

CASE FILE 21 / 237UAP00086

237UAP00086

Radar/correlation-focused public UAP report; score 68

INSUFFICIENT / LOW ANOMALY VALUE

REPORT NO.	UAP-OM-21-237UAP00086	DISPOSITION	INSUFFICIENT / LOW ANOMALY VALUE
PRIMARY CASE	237UAP00086	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2022-04-08T07:58:00+00:00	OBSERVER	36.98105, -88.21951
SOURCE CASE IDS	237UAP00086		

Abstract

This case file evaluates a reported UAP sighting against the available orbital-object layer. No compact same-launch group fully identifies the file by itself. The final disposition is assigned under a normal-object favored standard, where ordinary aerospace/orbital explanations are preferred when they reasonably fit the report.

This is a standalone independent analysis prepared from public-source records and public orbital datasets. It is not an official government determination, classification marking, or agency-authored report.

1. Executive Summary

237UAP00086 has too little discriminating evidence for a named identification. It is not treated as evidence of exotic activity; it is classified as insufficient/low-value until better sensor, aircraft, or weather data is available.

1.1 Key Findings

- Source score 68 based on: radar/primary-return language, negative official correlation, maneuvering/motion anomaly, UAP/UFO language.
- Report time used: 2022-04-08T07:58:00+00:00.
- External object layer used: Starlink.
- Disposition standard: INSUFFICIENT requires case-specific causal fit. Satellite density above the horizon is context only and cannot by itself resolve the report.
- Non-causal context / rejection screens: substantial orbital-object sky background; context only, not causation.
- Objects above horizon: 112; at/above 10 deg: 51.
- No compact same-launch/designator group survived the report threshold.
- No explicit Starlink/balloon wording was found in the source excerpt used for ranking.

1.2 Bottom Line

INSUFFICIENT / LOW ANOMALY VALUE: The report does not contain enough discriminating evidence for a named identification. It is not treated as evidence of exotic activity; it is a low-value insufficient case unless stronger sensor data appears.

2. Source Control

The source-control table identifies the public report records reviewed for this case and lists public access links where available. The table is included so this PDF remains interpretable when distributed by itself.

CASE ID	REPORT DATE FIELD	FACILITY / TITLE	TEXT EXTRACT	PUBLIC PDF LINK
237UAP00086	07:58 04/08/2022 Callsign: AMX692 Origin: MMMX	ZME Operator: AMX Operator Type: Commercial	text extract present	237UAP00086.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft off the OWB228068 at FL370 heading 041 at 504 knots reporting observing 60-80 miles ahead and altitude very high above them several lights doing an orbit. ZME controllers have no radar depicting any activity in the vicinity at any altitude. FDX1 is at FL380 off the OWB333033 SW bound at FL380. ZME will inquire of FDX1 any anomalies in the area to attempt to correlate the sighting. 0809 FDX1 reported no anomalies sighted during their flight in the vicinity described by AMX692. FDX1 was approximately 70 miles W of Louisville, SW bound. ZME will file an MOR for record. AWO notified.
REPORT TIME USED	2022-04-08T07:58:00+00:00
OBSERVER COORDINATE USED	36.98105, -88.21951
OBSERVER SOURCE BASIS	aviation_radial:OWB228068 (public text extract 237UAP00086)

4. Methodology

- Spacetime extraction.** The report time and observer coordinate were extracted from the public text report and normalized to UTC. Aviation fixes/radials were resolved during earlier preprocessing where applicable.
- External object dataset.** The object layer used historical Space-Track/TLE-derived Starlink element rows. The analytic mode for this case is historical Starlink element propagation and same-launch/designator sky grouping.
- Propagation.** Orbital elements were propagated to the report minute and observer location. For launch-object checks, samples around the report minute were retained. For Starlink group checks, objects above the horizon were clustered by sky position and filtered for same-launch groupings.
- Comparison.** The output was compared against the report's count of lights, direction cue, motion language, altitude/radar language, and whether the file itself already suggested a satellite explanation.
- Causation standard.** Mere object presence above the horizon is treated as background context only. A normal-object disposition requires a case-specific causal fit, such as a named launch object, a compact same-launch trajectory group, or source language that directly supports that object class.
- Disposition assignment.** *Identified* means a specific normal object fits the report spacetime and the hard reported features do not materially conflict. *Normal-object favored* means a case-specific ordinary aerospace/orbital candidate exists, but it is not a full named identification. *Insufficient* means the file is too thin to carry high anomaly value. *High-value unresolved* is used when radar, video, rapid maneuver, or multi-witness features remain after reasonable normal-object checks.

