

CASE FILE 97 / 237UAP00238

# 237UAP00238

Time/location anchored public UAP report; score 8

INSUFFICIENT / LOW ANOMALY VALUE

REPORT NO.	UAP-OM-97-237UAP00238	DISPOSITION	INSUFFICIENT / LOW ANOMALY VALUE
PRIMARY CASE	237UAP00238	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2023-03-10T09:00:00+00:00	OBSERVER	42.61120, -94.29480
SOURCE CASE IDS	237UAP00238		

## 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

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237UAP00238 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 8 based on: UAP/UFO language.
- Report time used: 2023-03-10T09:00:00+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: 186; at/above 10 deg: 95.
- 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

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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
237UAP00238	09:00 03/10/2023 Callsign: VIR156T Origin: LAS	ZMP Operator: VIR Operator Type: Commercial	text extract present	<a href="#">237UAP00238.pdf</a>

### 3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon off the left side while ENE bound at FL370, in the vicinity of FOD. The unknown phenomenon were three very bright lights "very high in the sky" with various brightness rotating around each other rapidly. No evasive action. AWO advised.
REPORT TIME USED	2023-03-10T09:00:00+00:00
OBSERVER COORDINATE USED	42.61120, -94.29480
OBSERVER SOURCE BASIS	aviation_fix:vicinity of FOD (public text extract 237UAP00238)

### 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	3754	HISTORICAL ELEMENT ROWS	3753
ABOVE HORIZON AT REPORT MINUTE	186	AT/ABOVE 10 DEG	95
LARGEST SAME-SKY CLUSTER	78		

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-2728	208.3	72.1	575.68	westward, setting	2021-05-09
STARLINK-3362	67.24	70.73	572.66	westward, setting	2022-01-19
STARLINK-1843	170.07	68.0	589.74	westward, setting	2020-11-25
STARLINK-4133	299.63	67.96	582.47	westward, setting	2022-07-24
STARLINK-1171	46.03	52.4	680.03	eastward, setting	2020-01-29
STARLINK-3834	170.74	49.69	692.42	westward, setting	2022-04-29
STARLINK-4769	189.27	46.98	718.88	westward, setting	2022-09-19
STARLINK-1110	230.67	38.51	741.9	westward, rising	2020-01-07
STARLINK-3823	25.46	37.93	834.08	eastward, setting	2022-04-29
STARLINK-2372	350.74	34.56	902.49	eastward, setting	2021-03-14
STARLINK-1028	168.45	34.32	902.61	westward, setting	2019-11-11
STARLINK-4795	41.33	33.76	904.81	eastward, setting	2022-09-19

### 5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	78	0.46-358.08 deg	10.08-37.93 deg	eastward, rising, eastward, setting, westward, rising, westward, setting
2	4	181.45-194.4 deg	14.94-31.11 deg	westward, rising, westward, setting
3	4	165.41-168.45 deg	10.71-34.32 deg	westward, setting
4	2	170.07-208.3 deg	68.0-72.1 deg	westward, setting

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
5	2	170.74-189.27 deg	46.98-49.69 deg	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.

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

### 5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
48478	STARLINK-2728	PAYLOAD	US	2021-05-09	n/a
51108	STARLINK-3362	PAYLOAD	US	2022-01-19	n/a
47133	STARLINK-1843	PAYLOAD	US	2020-11-25	2026-04-06
53253	STARLINK-4133	PAYLOAD	US	2022-07-24	n/a
45062	STARLINK-1171	PAYLOAD	US	2020-01-29	n/a
52368	STARLINK-3834	PAYLOAD	US	2022-04-29	n/a
53843	STARLINK-4769	PAYLOAD	US	2022-09-19	n/a
44946	STARLINK-1110	PAYLOAD	US	2020-01-07	2024-04-11
52336	STARLINK-3823	PAYLOAD	US	2022-04-29	n/a
47912	STARLINK-2372	PAYLOAD	US	2021-03-14	2025-03-07
44733	STARLINK-1028	PAYLOAD	US	2019-11-11	2025-02-14
53856	STARLINK-4795	PAYLOAD	US	2022-09-19	n/a

### 5.9 NASA / NOAA / ADS-B Expansion Layer

NASA POWER/Horizons/DONKI batch context had not yet been written for this case at packet build time.

