

CASE FILE 15 / 237UAP00364

237UAP00364

Radar/correlation-focused public UAP report; score 70

HIGH-VALUE UNRESOLVED

REPORT NO.	UAP-OM-15-237UAP00364	DISPOSITION	HIGH-VALUE UNRESOLVED
PRIMARY CASE	237UAP00364	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2024-03-16T06:16:00+00:00	OBSERVER	30.42686, -95.89203
SOURCE CASE IDS	237UAP00364		

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 2023-02-27, spanning azimuth 72.51-92.76 deg and elevation 21.45-36.71 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

237UAP00364 remains high-value unresolved after screening against historical Starlink orbital elements. The strongest compact object grouping contains 3 objects from 2023-02-27; however, this does not close the case because hard report features remain: video/footage referenced. Context noted but not treated as causation: substantial orbital-object sky background; context only, not causation.

1.1 Key Findings

- Source score 70 based on: radar/primary-return language, negative official correlation, high-altitude report, UAP/UFO language.
- Report time used: 2024-03-16T06:16:00+00:00.
- External object layer used: Starlink.
- Disposition standard: UNRESOLVED 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 B-16722 B77W 8990e4 at 27.3 km, azimuth 76.6 deg, elevation 9.83 deg, 5.61 min from report.
- Non-causal context / rejection screens: substantial orbital-object sky background; context only, not causation.
- Remaining hard features: video/footage referenced.
- Objects above horizon: 256; at/above 10 deg: 108.
- Top compact same-launch/designator group: 3 objects from 2023-02-27.
- No explicit Starlink/balloon wording was found in the source excerpt used for ranking.

1.2 Bottom Line

HIGH-VALUE UNRESOLVED: Hard report features remain after the normal-object screens, such as primary/radar evidence, multiple witnesses, footage references, or motion language that still conflicts with the available object layer.

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
237UAP00364	06:16 03/16/2024 Callsign: N473KW Origin: SEF	ZHU Operator: Operator Type: General Aviation	text extract present	237UAP00364.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon off the front while W bound at FL410, 40NM NW of IAH. The unknown phenomenon was 3 bright lights coming together. The UAP was not observed on ATC facility radar systems. MOR will be filed. PIC has video of event.
REPORT TIME USED	2024-03-16T06:16:00+00:00
OBSERVER COORDINATE USED	30.42686, -95.89203
OBSERVER SOURCE BASIS	aviation_offset:40NM NW of IAH (public text extract 237UAP00364)

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	5614	HISTORICAL ELEMENT ROWS	5592
ABOVE HORIZON AT REPORT MINUTE	256	AT/ABOVE 10 DEG	108
LARGEST SAME-SKY CLUSTER	88		

5.2 Same-Launch / Same-Designator Candidate Groups

#	LAUNCH DATE	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS	MEMBERS
1	2023-02-27	3	72.51-92.76 deg	21.45-36.71 deg	westward, setting	STARLINK-30047, STARLINK-30057, STARLINK-30063

5.3 Primary Group Members

OBJECT	NORAD	LAUNCH	AZ	EL	RANGE KM	APPARENT MOTION	ELEMENT AGE H
STARLINK-30047	55709	2023-02-27	92.76	36.71	571.0	westward, setting	8.95
STARLINK-30057	55705	2023-02-27	84.72	30.07	655.11	westward, setting	5.89
STARLINK-30063	55713	2023-02-27	72.51	21.45	845.22	westward, setting	1.74

5.4 Bright-Sky Context: Top Starlink Objects by Elevation

OBJECT	AZ	EL	RANGE KM	APPARENT MOTION	LAUNCH DATE
STARLINK-6094	3.36	63.62	619.73	eastward, setting	2023-03-29
STARLINK-1782	325.9	61.4	617.44	eastward, setting	2021-02-04
STARLINK-3196	46.34	60.94	611.43	westward, setting	2021-12-02
STARLINK-3208	220.98	57.79	629.22	westward, setting	2021-12-02
STARLINK-1212	185.34	55.28	654.27	westward, setting	2020-02-17
STARLINK-3919	346.11	52.43	668.14	eastward, setting	2022-05-13
STARLINK-31059	46.89	51.77	610.01	eastward, setting	2023-12-19
STARLINK-30520	19.54	49.18	719.99	eastward, setting	2023-10-05
STARLINK-4029	164.42	47.96	704.98	westward, setting	2022-05-18
STARLINK-30343	143.51	46.38	746.46	westward, setting	2023-09-01
STARLINK-6052	15.56	45.37	780.38	eastward, setting	2023-05-31
STARLINK-5227	239.16	44.16	745.87	westward, setting	2022-10-28