5. External Object Evidence

5.1 Search Volume and Density

This table is a screening layer only. Objects above the horizon show background opportunity; they do not establish causation unless a specific object or compact trajectory group matches the reported behavior.

STARLINK CATALOG IDS CONSIDERED	2107	HISTORICAL ELEMENT ROWS	2107
ABOVE HORIZON AT REPORT MINUTE	112	AT/ABOVE 10 DEG	51
LARGEST SAME-SKY CLUSTER	18		

No compact same-launch/designator group survived the report threshold. In this condition, satellite density remains context only and cannot by itself resolve a report with hard features.

5.2 Same-Launch / Same-Designator Candidate Groups

#	LAUNCH DATE	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS	MEMBERS
No same-launch group identified.						

5.3 Primary Group Members

OBJECT	NORAD	LAUNCH	AZ	EL	RANGE KM	APPARENT MOTION	ELEMENT AGE H
No members available.							

5.4 Bright-Sky Context: Top Starlink Objects by Elevation

OBJECT	AZ	EL	RANGE KM	APPARENT MOTION	LAUNCH DATE
STARLINK-1298	312.58	62.67	612.74	westward, setting	2020-03-18
STARLINK-2146	130.17	58.08	637.88	eastward, setting	2021-03-04
STARLINK-1716	302.72	52.42	677.58	eastward, setting	2020-10-18
STARLINK-2107	183.95	52.01	680.78	westward, setting	2021-03-04
STARLINK-71	247.27	38.68	732.39	westward, setting	2019-05-24
STARLINK-2284	205.01	38.6	829.23	westward, rising	2021-03-24
STARLINK-3203	325.64	37.96	832.18	eastward, rising	2021-12-02
STARLINK-1179	236.65	37.18	852.18	eastward, rising	2020-01-29
STARLINK-1481	355.12	33.48	920.13	eastward, setting	2020-06-13
STARLINK-3304	112.14	32.1	932.31	westward, setting	2021-12-18
STARLINK-1781	86.02	30.01	990.96	westward, setting	2020-10-18
STARLINK-2242	329.1	29.48	1006.33	eastward, rising	2021-05-15

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	18	3.22-353.45 deg	10.51-30.01 deg	eastward, rising, eastward, setting, westward, setting
2	6	268.49-294.49 deg	10.04-25.61 deg	eastward, rising, westward, rising
3	4	312.46-334.42 deg	13.58-15.25 deg	eastward, level, eastward, rising, eastward, setting
4	2	302.72-312.58 deg	52.42-62.67 deg	

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
				eastward, setting, westward, setting
5	2	236.65-247.27 deg	37.18-38.68 deg	eastward, rising, westward, setting

5.6 Space-Track SATCAT Enrichment

Space-Track SATCAT metadata was pulled as a cached subset for NORAD catalog IDs appearing in this packet's evidence tables. This section adds owner/type/status context to the propagated object candidates.

PACKET SATCAT SUBSET ROWS	5370	FETCHED	2026-05-19T01:19:50+00:00
THIS CASE NORAD IDS CHECKED	30	SATCAT ROWS MATCHED	30
TOP OWNERS	US: 30		
OBJECT TYPES	PAYLOAD: 30		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
45413	STARLINK-1298	PAYLOAD	US	2020-03-18	2026-03-29
47735	STARLINK-2146	PAYLOAD	US	2021-03-04	2025-07-26
46672	STARLINK-1716	PAYLOAD	US	2020-10-18	n/a
47723	STARLINK-2107	PAYLOAD	US	2021-03-04	n/a
44252	STARLINK-71	PAYLOAD	US	2019-05-24	2022-10-23
48016	STARLINK-2284	PAYLOAD	US	2021-03-24	2025-06-15
49761	STARLINK-3203	PAYLOAD	US	2021-12-02	n/a
45085	STARLINK-1179	PAYLOAD	US	2020-01-29	2025-10-05
45742	STARLINK-1481	PAYLOAD	US	2020-06-13	2025-08-24
50161	STARLINK-3304	PAYLOAD	US	2021-12-18	n/a
46685	STARLINK-1781	PAYLOAD	US	2020-10-18	n/a
48587	STARLINK-2242	PAYLOAD	US	2021-05-15	2024-01-07

5.9 NASA / NOAA / ADS-B Expansion Layer

This source layer adds free NASA context that was previously missing from most packet cases. It is contextual evidence; it does not replace aircraft, satellite, balloon, or radar causation tests.