### 5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
<b>ADSB.LOL HISTORICAL RELEASE LISTING</b>	screened/present	planes-readsb-test-1 491.1 MiB; planes-readsb-test-0 823.0 MiB; planes-readsb-staging-0 742.9 MiB; planes-readsb-prod-1 0.0 MiB
<b>ADSB TRACKS DOWNLOADED</b>	not yet exhausted	Requires targeted extraction from large daily history archives before claiming aircraft exhaustion.
<b>NOAA GOES IMAGERY</b>	not yet exhausted	Needed for cloud/lightning visual context.
<b>NOAA GOES ABI/GLM MANIFEST</b>	screened/present	Public S3 object availability for the report hour.
<b>NOAA NEXRAD WEATHER RADAR</b>	not yet exhausted	Weather radar only; not ATC radar.
<b>NOAA IGRA RADIOSONDE</b>	screened/present	Needed for balloon drift plausibility.
<b>ASOS/METAR WEATHER OBSERVATIONS</b>	screened/present	Nearest station surface observations around report time.

- ADSB.lol historical: extract aircraft traces from adsblol/globe\_history\_2023 for 2023-03-10, then filter +/-60 min and 250 nmi around 42.6112,-94.2948.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00238 at 2023-03-10T09:00:00+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.

<b>GOES SATELLITE</b>	GOES16
<b>GOES ABI PREFIX</b>	<a href="https://noaa-goes16.s3.amazonaws.com/ABI-L2-CMIPF/2023/069/09/">https://noaa-goes16.s3.amazonaws.com/ABI-L2-CMIPF/2023/069/09/</a>
<b>GOES GLM LIGHTNING PREFIX</b>	<a href="https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2023/069/09/">https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2023/069/09/</a>

### 5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KFOD	Fort Dodge Regional Airport	10.70	42.55, -94.19
KMCW	Mason City Municipal Airport	99.50	43.16, -93.33
KDSM	Des Moines International Airport	130.80	41.53, -93.66
KCCY	Northeast Iowa Regional Airport	146.60	43.07, -92.61
KALO	Waterloo Regional Airport	155.20	42.56, -92.40

- KFOD: [IEM ASOS/METAR daily CSV query](#)
- KMCW: [IEM ASOS/METAR daily CSV query](#)
- KDSM: [IEM ASOS/METAR daily CSV query](#)

### 5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072558	VALLEY; NE.	223.50	41.32, -96.37
USM00072649	CHANHASSEN; MN.	255.70	44.85, -93.56
USM00074455	QUAD CITY; IA.	325.80	41.61, -90.58
USM00072456	TOPEKA/MUN.; KS.	409.20	39.07, -95.63
USM00072659	ABERDEEN/REG.; SD.	456.40	45.46, -98.41

### 5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 0.5-10 statute miles; no precipitation was reported in the retained observations; 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
KFOD	10.70	2023-03-10T08:56:00 +00:00	10.00	OVC00600, M, M, M	n/a / 5.00	KFOD 100856Z AUTO VRB05KT 10SM OVC006 M03/ M03 A3017 RMK AO2 SLP246 T10281033 56001 FZRANO
KMCW	99.50	2023-03-10T08:53:00 +00:00	10.00	FEW11000, M, M, M	350.00 / 10.00	KMCW 100853Z AUTO 35010KT 10SM FEW110 M07/ M07 A3015 RMK AO2 SLP222 60000 T10671067 58006

STATION	DISTANCE KM	NEAREST OBS UTC	VIS SM	SKY	WIND DEG/KT	METAR
KDSM	130.80	2023-03-10T08:54:00 +00:00	10.00	BKN00900, OVC01600, M, M	320.00 / 8.00	KDSM 100854Z 32008KT 10SM BKN009 OVC016 M01/M02 A3016 RMK AO2 SLP222 60000 T10061022 53004

### 5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 261.8 deg at 19.2 m/s; a passive balloon could drift about 138.2 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
USM00072558	VALLEY; NE.	223.50	2023-03-10T12:00 :00+00:00	261.80	19.20	138.20	36.00 at 31123.00 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.

<b>SATELLITE</b>	GOES16	<b>BUCKET</b>	noaa-goes16
<b>ABI SAMPLE FILES</b>	12	<b>GLM SAMPLE FILES</b>	12

#### ABI sample objects:

- [ABI-L2-CMIPF/2023/069/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20230690900206\\_e20230690909514\\_c20230690909585.nc](#)
- [ABI-L2-CMIPF/2023/069/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20230690910206\\_e20230690919514\\_c20230690919599.nc](#)
- [ABI-L2-CMIPF/2023/069/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20230690920206\\_e20230690929514\\_c20230690929592.nc](#)
- [ABI-L2-CMIPF/2023/069/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20230690930206\\_e20230690939514\\_c20230690940006.nc](#)