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	88	1.31-355.36 deg	10.02-40.63 deg	eastward, level, eastward, rising, eastward, setting, westward, level, westward, rising, westward, setting
2	4	203.67-217.28 deg	10.45-24.3 deg	westward, rising, westward, setting

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
3	3	139.77-144.0 deg	32.6-46.38 deg	westward, setting
4	2	46.34-46.89 deg	51.77-60.94 deg	eastward, setting, westward, setting
5	2	15.56-19.54 deg	45.37-49.18 deg	eastward, 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	31	SATCAT ROWS MATCHED	31
TOP OWNERS	US: 31		
OBJECT TYPES	PAYLOAD: 31		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
56122	STARLINK-6094	PAYLOAD	US	2023-03-29	n/a
47548	STARLINK-1782	PAYLOAD	US	2021-02-04	2025-02-05
49768	STARLINK-3196	PAYLOAD	US	2021-12-02	n/a
49769	STARLINK-3208	PAYLOAD	US	2021-12-02	n/a
45223	STARLINK-1212	PAYLOAD	US	2020-02-17	n/a
52580	STARLINK-3919	PAYLOAD	US	2022-05-13	n/a
58596	STARLINK-31059	PAYLOAD	US	2023-12-19	n/a
58010	STARLINK-30520	PAYLOAD	US	2023-10-05	n/a
52685	STARLINK-4029	PAYLOAD	US	2022-05-18	n/a
57753	STARLINK-30343	PAYLOAD	US	2023-09-01	n/a
56793	STARLINK-6052	PAYLOAD	US	2023-05-31	n/a
54181	STARLINK-5227	PAYLOAD	US	2022-10-28	n/a

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.

HOURL UTC	2024031606
CLOUD AMOUNT	99.88%
PRECIPITATION	1.19 mm/hr
10 M WIND	1.56 m/s
TEMPERATURE	17.74 C
RELATIVE HUMIDITY	99.59%
DONKI +/-1 DAY	CME: unavailable; FLR: unavailable; GST: unavailable; HSS: unavailable; IPS: unavailable; MPC: unavailable; RBE: unavailable; SEP: unavailable; WSAEnlilSimulations: unavailable

5.10 Horizons Sky Geometry Context

OBJECT	AZ	EL	APP MAG
Sun	351.71	-60.85	-26.75
Moon	297.86	5.32	-9.67
Venus	37.94	-65.92	-3.88
Mars	60.56	-61.97	1.19
Jupiter	306.58	-24.03	-2.11
Saturn	22.11	-66.79	1.02

- Sun elevation was -60.9 deg, so this was a dark-sky/nighttime sighting.
- Moon was above horizon at azimuth 297.9 deg / elevation 5.3 deg.
- No checked bright planets were above the horizon at the primary coordinate/time.
- NASA POWER cloud amount for the hour was 99.88%, with precipitation 1.19 mm/hr.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1766.0 MiB; planes-readsb-prod-0 1767.0 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.
ASOS/METAR WEATHER OBSERVATIONS	screened/present	Nearest station surface observations around report time.

- ADSB.lol historical: extract aircraft traces from adsblol/globe_history_2024 for 2024-03-16, then filter +/-60 min and 250 nmi around 30.4269,-95.8920.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00364 at 2024-03-16T06:16:00+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/2024/076/06/
GOES GLM LIGHTNING PREFIX	https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2024/076/06/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KUTS	Huntsville Regional Airport	46.00	30.75, -95.59
KCXO	Conroe-North Houston Regional Airport	46.60	30.35, -95.41
KCLL	Easterwood Field	48.60	30.59, -96.36
KIAH	George Bush Intercontinental Airport	72.30	29.98, -95.34

STATION	NAME	DISTANCE KM	COORDINATE
KSGR	Sugar Land Regional Airport	92.30	29.62, -95.66

- KUTS: [IEM ASOS/METAR daily CSV query](#)
- KCXO: [IEM ASOS/METAR daily CSV query](#)
- KCLL: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072240	LAKE CHARLES/MUN.; LA.	259.10	30.13, -93.22
USM00072248	SHREVEPORT/REG.; LA.	297.50	32.45, -93.84
USM00072249	FORT WORTH; TX.	299.00	32.84, -97.30
USM00072251	CORPUS CHRISTI/INT.; TX.	333.60	27.78, -97.51
USM00072261	DEL RIO/INT.; TX.	498.40	29.37, -100.92