HOUR UTC	2022040807
CLOUD AMOUNT	37.2%
PRECIPITATION	0.09 mm/hr
10 M WIND	3.6 m/s
TEMPERATURE	5.61 C
RELATIVE HUMIDITY	89.48%
DONKI +/-1 DAY	CME: unavailable; FLR: unavailable; GST: unavailable; HSS: unavailable; IPS: unavailable; MPC: unavailable; RBE: unavailable; SEP: unavailable; WSAEnliISimulations: unavailable

5.10 Horizons Sky Geometry Context

OBJECT	AZ	EL	APP MAG
Sun	39.64	-37.22	-26.74

OBJECT	AZ	EL	APP MAG
Moon	315.07	-10.91	-9.57
Venus	88.15	-19.63	-4.29
Mars	96.02	-16.34	0.94
Jupiter	69.44	-30.60	-2.06
Saturn	97.66	-14.79	0.83

- Sun elevation was -37.2 deg, so this was a dark-sky/nighttime sighting.
- Moon was below horizon at elevation -10.9 deg.
- No checked bright planets were above the horizon at the primary coordinate/time.
- NASA POWER cloud amount for the hour was 37.2%, with precipitation 0.09 mm/hr.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	not yet exhausted	v2022-04-08-planes-readsb-prod-0, v2022-04-08-planes-readsb-prod-1, v2022-04-08-planes-readsb-staging-0, v2022-04-08-planes-readsb-mlatonly-0
ADSB TRACKS DOWNLOADED	not yet exhausted	Requires targeted extraction from large daily history archives before claiming aircraft exhaustion.
NOAA GOES IMAGERY	not yet exhausted	Needed for cloud/lightning visual context.
NOAA GOES ABI/GLM MANIFEST	screened/present	Public S3 object availability for the report hour.
NOAA NEXRAD WEATHER RADAR	not yet exhausted	Weather radar only; not ATC radar.
NOAA IGRA RADIOSONDE	screened/present	Needed for balloon drift plausibility.
ASOS/METAR WEATHER OBSERVATIONS	screened/present	Nearest station surface observations around report time.

- ADSB.lol historical: extract aircraft traces from no public ADSB.lol annual repo found for 2022-04-08, then filter +/-60 min and 250 nmi around 36.9811,-88.2195.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00086 at 2022-04-08T07:58:00+00:00.
- NOAA GOES: pull nearest ABI/GLM products for the UTC hour and render cloud/lightning map.
- NOAA NEXRAD: select nearest radar stations and render Level-II/III weather radar sweep around event time.
- NOAA IGRA: find nearest radiosonde station launches bracketing the event and model wind drift for balloon-like descriptions.
- Space-Track gp_history/decay: fetch exact historical element rows and decay/reentry status for top candidate NORAD IDs.

5.12 Weather, Imagery, and Balloon Query Plan

This plan identifies the concrete free sources needed for the next case-specific weather and balloon checks. These are not treated as completed exclusions until the data are downloaded and plotted.

GOES SATELLITE	GOES16
GOES ABI PREFIX	https://noaa-goes16.s3.amazonaws.com/ABI-L2-CMIPF/2022/098/07/
GOES GLM LIGHTNING PREFIX	https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2022/098/07/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KPAH	Barkley Regional Airport	50.00	37.06, -88.77
KHOP	Campbell Army Airfield (Fort Campbell)	73.40	36.67, -87.49
KMWA	Veterans Airport of Southern Illinois	110.90	37.75, -89.02
KCGI	Cape Girardeau Regional Airport	122.90	37.23, -89.57

STATION	NAME	DISTANCE KM	COORDINATE
KOWB	Owensboro Daviess County Airport	125.60	37.74, -87.17

