

CASE FILE 24 / 237UAP00330

237UAP00330

Radar/correlation-focused public UAP report; score 66

NORMAL-OBJECT FAVORED

REPORT NO.	UAP-OM-24-237UAP00330	DISPOSITION	NORMAL-OBJECT FAVORED
PRIMARY CASE	237UAP00330	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2023-12-23T03:46:00+00:00	OBSERVER	39.80746, -105.74509
SOURCE CASE IDS	237UAP00330		

Abstract

This case file evaluates a reported UAP sighting against historical Starlink orbital elements. The primary external-object candidate is a 3-object same-launch group from 2023-05-14, spanning azimuth 274.38-292.25 deg and elevation 11.7-22.91 deg. The analysis distinguishes plausible geometric overlap from unresolved witness-language features.

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

237UAP00330 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N903JB A321 ac7b1b at 37.6 km, azimuth 182.1 deg, elevation 14.38 deg, 0.21 min from report. Dense satellite presence alone is not treated as causation in this packet.

1.1 Key Findings

- Source score 66 based on: radar/primary-return language, high-altitude report, maneuvering/motion anomaly, UAP/UFO language.
- Report time used: 2023-12-23T03:46:00+00:00.
- External object layer used: Starlink.
- Disposition standard: NORMAL-OBJECT requires case-specific causal fit. Satellite density above the horizon is context only and cannot by itself resolve the report.
- Case-specific ordinary-object evidence: strong ADS-B aircraft candidate N903JB A321 ac7b1b at 37.6 km, azimuth 182.1 deg, elevation 14.38 deg, 0.21 min from report.
- Non-causal context / rejection screens: substantial orbital-object sky background; context only, not causation.
- Remaining hard features: hard maneuver language.
- Objects above horizon: 246; at/above 10 deg: 124.
- Top compact same-launch/designator group: 3 objects from 2023-05-14.
- No explicit Starlink/balloon wording was found in the source excerpt used for ranking.

1.2 Bottom Line

NORMAL-OBJECT FAVORED: A case-specific ordinary-object candidate exists from source language, orbital geometry, launch-object context, or compact trajectory grouping. Dense ordinary sky traffic alone is not treated as causation.

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
237UAP00330	03:46 12/23/2023 Callsign: DAL750 Origin: TPA	ZDV Operator: DAL Operator Type: Commercial	text extract present	237UAP00330.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon off the left side while NW bound at FL320, 50 NM West of DEN. The unknown phenomenon was a group of red lights circling each other at approximately FL400. The UAP was not observed on ATC facility radar system. AWO notified.
REPORT TIME USED	2023-12-23T03:46:00+00:00
OBSERVER COORDINATE USED	39.80746, -105.74509
OBSERVER SOURCE BASIS	aviation_offset:50 NM West of DEN (public text extract 237UAP00330)

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	5248	HISTORICAL ELEMENT ROWS	5202
ABOVE HORIZON AT REPORT MINUTE	246	AT/ABOVE 10 DEG	124
LARGEST SAME-SKY CLUSTER	48		

5.2 Same-Launch / Same-Designator Candidate Groups

#	LAUNCH DATE	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS	MEMBERS
1	2023-05-14	3	274.38-292.25 deg	11.7-22.91 deg	eastward, rising, westward, rising	STARLINK-5302, STARLINK-6308, STARLINK-5775

5.3 Primary Group Members

OBJECT	NORAD	LAUNCH	AZ	EL	RANGE KM	APPARENT MOTION	ELEMENT AGE H
STARLINK-5302	56556	2023-05-14	292.25	22.91	1213.67	eastward, rising	0.43
STARLINK-6308	56534	2023-05-14	274.38	12.22	1701.95	westward, rising	0.49
STARLINK-5775	56503	2023-05-14	285.57	11.7	1736.01	westward, rising	0.45