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 10-10 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
KUTS	46.00	2024-03-16T05:53:00 +00:00	10.00	BKN00800, BKN01900, OVC02500, M	50.00 / 4.00	KUTS 160553Z AUTO 05004KT 10SM BKN008 BKN019 OVC025 19/18 A3005 RMK AO2 SLP173 T01940178 10228 20189 402670189 51017
KCXO	46.60	2024-03-16T05:53:00 +00:00	10.00	CLR, M, M, M	50.00 / 4.00	KCXO 160553Z AUTO 05004KT 10SM CLR 18/17 A3005 RMK AO2 SLP172 T01780167 10222 20178 402830178 50013
KCLL	48.60	2024-03-16T05:53:00 +00:00	10.00	SCT01000, BKN01600, OVC02500, M	50.00 / 10.00	KCLL 160553Z AUTO 05010KT 10SM SCT010 BKN016 OVC025 19/16 A3004 RMK AO2 SLP168 T01890161 10206 20183 402830183 51006

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 226.1 deg at 22.64 m/s; a passive balloon could drift about 163.0 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
USM00072240		259.10	2024-03-16T12:00 :00+00:00	226.10	22.64	163.00	34.00 at 20724.00 m

STATION	NAME	DISTANCE KM	SOUNDING UTC	MEAN DRIFT BEARING	MEAN SPEED M/S	2H DRIFT KM	MAX WIND
	LAKE CHARLES/MUN.; LA.						

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/2024/076/06/OR_ABI-L2-CMIPF-M6C01_G16_s20240760600209_e20240760609517_c20240760609571.nc](#)
- [ABI-L2-CMIPF/2024/076/06/OR_ABI-L2-CMIPF-M6C01_G16_s20240760610209_e20240760619517_c20240760619582.nc](#)
- [ABI-L2-CMIPF/2024/076/06/OR_ABI-L2-CMIPF-M6C01_G16_s20240760620209_e20240760629517_c20240760629567.nc](#)
- [ABI-L2-CMIPF/2024/076/06/OR_ABI-L2-CMIPF-M6C01_G16_s20240760630209_e20240760639517_c20240760639577.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2024/076/06/OR_GLM-L2-LCFA_G16_s20240760600000_e20240760600200_c20240760600218.nc](#)
- [GLM-L2-LCFA/2024/076/06/OR_GLM-L2-LCFA_G16_s20240760600200_e20240760600400_c20240760600422.nc](#)
- [GLM-L2-LCFA/2024/076/06/OR_GLM-L2-LCFA_G16_s20240760600400_e20240760601000_c20240760601021.nc](#)
- [GLM-L2-LCFA/2024/076/06/OR_GLM-L2-LCFA_G16_s20240760601000_e20240760601200_c20240760601221.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.