- KPAH: [IEM ASOS/METAR daily CSV query](#)
- KHOP: [IEM ASOS/METAR daily CSV query](#)
- KMWA: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072327	NASHVILLE/METROPOLITAN; TN.	170.60	36.23, -86.55
USM00074560	LINCOLN; IL.	365.70	40.15, -89.34
USM00072340	LITTLE ROCK/ADAMS FLD; AR.	435.10	34.84, -92.26
USM00072230	BIRMINGHAM; AL	442.50	33.18, -86.78
USM00072440	SPRINGFIELD/MUN.; MO.	460.30	37.23, -93.40

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 10-10 statute miles; precipitation was reported in at least one observation; low/broken/overcast cloud layers were present in at least one observation. Surface ASOS/METAR observations describe airport-level weather and visibility; they do not by themselves prove conditions at the sighting altitude or line of sight.

STATION	DISTANCE KM	NEAREST OBS UTC	VIS SM	SKY	WIND DEG/KT	METAR
KPAH	50.00	2022-04-08T07:53:00 +00:00	10.00	CLR, M, M, M	270.00 / 3.00	KPAH 080753Z AUTO 27003KT 10SM CLR 06/M01 A2975 RMK AO2 SLP074 T00611011
KHOP	73.40	2022-04-08T07:56:00 +00:00	10.00	SCT05500, M, M, M	240.00 / 11.00	KHOP 080756Z AUTO 24011KT 10SM SCT055 08/00 A2974 RMK AO2 SLP073 T00750000
KMWA	110.90	2022-04-08T07:55:00 +00:00	10.00	BKN05000, BKN06500, OVC07500, M	250.00 / 6.00	KMWA 080755Z AUTO 25006KT 10SM BKN050 BKN065 OVC075 06/00 A2974 RMK AO2 T00561003

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 71.9 deg at 25.75 m/s; a passive balloon could drift about 185.4 km in two hours under this crude layer-average model. Radiosonde winds are sparse station soundings; balloon drift remains approximate without launch time, ascent rate, object altitude, and exact line-of-sight bearing.

STATION	NAME	DISTANCE KM	SOUNDING UTC	MEAN DRIFT BEARING	MEAN SPEED M/S	2H DRIFT KM	MAX WIND
USM00072327	NASHVILLE/ METROPOLITAN ; TN.	170.60	2022-04-08T12:00 :00+00:00	71.90	25.75	185.40	39.10 at 8870.00 m

5.17 NOAA GOES ABI/GLM Public File Manifest

GOES public S3 objects are listed for the report hour where available. This is an availability manifest, not yet a rendered satellite image.