5.4 Bright-Sky Context: Top Starlink Objects by Elevation

OBJECT	AZ	EL	RANGE KM	APPARENT MOTION	LAUNCH DATE
STARLINK-6130	177.47	78.86	571.8	westward, setting	2023-06-23
STARLINK-3621	58.17	72.51	566.65	westward, setting	2022-02-25
STARLINK-4690	14.92	67.49	583.44	eastward, setting	2022-08-28
STARLINK-5184	341.09	62.59	604.72	eastward, setting	2022-10-20
STARLINK-1766	4.45	54.36	664.15	eastward, setting	2020-10-18
STARLINK-30209	306.09	52.85	690.0	eastward, setting	2023-07-10
STARLINK-30221	20.54	51.94	698.1	eastward, setting	2023-07-20
STARLINK-6367	40.31	51.24	703.9	eastward, setting	2023-07-16
STARLINK-4615	140.01	49.07	697.46	westward, setting	2022-08-28
STARLINK-5994	348.1	47.51	760.36	eastward, setting	2023-05-10
STARLINK-5225	187.5	46.61	721.28	westward, setting	2022-10-20
STARLINK-5716	135.31	46.41	748.75	westward, setting	2023-05-14

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	48	1.35-359.25 deg	10.59-54.36 deg	eastward, rising, eastward, setting, nearly fixed azimuth, rising, westward, setting
2	31	186.21-302.53 deg	10.15-38.0 deg	eastward, rising, westward, rising, westward, setting
3	23	59.61-102.44 deg	10.09-37.08 deg	

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
				eastward, setting, westward, setting
4	14	117.23-167.49 deg	10.41-28.05 deg	eastward, setting, westward, level, westward, rising, westward, setting
5	2	135.31-140.01 deg	46.41-49.07 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.

PACKET SATCAT SUBSET ROWS	5370	FETCHED	2026-05-19T01:19:50+00:00
THIS CASE NORAD IDS CHECKED	33	SATCAT ROWS MATCHED	33
TOP OWNERS	US: 33		
OBJECT TYPES	PAYLOAD: 33		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
57104	STARLINK-6130	PAYLOAD	US	2023-06-23	n/a
51769	STARLINK-3621	PAYLOAD	US	2022-02-25	n/a
53604	STARLINK-4690	PAYLOAD	US	2022-08-28	n/a
54087	STARLINK-5184	PAYLOAD	US	2022-10-20	n/a
46677	STARLINK-1766	PAYLOAD	US	2020-10-18	2024-09-15
57307	STARLINK-30209	PAYLOAD	US	2023-07-10	2026-03-03
57418	STARLINK-30221	PAYLOAD	US	2023-07-20	n/a
57376	STARLINK-6367	PAYLOAD	US	2023-07-16	n/a
53620	STARLINK-4615	PAYLOAD	US	2022-08-28	n/a
56457	STARLINK-5994	PAYLOAD	US	2023-05-10	n/a
54063	STARLINK-5225	PAYLOAD	US	2022-10-20	2026-02-08
56504	STARLINK-5716	PAYLOAD	US	2023-05-14	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
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1430.5 MiB; planes-readsb-prod-0 1431.5 MiB
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.

LAYER	STATUS	CASE-SPECIFIC NOTE
ASOS/METAR WEATHER OBSERVATIONS	screened/present	Nearest station surface observations around report time.