#### GLM lightning sample objects:

- [GLM-L2-LCFA/2023/069/09/OR\\_GLM-L2-LCFA\\_G16\\_s20230690900000\\_e20230690900200\\_c20230690900212.nc](#)
- [GLM-L2-LCFA/2023/069/09/OR\\_GLM-L2-LCFA\\_G16\\_s20230690900200\\_e20230690900400\\_c20230690900412.nc](#)
- [GLM-L2-LCFA/2023/069/09/OR\\_GLM-L2-LCFA\\_G16\\_s20230690900400\\_e20230690901000\\_c20230690901017.nc](#)
- [GLM-L2-LCFA/2023/069/09/OR\\_GLM-L2-LCFA\\_G16\\_s20230690901000\\_e20230690901200\\_c20230690901218.nc](#)

### 5.18 ADSB.lol Historical Aircraft Track Extraction

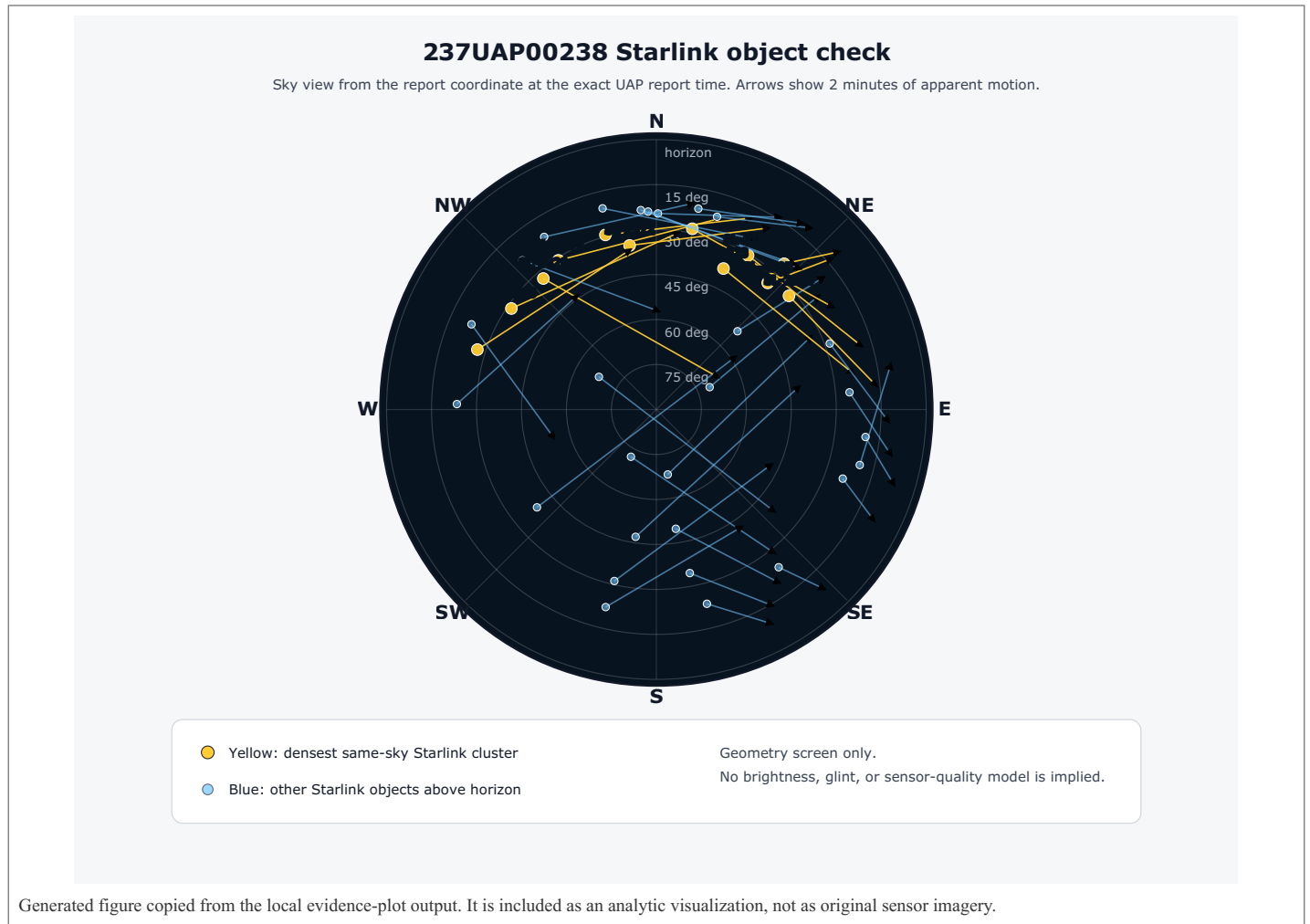
This layer uses the downloaded ADSB.lol daily history archive to test actual aircraft tracks near the report coordinate and minute. It is not treated as a primary-radar substitute; it is a transponder/receiver-derived aircraft screen.