SATELLITE	GOES16	BUCKET	noaa-goes16
ABI SAMPLE FILES	12	GLM SAMPLE FILES	12

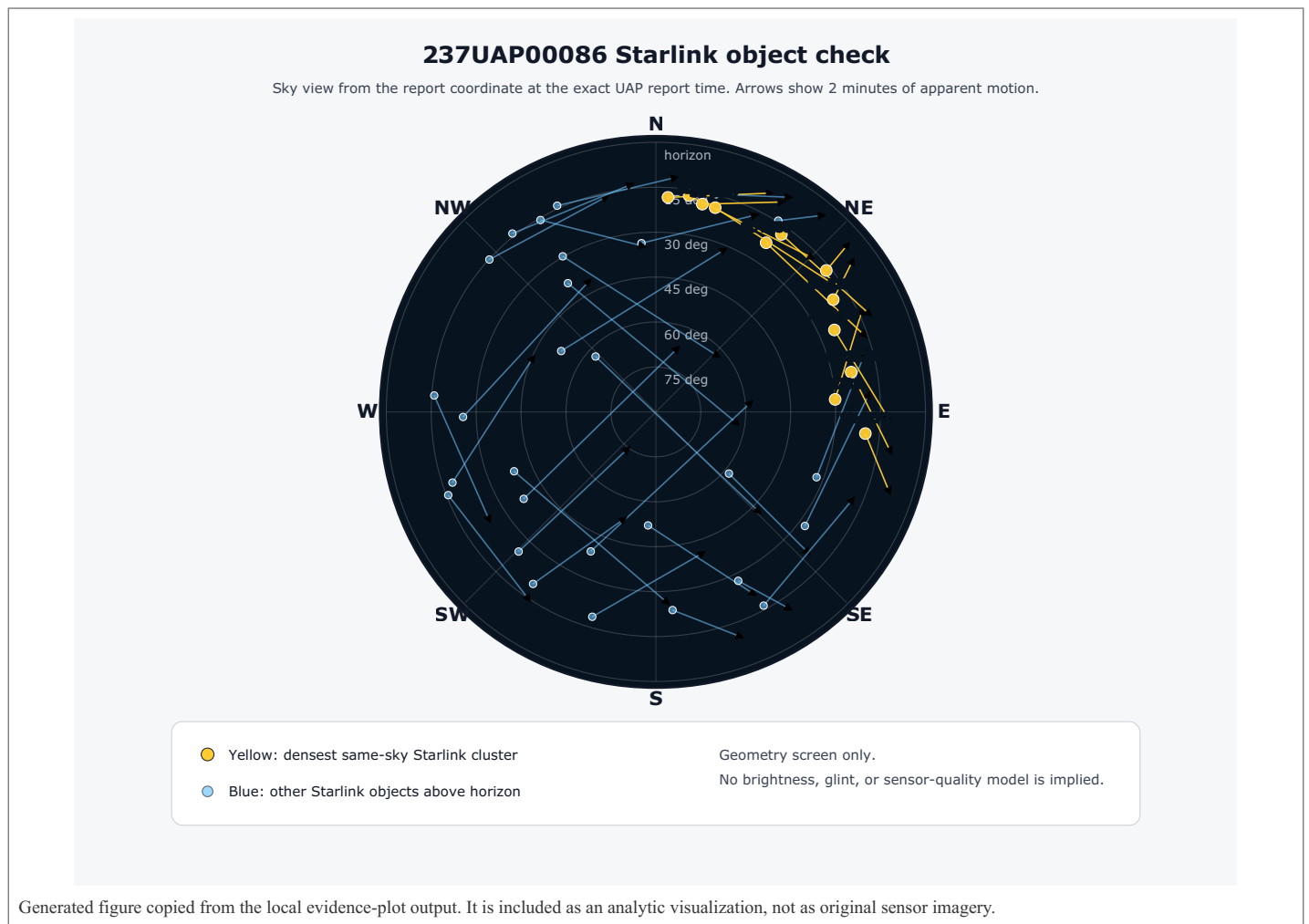
ABI sample objects:

- [ABI-L2-CMIPF/2022/098/07/OR_ABI-L2-CMIPF-M6C01_G16_s20220980700205_e20220980709513_c20220980709576.nc](#)
- [ABI-L2-CMIPF/2022/098/07/OR_ABI-L2-CMIPF-M6C01_G16_s20220980710205_e20220980719514_c20220980719587.nc](#)
- [ABI-L2-CMIPF/2022/098/07/OR_ABI-L2-CMIPF-M6C01_G16_s20220980720205_e20220980729514_c20220980729594.nc](#)
- [ABI-L2-CMIPF/2022/098/07/OR_ABI-L2-CMIPF-M6C01_G16_s20220980730205_e20220980739513_c20220980739578.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2022/098/07/OR_GLM-L2-LCFA_G16_s20220980700000_e20220980700200_c20220980700225.nc](#)
- [GLM-L2-LCFA/2022/098/07/OR_GLM-L2-LCFA_G16_s20220980700200_e20220980700400_c20220980700427.nc](#)
- [GLM-L2-LCFA/2022/098/07/OR_GLM-L2-LCFA_G16_s20220980700400_e20220980701000_c20220980701024.nc](#)
- [GLM-L2-LCFA/2022/098/07/OR_GLM-L2-LCFA_G16_s20220980701000_e20220980701200_c20220980701224.nc](#)

6. Annotated Evidence Figure



7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2022-04-08T07:58:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	36.98105, -88.21951	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	three-object/light language present	No compact same-launch count match; retained for unresolved report features.
MOTION LANGUAGE	orbit	Apparent motion labels in the object table provide a plausible but not definitive comparison.
RADAR / OFFICIAL CHECK	not specified	No ATC radar return can be consistent with distant orbital objects or visual aircraft-light hypotheses, but it does not prove the match.
ANALYTIC DISPOSITION	insufficient	237UAP00086 has too little discriminating evidence for a named identification. It is not treated as evidence of exotic activity; it is classified as insufficient/low-value until better sensor, aircraft, or weather data is available.