- ADSB.lol historical: extract aircraft traces from adsblol/globe_history_2023 for 2023-12-23, then filter +/-60 min and 250 nmi around 39.8075,-105.7451.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00330 at 2023-12-23T03:46:00+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	GOES18
GOES ABI PREFIX	https://noaa-goes18.s3.amazonaws.com/ABI-L2-CMIPF/2023/357/03/
GOES GLM LIGHTNING PREFIX	https://noaa-goes18.s3.amazonaws.com/GLM-L2-LCFA/2023/357/03/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KBJC	Rocky Mountain Metropolitan Airport	54.80	39.91, -105.12
KAPA	Centennial Airport	81.10	39.57, -104.85
KBKF	Buckley Space Force Base	85.70	39.70, -104.75
KDEN	Denver International Airport	91.70	39.86, -104.67
KFNL	Northern Colorado Regional Airport	94.80	40.45, -105.01

- KBJC: [IEM ASOS/METAR daily CSV query](#)
- KAPA: [IEM ASOS/METAR daily CSV query](#)
- KBKF: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072476	GRAND JUNCTION/WALKER FIELD; C	250.60	39.12, -108.53
USM00072672	RIVERTON; WY.	427.80	43.06, -108.48
USM00072562	NORTH PLATTE/LEE BIRD; NE.	451.40	41.13, -100.70
USM00072662	RAPID CITY WFO; SD.	518.50	44.07, -103.21
USM00072365	ALBUQUERQUE/INT.; NM.	536.00	35.04, -106.62

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 10-10 statute miles; no precipitation was reported in the retained observations; no low broken/overcast cloud ceiling was evident in the retained station observations. 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
KBJC	54.80	2023-12-23T03:55:00+00:00	10.00	FEW10000, BKN20000, M, M	300.00 / 5.00	KBJC 230355Z 30005KT 10SM FEW100 BKN200 07/M07 A2996

STATION	DISTANCE KM	NEAREST OBS UTC	VIS SM	SKY	WIND DEG/KT	METAR
KAPA	81.10	2023-12-23T03:53:00 +00:00	10.00	FEW12000, SCT22000, M, M	200.00 / 5.00	KAPA 230353Z 20005KT 10SM FEW120 SCT220 02/ M06 A2996 RMK AO2 SLP156 T00171061
KBKF	85.70	2023-12-23T03:58:00 +00:00	10.00	FEW13000, BKN22000, M, M	190.00 / 5.00	KBKF 230358Z 19005KT 10SM FEW130 BKN220 04/ M04 A2995 RMK AO2A SLP129 T00431044

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 261.8 deg at 13.19 m/s; a passive balloon could drift about 94.9 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
USM00072476	GRAND JUNCTION/ WALKER FIELD; C	250.60	2023-12-23T00:00 :00+00:00	261.80	13.19	94.90	30.90 at 21621.00 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	GOES18	BUCKET	noaa-goes18
ABI SAMPLE FILES	12	GLM SAMPLE FILES	12

ABI sample objects:

- [ABI-L2-CMIPF/2023/357/03/OR_ABI-L2-CMIPF-M6C01_G18_s20233570300221_e20233570309529_c20233570309589.nc](#)
- [ABI-L2-CMIPF/2023/357/03/OR_ABI-L2-CMIPF-M6C01_G18_s20233570310221_e20233570319529_c20233570320004.nc](#)
- [ABI-L2-CMIPF/2023/357/03/OR_ABI-L2-CMIPF-M6C01_G18_s20233570320221_e20233570329529_c20233570329598.nc](#)
- [ABI-L2-CMIPF/2023/357/03/OR_ABI-L2-CMIPF-M6C01_G18_s20233570330221_e20233570339529_c20233570339589.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2023/357/03/OR_GLM-L2-LCFA_G18_s20233570300000_e20233570300200_c20233570300219.nc](#)
- [GLM-L2-LCFA/2023/357/03/OR_GLM-L2-LCFA_G18_s20233570300200_e20233570300400_c20233570300416.nc](#)
- [GLM-L2-LCFA/2023/357/03/OR_GLM-L2-LCFA_G18_s20233570300400_e20233570301000_c20233570301008.nc](#)
- [GLM-L2-LCFA/2023/357/03/OR_GLM-L2-LCFA_G18_s20233570301000_e20233570301200_c20233570301220.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.

