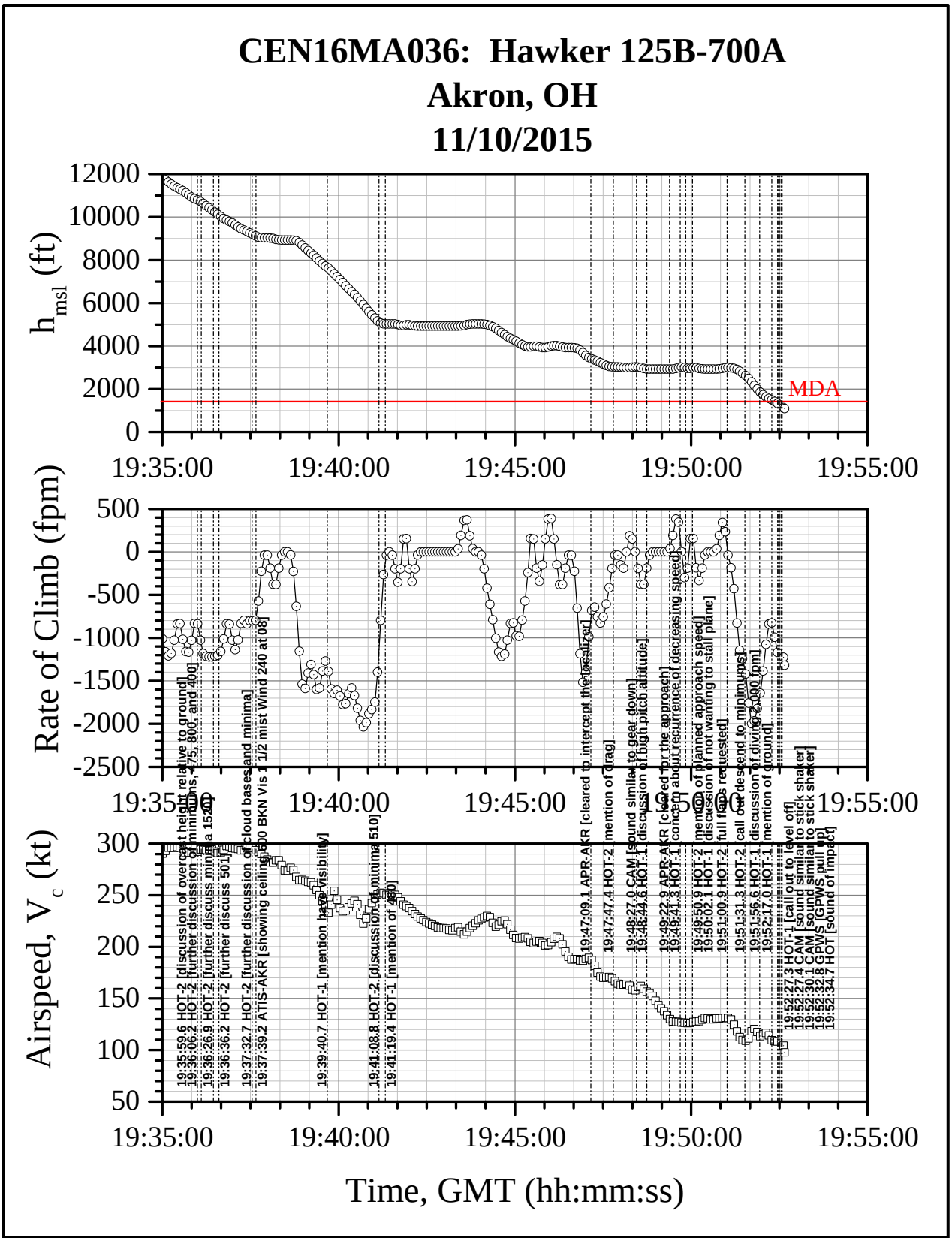

Figure 4: Altitude and Speed for Final Minutes of Flight Based on Radar Data with Paraphrased CVR Communications