8. Caveats, Limitations, and Collection Gaps

- No raw cockpit video, ATC replay, radar plot, or witness interview transcript was reviewed unless explicitly stated in the public source text.
- Aviation-derived coordinates can represent a nearby fix/radial or report point, not necessarily the actual line-of-sight intercept point.
- Starlink visibility depends on illumination, observer altitude, atmospheric conditions, and apparent brightness; this analysis tests geometry, not photometry. No brightness model is used unless explicitly stated elsewhere in the case file.
- TLE propagation is appropriate for screening and reconstruction but is not a substitute for authoritative operational ephemerides.
- When many satellites are above the horizon, generic presence is weak evidence and is not treated as causation. The report emphasizes named launch-object checks or compact same-launch trajectory groups.

Appendix A. Public Report Text Extracts

237UAP00086

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON
Date: 07:58 04/08/2022
Status: Closed
POD: DEN
Reporting Facility: ZME

Callsign: AMX692
Aircraft: B38M
Tail Number:
Operator: AMX

Origin: MMMX
Destination: CYYZ
New Destination:
Operator Type: Commercial
Paged: NO

REMARKS

Aircraft off the OWB228068 at FL370 heading 041 at 504 knots reporting observing 60-80 miles ahead and altitude very high above them several lights doing an orbit. ZME controllers have no radar depicting any activity in the vicinity at any altitude. FDX1 is at FL380 off the OWB333033 SW bound at FL380. ZME will inquire of FDX1 any anomalies in the area to attempt to correlate the sighting. 0809 FDX1 reported no anomalies sighted during their flight in the vicinity described by AMX692. FDX1 was approximately 70 miles W of Louisville, SW bound. ZME will file an MOR for record. AWO notified.