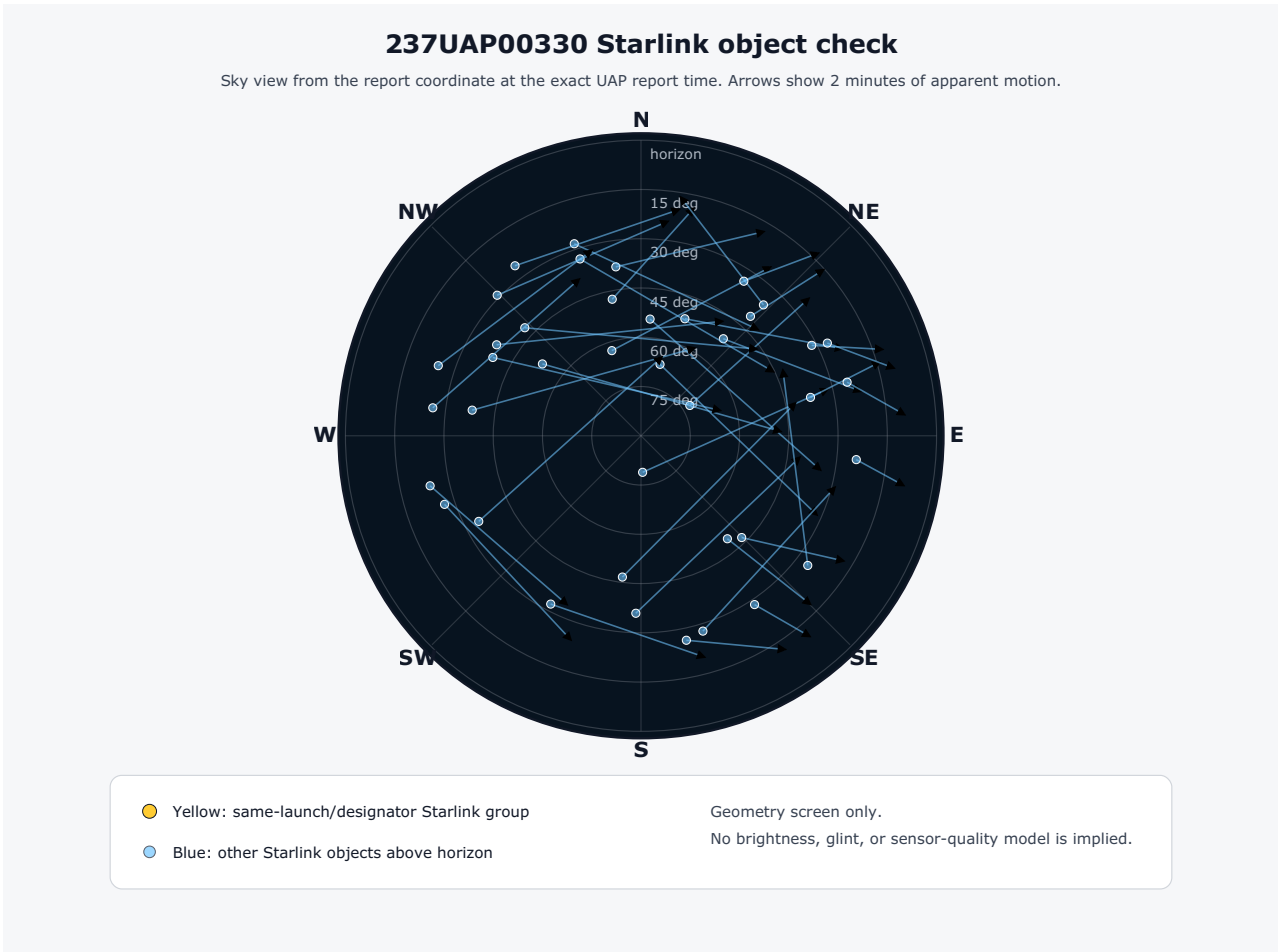
ARCHIVE WINDOW	2023-12-23T02:46:00+00:00 to 2023-12-23T04:46:00+00:00	RADIUS	250.00 nmi
TRACE FILES SCANNED	39960	TRACKS RETAINED	673
SUPPORT STATUS	aircraft strong candidate present	BEST-CANDIDATE NOTE	ordinary-object favored if the report's count, color, direction, and motion can be reconciled with the candidate track(s).