<b>ARCHIVE WINDOW</b>	2023-03-10T07:45:00+00:00 to 2023-03-10T10:15:00+00:00	<b>RADIUS</b>	300.00 nmi
<b>TRACE FILES SCANNED</b>	0	<b>TRACKS RETAINED</b>	0
<b>SUPPORT STATUS</b>	no specific aircraft candidate	<b>BEST-CANDIDATE NOTE</b>	ADS-B extraction does not support an aircraft explanation inside the selected window/radius.
<b>STRONG CANDIDATES</b>	0	<b>PLAUSIBLE CANDIDATES</b>	0
<b>REPORTING-AIRCRAFT TRACKS EXCLUDED</b>	0	<b>WEAK CANDIDATES</b>	0

### 5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
No retained aircraft candidates in the selected ADS-B extraction.							

## 6. Annotated Evidence Figure





## 7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2023-03-10T09:00:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	42.61120, -94.29480	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	not explicit	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	237UAP00238 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

237UAP00238

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON		
Date: 09:00 03/10/2023	Callsign: VIR156T	Origin: LAS
Status: Closed	Aircraft: B789	Destination: EGLL
POD: DEN	Tail Number:	New Destination:
Reporting Facility: ZMP	Operator: VIR	Operator Type: Commercial
	Paged: YES	MOR Init: YES
		MOR ID: ZMP-M-2023/03/10-0001

REMARKS

Aircraft reported an unidentified aerial phenomenon off the left side while ENE bound at FL370, in the vicinity of FOD. The unknown phenomenon were three very bright lights "very high in the sky" with various brightness rotating around each other rapidly. No evasive action. AWO advised.

## 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": "2023-03-10T09:00:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon off the left side while ENE bound at FL370, in the vicinity of FOD. The unknown phenomenon were three very bright lights \"very high in the sky\" with various brightness rotating around each other rapidly. No evasive action. AWO advised.",
  "historical_starlink_element_rows": 3753,
  "observer": {
    "lat": 42.61119842529297,
    "lon": -94.2947998046875,
    "source": "aviation_fix:vicinity of FOD (public text extract 237UAP00238)"
  },
  "case_id": "237UAP00238",
  "starlink_above_horizon_at_report_time": 186,
  "starlink_catalog_ids_considered": 3754,
  "largest_same-sky_cluster_count": 78,
  "starlink_at_or_above_10_deg": 95,
  "top_starlinks": [
    {
      "azimuth_deg": 208.3,
      "azimuth_plus_2m_deg": 140.5,
      "azimuth_plus_5m_deg": 134.52,
      "element_age_hours": 1.04,
      "element_epoch": "2023-03-10T10:02:31.413696+00:00",
      "elevation_deg": 72.1,
      "elevation_plus_2m_deg": 27.81,
      "elevation_plus_5m_deg": 4.99,
      "epoch_altitude_km": 553.23,
      "ground_track_bearing_deg": 129.26,
      "ground_track_label": "SE",
      "launch_date": "2021-05-09",
      "name": "STARLINK-2728",
      "norad_id": "48478",
      "range_km": 575.68,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 41.3165,
      "subpoint_lon": -95.2172
    },
    {
      "azimuth_deg": 67.24,
      "azimuth_plus_2m_deg": 54.97,
      "azimuth_plus_5m_deg": 54.01,
      "element_age_hours": 1.33,
      "element_epoch": "2023-03-10T10:19:54.909696+00:00",
      "elevation_deg": 70.73,
      "elevation_plus_2m_deg": 23.69,
      "elevation_plus_5m_deg": 3.5,
      "epoch_altitude_km": 545.61,
      "ground_track_bearing_deg": 53.62,
      "ground_track_label": "NE",
      "launch_date": "2022-01-19",
      "name": "STARLINK-3362",
      "norad_id": "51108",
      "range_km": 572.66,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 43.2007,
      "subpoint_lon": -92.3178
    },
    {
      "azimuth_deg": 170.07,
      "azimuth_plus_2m_deg": 64.64,
      "azimuth_plus_5m_deg": 56.3,
      "element_age_hours": 1.35,
      "element_epoch": "2023-03-10T10:21:04.173120+00:00",
      "elevation_deg": 68.0,
      "elevation_plus_2m_deg": 32.71,
      "elevation_plus_5m_deg": 6.65,
      "epoch_altitude_km": 553.41,
      "ground_track_bearing_deg": 50.8,
      "ground_track_label": "NE",
      "launch_date": "2020-11-25",
      "name": "STARLINK-1843",
      "norad_id": "47133",
      "range_km": 589.74,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 40.8067,
      "subpoint_lon": -93.8792
    },
    {
      "azimuth_deg": 299.63,
      "azimuth_plus_2m_deg": 130.82,
```