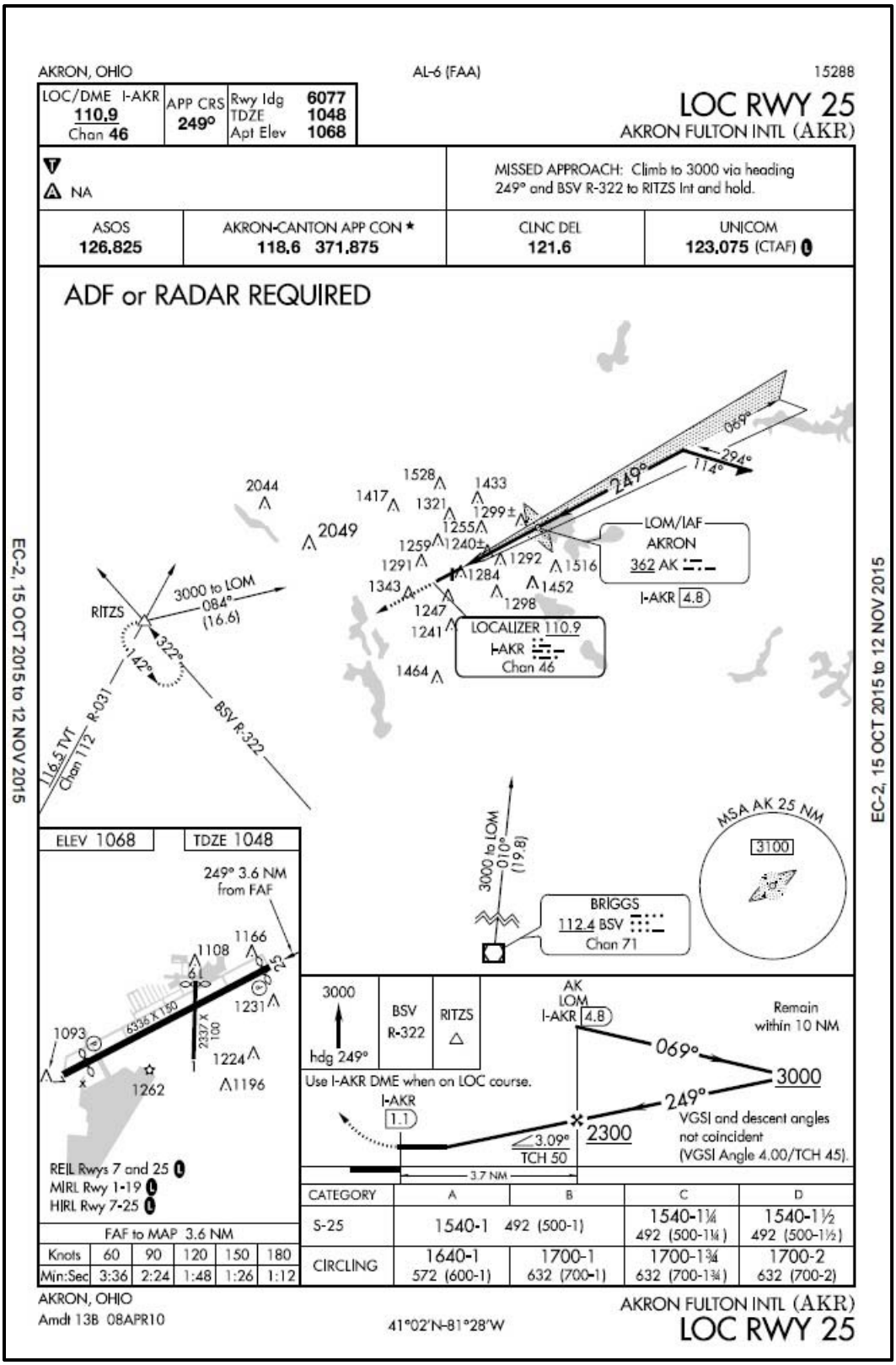

Figure 5: Published Approach for which N237WR had been Cleared

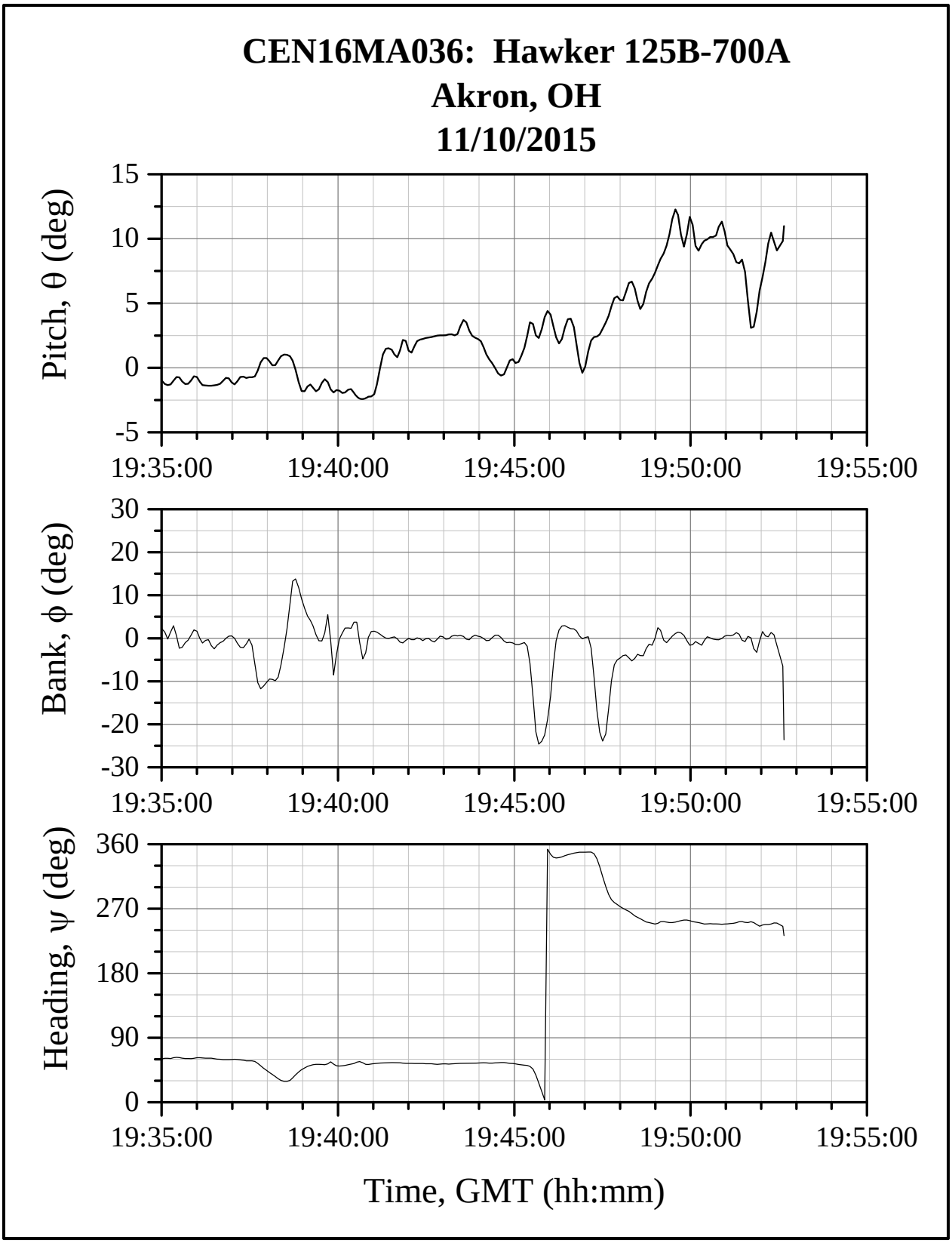