STRONG CANDIDATES	25	PLAUSIBLE CANDIDATES	159
REPORTING-AIRCRAFT TRACKS EXCLUDED	2	WEAK CANDIDATES	141

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
N903JB A321 ac7b1b	strong aircraft candidate	83.02	36.10	0.11	32000	182.10	14.38
N68801 B739 a92361	strong aircraft candidate	81.61	14.20	0.03	28600	178.90	27.90
N950JT A321 ad3581	strong aircraft candidate	81.37	26.20	0.11	34025	15.70	20.36
N646JB A320 a87c4f	strong aircraft candidate	76.20	59.70	0.14	35975	25.90	10.13
N773CK B77L aa7468	strong aircraft candidate	73.49	46.70	0.05	35000	180.00	11.73
N620MA C560 a81751	strong aircraft candidate	72.97	34.80	0.09	23550	142.70	10.25
N767FL GLF5 aa5c11	strong aircraft candidate	71.92	3.60	0.08	45025	69.90	19.03
N373FR A20N a43f7d	strong aircraft candidate	71.48	67.10	0.14	36000	321.40	7.93

6. Annotated Evidence Figure



Generated figure copied from the local evidence-plot output. It is included as an analytic visualization, not as original sensor imagery.

7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2023-12-23T03:46:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	39.80746, -105.74509	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	not explicit	Primary same-launch group contains 3 propagated objects in a compact sky sector.
MOTION LANGUAGE	circling	Apparent motion labels in the object table provide a plausible but not definitive comparison.
RADAR / OFFICIAL CHECK	not observed on ATC radar	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	normal-object	237UAP00330 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N903JB A321 ac7b1b at 37.6 km, azimuth 182.1 deg, elevation 14.38 deg, 0.21 min from report. Dense satellite presence alone is not treated as causation in this packet.

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.
- Normal-object favored is not the same as a perfect named-object identification; it requires a case-specific ordinary-object candidate stronger than simple object density.

Appendix A. Public Report Text Extracts

237UAP00330

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 03:46 12/23/2023

Status: Closed

POD: DEN

Reporting Facility: ZDV

Callsign: DAL750

Aircraft: B738

Tail Number:

Operator: DAL

Origin: TPA

Destination: SEA

New Destination:

Operator Type: Commercial

Paged: YES

REMARKS

Aircraft reported an unidentified aerial phenomenon off the left side while NW bound at FL320, 50 NM West of DEN. The unknown phenomenon was a group of red lights circling each other at approximately FL400. The UAP was not observed on ATC facility radar system. 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": "2023-12-23T03:46:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon off the left side while NW bound at FL320, 50 NM West of DEN. The unknown phenomenon was a group of red lights circling each other at approximately FL400. The UAP was not observed on ATC facility radar system. AWO notified.",
  "historical_starlink_element_rows": 5202,
  "observer": {
    "lat": 39.80745569531502,
    "lon": -105.74508523278058,
    "source": "aviation_offset:50 NM West of DEN (public text extract 237UAP00330)"
  },
  "case_id": "237UAP00330",
  "starlink_above_horizon_at_report_time": 246,
  "starlink_catalog_ids_considered": 5248,
  "largest_same-sky_cluster_count": 48,
  "starlink_at_or_above_10_deg": 124,
  "same_launch_sky_groups": [
    {
      "azimuth_range_deg": [
        274.38,
        292.25
      ],
      "count": 3,
      "elevation_range_deg": [
        11.7,
        22.91
      ],
      "ground_track_labels": [
        "E",
        "ESE"
      ],
      "launch_date": "2023-05-14",
      "members": [
        {
          "azimuth_deg": 292.25,
          "azimuth_plus_2m_deg": 314.66,
          "azimuth_plus_5m_deg": 98.55,
          "element_age_hours": 0.43,
          "element_epoch": "2023-12-23T03:20:11.532768+00:00",
          "elevation_deg": 22.91,
          "elevation_plus_2m_deg": 62.88,
          "elevation_plus_5m_deg": 24.56,
          "epoch_altitude_km": 565.3,
          "ground_track_bearing_deg": 97.32,
          "ground_track_label": "E",
          "launch_date": "2023-05-14",
          "name": "STARLINK-5302",
          "norad_id": "56556",
          "range_km": 1213.67,
          "sky_motion_label": "eastward, rising",
          "subpoint_lat": 42.7489,
          "subpoint_lon": -117.4406
        },
        {
          "azimuth_deg": 274.38,
          "azimuth_plus_2m_deg": 250.59,
          "azimuth_plus_5m_deg": 170.72,
          "element_age_hours": 0.49,
          "element_epoch": "2023-12-23T03:16:18.751296+00:00",
          "elevation_deg": 12.22,
          "elevation_plus_2m_deg": 26.33,
          "elevation_plus_5m_deg": 25.16,
          "epoch_altitude_km": 565.36,
          "ground_track_bearing_deg": 110.47,
          "ground_track_label": "ESE",
          "launch_date": "2023-05-14",
          "name": "STARLINK-6308",
          "norad_id": "56534",
          "range_km": 1701.95,
          "sky_motion_label": "westward, rising",
          "subpoint_lat": 39.4653,
          "subpoint_lon": -123.7538
        }
      ],
      {
        "azimuth_deg": 285.57,
        "azimuth_plus_2m_deg": 277.87,
        "azimuth_plus_5m_deg": 141.04,
        "element_age_hours": 0.45,
        "element_epoch": "2023-12-23T03:19:08.097024+00:00",
        "elevation_deg": 11.7,
```

```

        "elevation_plus_2m_deg": 30.47,
        "elevation_plus_5m_deg": 46.01,
        "epoch_altitude_km": 565.15,
        "ground_track_bearing_deg": 101.1,
        "ground_track_label": "E",
        "launch_date": "2023-05-14",
        "name": "STARLINK-5775",
        "norad_id": "56503",
        "range_km": 1736.01,
        "sky_motion_label": "westward, rising",
        "subpoint_lat": 42.167,
        "subpoint_lon": -124.279
    }
],
    "motion_labels": [
        "eastward, rising",
        "westward, rising"
    ]
}
],
"top_starlinks": [
    {
        "azimuth_deg": 177.47,
        "azimuth_plus_2m_deg": 75.99,
        "azimuth_plus_5m_deg": 72.08,
        "element_age_hours": 1.89,
        "element_epoch": "2023-12-23T01:52:35.162400+00:00",
        "elevation_deg": 78.86,
        "elevation_plus_2m_deg": 31.51,
        "elevation_plus_5m_deg": 6.47,
        "epoch_altitude_km": 565.63,
        "ground_track_bearing_deg": 68.81,
        "ground_track_label": "ENE",
        "launch_date": "2023-06-23",
        "name": "STARLINK-6130",
        "norad_id": "57104",
        "range_km": 571.8,
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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: 237UAP00330
TIME AND OBSERVER COORDINATE	extracted	2023-12-23T03:46:00+00:00 at 39.80746, -105.74509
ORBITAL OBJECT PROPAGATION	screened	Starlink
SPACE-TRACK SATCAT METADATA	screened	33 NORAD IDs checked; 33 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	39960 trace files scanned; 673 tracks retained; aircraft strong candidate present
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	normal-object favored	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. *237UAP00330.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-615/493468575/237UAP00330.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/>