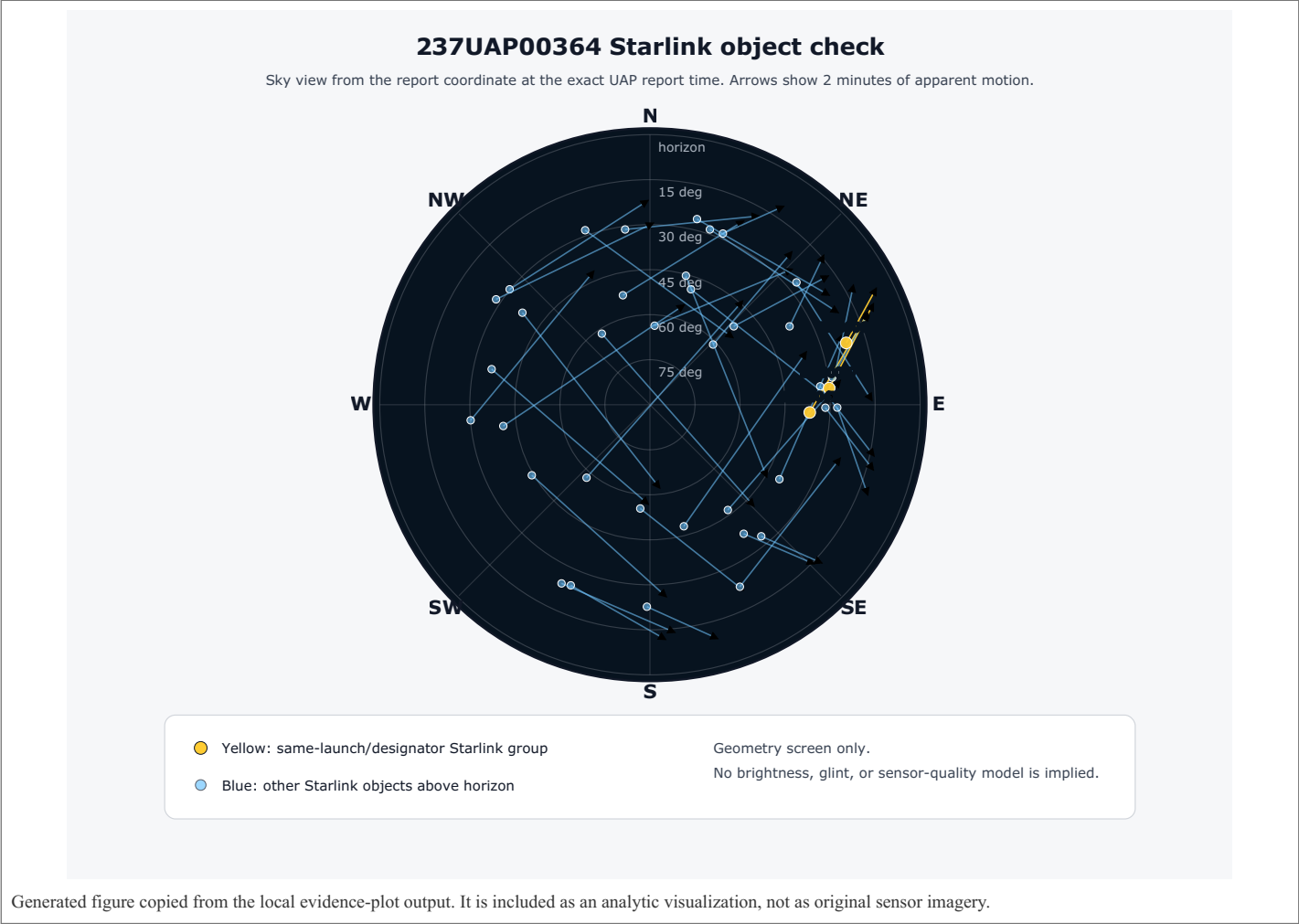
ARCHIVE WINDOW	2024-03-16T05:16:00+00:00 to 2024-03-16T07:16:00+00:00	RADIUS	250.00 nmi
TRACE FILES SCANNED	52336	TRACKS RETAINED	191
SUPPORT STATUS	aircraft strong candidate present	BEST-CANDIDATE NOTE	ordinary-object favored if the report's count, color, direction, and motion can be reconciled with the candidate track(s).
STRONG CANDIDATES	5	PLAUSIBLE CANDIDATES	23
REPORTING-AIRCRAFT TRACKS EXCLUDED	0	WEAK CANDIDATES	33

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
B-16722 B77W 8990e4	strong aircraft candidate	66.64	26.10	0.04	4475	76.60	9.83
N448WN B737 a56a56	strong aircraft candidate	64.71	60.70	0.07	38000	236.30	7.18
N710NK A21N a97d43	strong aircraft candidate	55.98	1.40	4.72	1575	137.30	0.15
N38459 B739 a46d4f	strong aircraft candidate	55.72	49.00	3.11	2675	137.70	0.28
N206WN B737 a1aa4e	strong aircraft candidate	51.80	35.20	0.04	1475	170.50	1.89
N350DN A321 a3e525	plausible aircraft candidate	71.56	8.80	0.12	29975	109.40	33.22

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
N5280F H500 a6a904	plausible aircraft candidate	57.66	72.90	0.28	1300	145.70	-0.13
XA-KID LJ35 0d0e2f	plausible aircraft candidate	53.32	80.60	0.06	39025	101.70	6.76

6. Annotated Evidence Figure



7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2024-03-16T06:16:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	30.42686, -95.89203	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	three-object/light language present	Primary same-launch group contains 3 propagated objects in a compact sky sector.
MOTION LANGUAGE	not explicit	Reported motion remains only partly explained; this is a principal reason for high-value unresolved status.
RADAR / OFFICIAL CHECK	not observed on ATC radar	Radar or hard maneuvering language is treated as a conflict/collection gap, not hand-waved away.
ANALYTIC DISPOSITION	unresolved	237UAP00364 remains high-value unresolved after screening against historical Starlink orbital elements. The strongest compact object grouping contains 3 objects from 2023-02-27; however, this does not close the case because hard report features remain: video/footage referenced. Context noted but not treated as causation: substantial orbital-object sky background; context only, not causation.