Appendix B. Computational Evidence Digest

This appendix preserves the principal computed values used in the assessment, shortened to the fields most relevant to audit and review.

```
{
  "report_time_utc": "2022-04-08T07:58:00+00:00",
  "source_excerpt": "Aircraft off the OWB228068 at FL370 heading 041 at 504 knots reporting observing 60-80 miles ahead and
altitude very high above them several lights doing an orbit. ZME controllers have no radar depicting any activity in the
vicinity at any altitude. FDX1 is at FL380 off the OWB333033 SW bound at FL380. ZME will inquire of FDX1 any anomalies in the
area to attempt to correlate the sighting. 0809 FDX1 reported no anomalies sighted during their flight in the vicinity
described by AMX692. FDX1 was approximately 70 miles W of Louisville, SW bound. ZME will file an MOR for record. AWO
notified.",
  "historical_starlink_element_rows": 2107,
  "observer": {
    "lat": 36.98105194404867,
    "lon": -88.21950598442982,
    "source": "aviation_radial:OWB228068 (public text extract 237UAP00086)"
  },
  "case_id": "237UAP00086",
  "starlink_above_horizon_at_report_time": 112,
  "starlink_catalog_ids_considered": 2107,
  "largest_same-sky_cluster_count": 18,
  "starlink_at_or_above_10_deg": 51,
  "top_starlinks": [
    {
      "azimuth_deg": 312.58,
      "azimuth_plus_2m_deg": 134.05,
      "azimuth_plus_5m_deg": 134.19,
      "element_age_hours": 2.61,
      "element_epoch": "2022-04-08T10:34:53.090400+00:00",
      "elevation_deg": 62.67,
      "elevation_plus_2m_deg": 41.44,
      "elevation_plus_5m_deg": 8.66,
      "epoch_altitude_km": 553.29,
      "ground_track_bearing_deg": 132.36,
      "ground_track_label": "SE",
      "launch_date": "2020-03-18",
      "name": "STARLINK-1298",
      "norad_id": "45413",
      "range_km": 612.74,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 38.5401,
      "subpoint_lon": -90.4074
    },
    {
      "azimuth_deg": 130.17,
      "azimuth_plus_2m_deg": 132.77,
      "azimuth_plus_5m_deg": 133.62,
      "element_age_hours": 2.59,
      "element_epoch": "2022-04-08T10:33:31.731840+00:00",
      "elevation_deg": 58.08,
      "elevation_plus_2m_deg": 20.17,
      "elevation_plus_5m_deg": 2.14,
      "epoch_altitude_km": 553.24,
      "ground_track_bearing_deg": 135.42,
      "ground_track_label": "SE",
      "launch_date": "2021-03-04",
      "name": "STARLINK-2146",
      "norad_id": "47735",
      "range_km": 637.88,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 35.1472,
      "subpoint_lon": -85.6147
    },
    {
      "azimuth_deg": 302.72,
      "azimuth_plus_2m_deg": 23.26,
      "azimuth_plus_5m_deg": 40.99,
      "element_age_hours": 4.55,
      "element_epoch": "2022-04-08T12:31:00.263712+00:00",
      "elevation_deg": 52.42,
      "elevation_plus_2m_deg": 30.69,
      "elevation_plus_5m_deg": 6.61,
      "epoch_altitude_km": 553.1,
      "ground_track_bearing_deg": 48.53,
      "ground_track_label": "NE",
      "launch_date": "2020-10-18",
      "name": "STARLINK-1716",
      "norad_id": "46672",
      "range_km": 677.58,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 38.7779,
      "subpoint_lon": -91.9055
    }
  ],
}
```

```

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  "azimuth_plus_5m_deg": 143.86,
  "element_age_hours": 2.58,
  "element_epoch": "2022-04-08T10:32:53.885184+00:00",
  "elevation_deg": 52.01,
  "elevation_plus_2m_deg": 20.42,
  "elevation_plus_5m_deg": 2.41,
  "epoch_altitude_km": 553.24,
  "ground_track_bearing_deg": 136.68,
  "ground_track_label": "SE",
  "launch_date": "2021-03-04",
  "name": "STARLINK-2107",
  "norad_id": "47723",
  "range_km": 680.78,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 33.5099,
  "subpoint_lon": -88.5056
},
{
  "azimuth_deg": 247.27,
  "azimuth_plus_2m_deg": 176.19,
  "azimuth_plus_5m_deg": 153.38,
  "element_age_hours": 2.15,
  "element_epoch": "2022-04-08T05:48:44.005536+00:00",
  "elevation_deg": 38.68,
  "elevation_plus_2m_deg": 25.78,
  "elevation_plus_5m_deg": 4.56,
  "epoch_altitude_km": 484.93,
  "ground_track_bearing_deg": 135.42,
  "ground_track_label": "SE",
  "launch_date": "2019-05-24",
  "name": "STARLINK-71",
  "norad_id": "44252",
  "range_km": 732.39,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 35.0047,
  "subpoint_lon": -93.5991
},
{
  "azimuth_deg": 205.01,
  "azimuth_plus_2m_deg": 83.79,
  "azimuth_plus_5m_deg": 52.73,
  "element_age_hours": 6.03,
  "element_epoch": "2022-04-08T14:00:03.000384+00:00",
  "elevation_deg": 38.6,
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  "launch_date": "2021-12-02",
  "name": "STARLINK-3203",
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  "range_km": 832.18,
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  "subpoint_lon": -92.3047
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  "azimuth_plus_2m_deg": 19.47,
  "azimuth_plus_5m_deg": 44.16,
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    "launch_date": "2020-01-29",
    "name": "STARLINK-1179",
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    "elevation_plus_2m_deg": 17.04,
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    "subpoint_lon": -80.875