Figure 6: Pitch, Bank, and Heading Based on Radar Data

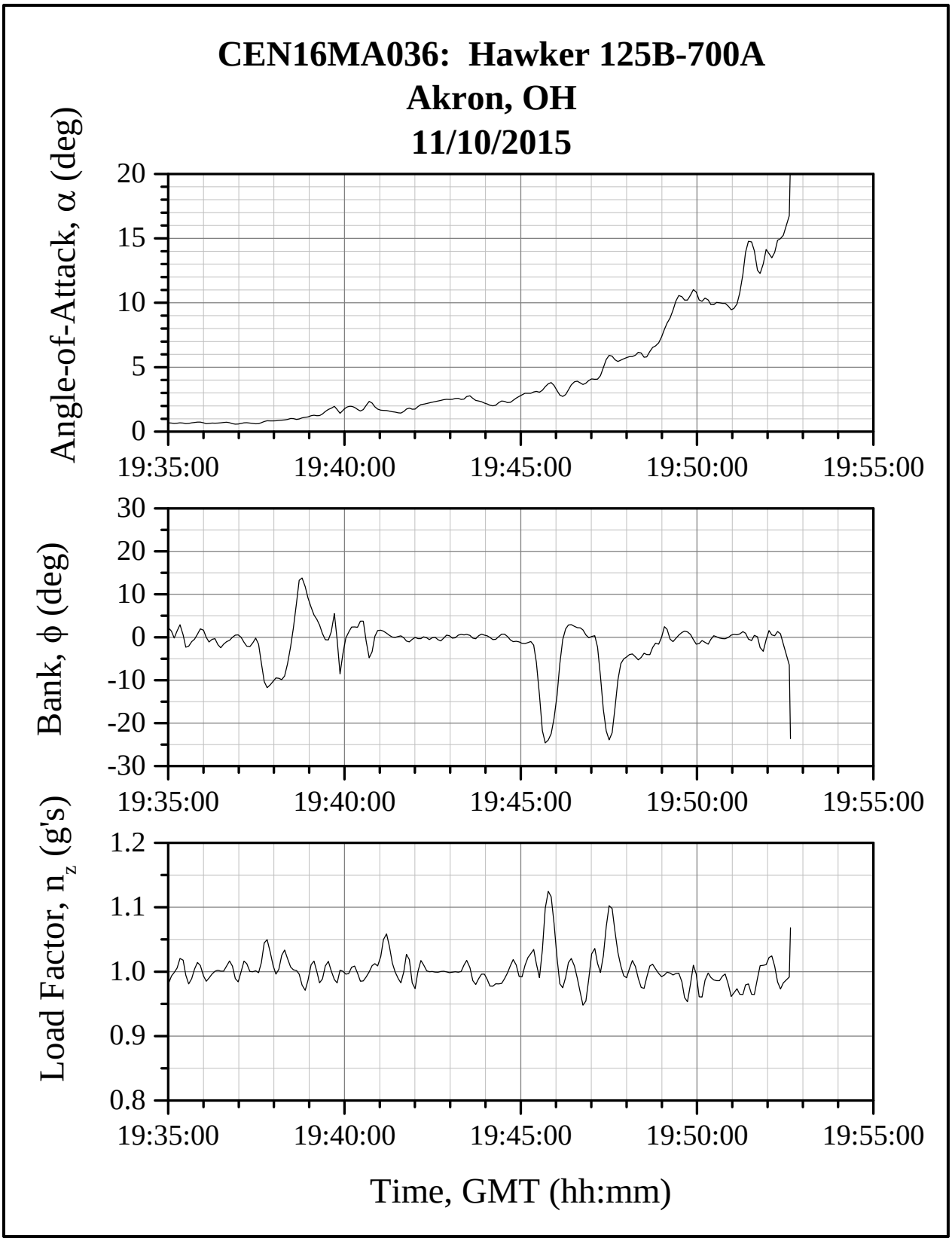

Figure 7: Estimated Angle-of-Attack and Load Factor Based on Radar Data