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.
- This case is retained as high-value unresolved because the hardest reported behavior is not resolved by the current normal-object layers.

Appendix A. Public Report Text Extracts

237UAP00364

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 06:16 03/16/2024
Status: Closed
POD: DEN
Reporting Facility: ZHU

Callsign: N473KW
Aircraft: E35L
Tail Number:
Operator:

Origin: SEF
Destination: TRM
New Destination:
Operator Type: General Aviation
Paged: NO

REMARKS

Aircraft reported an unidentified aerial phenomenon off the front while W bound at FL410, 40NM NW of IAH. The unknown phenomenon was 3 bright lights coming together. The UAP was not observed on ATC facility radar systems. MOR will be filed. PIC has video of event.

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": "2024-03-16T06:16:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon off the front while W bound at FL410, 40NM NW of IAH. The unknown phenomenon was 3 bright lights coming together. The UAP was not observed on ATC facility radar systems. MOR will be filed. PIC has video of event.",
  "historical_starlink_element_rows": 5592,
  "observer": {
    "lat": 30.42685964915016,
    "lon": -95.89202840447246,
    "source": "aviation_offset:40NM NW of IAH (public text extract 237UAP00364)"
  },
  "case_id": "237UAP00364",
  "starlink_above_horizon_at_report_time": 256,
  "starlink_catalog_ids_considered": 5614,
  "largest_same-sky_cluster_count": 88,
  "starlink_at_or_above_10_deg": 108,
  "same_launch_sky_groups": [
    {
      "azimuth_range_deg": [
        72.51,
        92.76
      ],
      "count": 3,
      "elevation_range_deg": [
        21.45,
        36.71
      ],
      "ground_track_labels": [
        "ENE",
        "NE"
      ],
      "launch_date": "2023-02-27",
      "members": [
        {
          "azimuth_deg": 92.76,
          "azimuth_plus_2m_deg": 66.84,
          "azimuth_plus_5m_deg": 60.38,
          "element_age_hours": 8.95,
          "element_epoch": "2024-03-16T15:13:07.910112+00:00",
          "elevation_deg": 36.71,
          "elevation_plus_2m_deg": 10.68,
          "elevation_plus_5m_deg": -2.92,
          "epoch_altitude_km": 359.88,
          "ground_track_bearing_deg": 55.99,
          "ground_track_label": "NE",
          "launch_date": "2023-02-27",
          "name": "STARLINK-30047",
          "norad_id": "55709",
          "range_km": 571.0,
          "sky_motion_label": "westward, setting",
          "subpoint_lat": 30.1611,
          "subpoint_lon": -91.3921
        },
        {
          "azimuth_deg": 84.72,
          "azimuth_plus_2m_deg": 65.78,
          "azimuth_plus_5m_deg": 60.15,
          "element_age_hours": 5.89,
          "element_epoch": "2024-03-16T12:09:41.003712+00:00",
          "elevation_deg": 30.07,
          "elevation_plus_2m_deg": 8.51,
          "elevation_plus_5m_deg": -3.98,
          "epoch_altitude_km": 358.43,
          "ground_track_bearing_deg": 56.59,
          "ground_track_label": "ENE",
          "launch_date": "2023-02-27",
          "name": "STARLINK-30057",
          "norad_id": "55705",
          "range_km": 655.11,
          "sky_motion_label": "westward, setting",
          "subpoint_lat": 30.7531,
          "subpoint_lon": -90.2954
        },
        {
          "azimuth_deg": 72.51,
          "azimuth_plus_2m_deg": 62.86,
          "azimuth_plus_5m_deg": 59.26,
          "element_age_hours": 1.74,
          "element_epoch": "2024-03-16T04:31:30.574848+00:00",
          "elevation_deg": 21.45,
```

```

        "elevation_plus_2m_deg": 5.43,
        "elevation_plus_5m_deg": -5.66,
        "epoch_altitude_km": 359.15,
        "ground_track_bearing_deg": 58.2,
        "ground_track_label": "ENE",
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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: 237UAP00364
TIME AND OBSERVER COORDINATE	extracted	2024-03-16T06:16:00+00:00 at 30.42686, -95.89203
ORBITAL OBJECT PROPAGATION	screened	Starlink
SPACE-TRACK SATCAT METADATA	screened	31 NORAD IDs checked; 31 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	screened	52336 trace files scanned; 191 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	high-value unresolved	Presence-only satellite density is context only; a stronger case-specific fit is required for normal-object disposition

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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. *237UAP00364.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-615/493468575/237UAP00364.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>
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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>
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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/>
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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/>