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Appendix C. Source Exhaustion Checklist

This checklist records which source layers were actually applied to this individual report. It separates checked evidence from unexhausted collection gaps so the disposition is auditable when the PDF is read alone.

SOURCE LAYER	STATUS	CASE-SPECIFIC NOTE
NARA PUBLIC UAP/FAA REPORT	reviewed	Source IDs: 237UAP00086
TIME AND OBSERVER COORDINATE	extracted	2022-04-08T07:58:00+00:00 at 36.98105, -88.21951
ORBITAL OBJECT PROPAGATION	screened	Starlink
SPACE-TRACK SATCAT METADATA	screened	30 NORAD IDs checked; 30 matched in local SATCAT subset
LAUNCH-OBJECT/SUPGP LAYER	not applicable	not a launch-object case
NASA/JPL KNOWN SMALL-BODY LAYER	not selected	CAD/Horizons secondary screen included when this case had NEO-relevant timing/ geometry
NASA POWER/HORIZONS/DONKI CONTEXT	screened	Hourly weather, sky geometry, and space-weather context where local JSON is present
AIRCRAFT/ADS-B LAYER	not exhausted	ADSB.lol historical release pattern is recorded separately; actual aircraft exhaustion requires targeted trace extraction
NOAA GOES IMAGERY LAYER	not exhausted	Cloud/lightning imagery layer for the report hour
NOAA GOES ABI/GLM MANIFEST	screened	Public S3 object listing for the report hour
NOAA/NEXRAD WEATHER RADAR LAYER	not exhausted	Weather radar only; not ATC/primary radar
NOAA IGRA RADIOSONDE LAYER	screened	Balloon drift plausibility layer
ASOS/METAR SURFACE WEATHER	screened	Nearest station visibility, cloud, wind, precipitation, and METAR observations
WEATHER/BALLOON SOURCE PLAN	planned	Nearest weather-airport, GOES, and radiosonde queries are listed where local plan JSON is present
FINAL ANALYTIC DISPOSITION	insufficient / low anomaly value	Presence-only satellite density is context only; a stronger case-specific fit is required for normal-object disposition

References and Source Links

1. National Archives and Records Administration. *Records Related to Unidentified Flying Objects (UFOs) and Unidentified Anomalous Phenomena (UAPs) at the National Archives*. <https://www.archives.gov/research/topics/uaps>
2. National Archives and Records Administration. *Record Group 615: Unidentified Anomalous Phenomena Records Collection*. <https://www.archives.gov/research/topics/uaps/rg-615>
3. National Archives and Records Administration. *Bulk Downloads for Records Related to Unidentified Anomalous Phenomena (UAPs)*. <https://www.archives.gov/research/catalog/catalog-bulk-downloads/uap-bulk-download>
4. National Archives Catalog. *Records from the Federal Aviation Administration Relating to Unidentified Anomalous Phenomena, National Archives Identifier 493468575*. <https://catalog.archives.gov/id/493468575>
5. National Archives direct digital object. *237UAP00086.pdf, FAA UAP report record copied from RG 615 bulk digital objects*. <https://s3.dualstack.us-east-1.amazonaws.com/NARAprdstorage/lz/electronic-records/rg-615/493468575/237UAP00086.pdf>
6. Hugging Face dataset. *oxzoid/space-track-tle-history: historical TLE archive used for Starlink screening*. <https://huggingface.co/datasets/oxzoid/space-track-tle-history>
7. Space-Track.org. *Public source for the underlying U.S. Space Surveillance Network TLE distribution referenced by the historical TLE archive*. <https://www.space-track.org/>
8. Space-Track.org. *API documentation for SATCAT and catalog metadata classes used for local enrichment*. <https://www.space-track.org/documentation#/api>
9. NASA POWER. *Hourly point API documentation for meteorological context*. <https://power.larc.nasa.gov/docs/services/api/temporal/hourly/>
10. NASA/JPL Solar System Dynamics. *Horizons API documentation for observer geometry and apparent magnitude queries*. <https://ssd-api.jpl.nasa.gov/doc/horizons.html>
11. NASA. *DONKI space weather API documentation*. <https://api.nasa.gov/>
12. ADSB.lol. *Interactive API documentation and OpenAPI definition*. <https://api.adsb.lol/docs>
13. ADSB.lol. *Historical open-data release documentation*. <https://www.adsb.lol/docs/open-data/historical/>
14. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
15. OpenSky Network. *Historical data via Trino documentation*. <https://openskynetwork.github.io/opensky-api/trino.html>
16. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
17. NASA Earthdata. *Common Metadata Repository search API documentation*. <https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html>
18. NOAA / AWS Open Data. *GOES public dataset registry*. <https://registry.opendata.aws/noaa-goes/>
19. NOAA / AWS Open Data. *NEXRAD public dataset registry*. <https://registry.opendata.aws/noaa-nexrad/>
20. NOAA NCEI. *Integrated Global Radiosonde Archive*. <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>
21. Iowa Environmental Mesonet. *ASOS/AWOS/METAR data download service*. <https://mesonet.agron.iastate.edu/request/download.phtml>
22. Celestrak. *Spacetrack Report No. 3: Models for propagation of NORAD element sets*. <https://celestrak.org/NORAD/documentation/spacetrk.pdf>
23. Celestrak. *Supplemental GP element sets documentation and current endpoint index*. <https://celestrak.org/NORAD/elements/supplemental/>