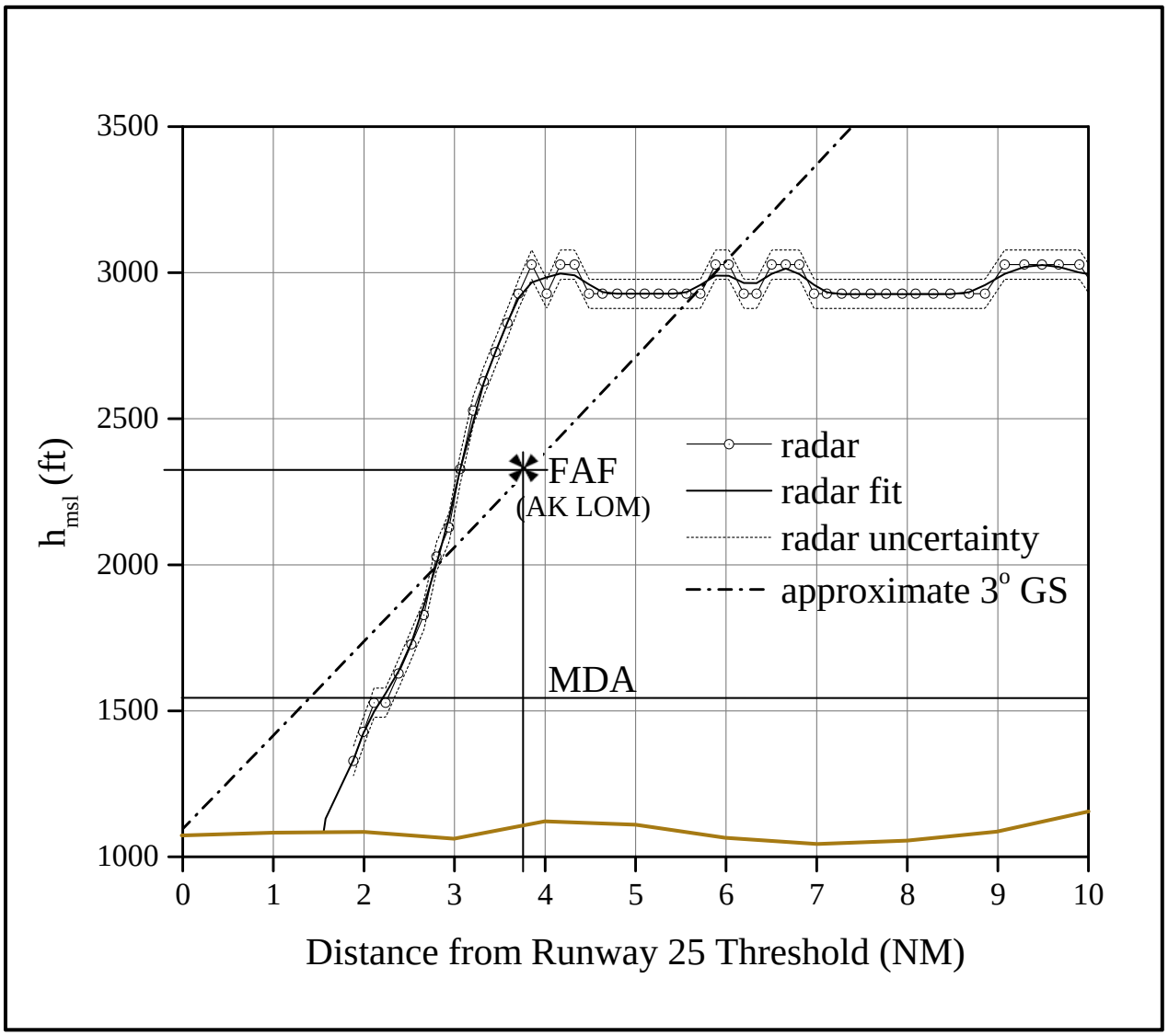

Figure 8: Profile View of Accident Approach to AKR Runway 25 Based on Radar Data
(note: The localizer approach to runway 25 does not include vertical guidance. The 3˚ glide slope and terrain depicted are approximate and for reference only.)