```

"azimuth_plus_5m_deg": 129.48,
"element_age_hours": 2.12,
"element_epoch": "2023-03-10T06:52:35.251104+00:00",
"elevation_deg": 67.96,
"elevation_plus_2m_deg": 37.78,
"elevation_plus_5m_deg": 7.65,
"epoch_altitude_km": 545.9,
"ground_track_bearing_deg": 126.68,
"ground_track_label": "SE",
"launch_date": "2022-07-24",
"name": "STARLINK-4133",
"norad_id": "53253",
"range_km": 582.47,
"sky_motion_label": "westward, setting",
"subpoint_lat": 43.4875,
"subpoint_lon": -96.4603
},
{
"azimuth_deg": 46.03,
"azimuth_plus_2m_deg": 51.68,
"azimuth_plus_5m_deg": 53.54,
"element_age_hours": 4.5,
"element_epoch": "2023-03-10T13:30:14.477184+00:00",
"elevation_deg": 52.4,
"elevation_plus_2m_deg": 18.69,
"elevation_plus_5m_deg": 1.62,
"epoch_altitude_km": 553.59,
"ground_track_bearing_deg": 56.67,
"ground_track_label": "ENE",
"launch_date": "2020-01-29",
"name": "STARLINK-1171",
"norad_id": "45062",
"range_km": 680.03,
"sky_motion_label": "eastward, setting",
"subpoint_lat": 44.9472,
"subpoint_lon": -90.8094
},
{
"azimuth_deg": 170.74,
"azimuth_plus_2m_deg": 144.54,
"azimuth_plus_5m_deg": 138.09,
"element_age_hours": 7.38,
"element_epoch": "2023-03-10T16:22:54.600960+00:00",
"elevation_deg": 49.69,
"elevation_plus_2m_deg": 18.92,
"elevation_plus_5m_deg": 1.69,
"epoch_altitude_km": 546.21,
"ground_track_bearing_deg": 132.22,
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"elevation_deg": 46.98,
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"epoch_altitude_km": 553.22,
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"name": "STARLINK-1028",
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"elevation_plus_5m_deg": -1.25,
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    "plausibleCandidateCount": 0,
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    "strongCandidateCount": 0,
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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: 237UAP00238
TIME AND OBSERVER COORDINATE	extracted	2023-03-10T09:00:00+00:00 at 42.61120, -94.29480
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	not exhausted	Hourly weather, sky geometry, and space-weather context where local JSON is present
AIRCRAFT/ADS-B LAYER	screened	0 trace files scanned; 0 tracks retained; no specific aircraft candidate
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

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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. *237UAP00238.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-615/493468575/237UAP00238.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. ADSB.lol. *Interactive API documentation and OpenAPI definition*. <https://api.adsb.lol/docs>
10. ADSB.lol. *Historical open-data release documentation*. <https://www.adsb.lol/docs/open-data/historical/>
11. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
12. OpenSky Network. *Historical data via Trino documentation*. <https://openskynetwork.github.io/opensky-api/trino.html>
13. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
14. NASA Earthdata. *Common Metadata Repository search API documentation*. <https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html>
15. NOAA / AWS Open Data. *GOES public dataset registry*. <https://registry.opendata.aws/noaa-goes/>
16. NOAA / AWS Open Data. *NEXRAD public dataset registry*. <https://registry.opendata.aws/noaa-nexrad/>
17. NOAA NCEI. *Integrated Global Radiosonde Archive*. <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>
18. Iowa Environmental Mesonet. *ASOS/AWOS/METAR data download service*. <https://mesonet.agron.iastate.edu/request/download.phtml>
19. CelesTrak. *Spacetrack Report No. 3: Models for propagation of NORAD element sets*. <https://celestrak.org/NORAD/documentation/spacetrk.pdf>
20. CelesTrak. *Supplemental GP element sets documentation and current endpoint index*. <https://celestrak.org/NORAD/elements/supplemental/>