

CASE FILE 02 / 237UAP00279

237UAP00279

Radar/correlation-focused public UAP report; score 108

HIGH-VALUE UNRESOLVED

REPORT NO.	UAP-OM-02-237UAP00279	DISPOSITION	HIGH-VALUE UNRESOLVED
PRIMARY CASE	237UAP00279	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2023-07-22T06:05:00+00:00	OBSERVER	27.49295, -77.17528
SOURCE CASE IDS	237UAP00279		

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

237UAP00279 was screened against historical Starlink orbital elements at the extracted time and observer coordinate. The screen did not produce enough mundane evidence to close the case under the normal-object favored standard. Hard features retained for follow-up: radar/primary evidence, multiple witnesses/facilities, hard maneuver language, video/footage referenced.

1.1 Key Findings

- Source score 108 based on: radar/primary-return language, multiple aircraft/facility witnesses, NORAD/AMOC/EADS/CONR check, negative official correlation, maneuvering/motion anomaly.
- Report time used: 2023-07-22T06:05:00+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: plausible ADS-B aircraft candidate EC-NIG A359 34640e at 172.2 km, azimuth 257.0 deg, elevation 3.27 deg, 0.49 min from report.
- Non-causal context / rejection screens: substantial orbital-object sky background; context only, not causation; NASA/JPL known-small-body rejection screen present.
- Remaining hard features: radar/primary evidence; multiple witnesses/facilities; hard maneuver language; video/footage referenced.
- Objects above horizon: 212; at/above 10 deg: 67.
- 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

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
237UAP00279	06:05 07/22/2023 Callsign: AVA062 Origin: SKCL	ZMA Operator: AVA Operator Type: Commercial	text extract present	237UAP00279.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Multiple aircraft reported 4 unidentified aerial phenomenon while N bound at 37,000 feet, 130NM NNE of ZFP. The unknown phenomenon was lighted green climbing and descending rapidly and disappearing from 37,000feet. AVA062 PIC has video of the objects and will contact ZMA OMIC with detail on how to obtain footage. EADS and NORAD notified. 0628 EADS is capturing primary returns in the area. They are working to capture a FRD. 0638 EADS reporting primaries ZFP055099. AMOCC searching. 0650 AMOCC unable to correlate a target. 0828 ZMA provided PIC contact info, Raul Salazar, +573183119631.
REPORT TIME USED	2023-07-22T06:05:00+00:00
OBSERVER COORDINATE USED	27.49295, -77.17528
OBSERVER SOURCE BASIS	aviation_radial:ZFP055099 (public text extract 237UAP00279)

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	4497	HISTORICAL ELEMENT ROWS	3966
ABOVE HORIZON AT REPORT MINUTE	212	AT/ABOVE 10 DEG	67
LARGEST SAME-SKY CLUSTER	14		

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-5544	61.43	56.04	682.03	eastward, setting	2023-03-03
STARLINK-5560	46.24	54.52	693.38	eastward, setting	2023-03-03
STARLINK-1733	268.74	51.79	680.28	westward, setting	2020-10-06
STARLINK-4116	97.48	49.4	692.46	eastward, setting	2022-07-17
STARLINK-3398	306.68	48.83	697.65	eastward, setting	2022-01-19
STARLINK-5718	50.32	47.6	734.78	eastward, setting	2023-02-12
STARLINK-5701	275.53	46.48	746.19	westward, setting	2023-02-02
STARLINK-2729	176.97	44.9	746.3	westward, setting	2021-05-09
STARLINK-4778	227.71	40.09	796.84	eastward, rising	2022-09-19
STARLINK-3327	28.85	36.85	846.93	eastward, setting	2022-01-06
STARLINK-4442	105.72	36.56	890.21	westward, setting	2022-08-12
STARLINK-1845	23.13	36.16	868.85	eastward, setting	2020-11-25

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	14	6.54-359.47 deg	10.06-27.51 deg	eastward, rising, eastward, setting, westward, rising
2	12	42.27-123.81 deg	12.6-35.28 deg	eastward, setting, westward, setting
3	8	132.66-159.82 deg	11.6-28.45 deg	eastward, setting, westward, rising, westward, setting
4	7	252.5-292.55 deg	11.74-24.6 deg	

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
				eastward, rising, westward, rising, westward, setting
5	5	21.19-28.85 deg	13.04-36.85 deg	eastward, level, eastward, rising, eastward, setting, 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
55757	STARLINK-5544	PAYLOAD	US	2023-03-03	n/a
55749	STARLINK-5560	PAYLOAD	US	2023-03-03	2025-07-07
46564	STARLINK-1733	PAYLOAD	US	2020-10-06	n/a
53164	STARLINK-4116	PAYLOAD	US	2022-07-17	n/a
51120	STARLINK-3398	PAYLOAD	US	2022-01-19	n/a
55620	STARLINK-5718	PAYLOAD	US	2023-02-12	n/a
55487	STARLINK-5701	PAYLOAD	US	2023-02-02	n/a
48430	STARLINK-2729	PAYLOAD	US	2021-05-09	2024-05-15
53836	STARLINK-4778	PAYLOAD	US	2022-09-19	n/a
50819	STARLINK-3327	PAYLOAD	US	2022-01-06	n/a
53480	STARLINK-4442	PAYLOAD	US	2022-08-12	n/a
47135	STARLINK-1845	PAYLOAD	US	2020-11-25	n/a

5.6 NASA/JPL Near-Earth Object Screen

This secondary object screen checks NASA/JPL close-approach objects near the report date and propagates their observer geometry through Horizons at the report coordinate. It is a known-object rejection layer, not a generic astronomy backdrop.

NASA/JPL CAD WINDOW	event date +/- 1 day, dist-max 0.2 au	COORDINATE USED	27.49, -77.18
CLOSE-APPROACH OBJECTS	21	ABOVE HORIZON	14
BRIGHT-ISH ABOVE HORIZON	0 using apparent magnitude <= 10 screen		

5.7 NASA/JPL Objects Above Horizon

OBJECT	CLOSE APPROACH UTC	DIST AU	H	AZ	EL	APP MAG
2023 NR1	2023-Jul-22 00:42	0.00748014147434896	23.28	86.60	21.99	15.87
2023 OU	2023-Jul-22 23:42	0.00449191531900052	26.09	181.93	4.06	16.23
2023 OV1	2023-Jul-21 11:58	0.00368125550717351	25.41	147.16	0.33	16.77

OBJECT	CLOSE APPROACH UTC	DIST AU	H	AZ	EL	APP MAG
293054	2023-Jul-21 02:23	0.180814123571272	18.48	291.50	4.22	17.69
2023 NM1	2023-Jul-21 14:42	0.0340508180239923	25.02	239.17	48.81	19.10
2023 OY5	2023-Jul-22 16:30	0.0718940529590256	24.16	175.25	35.42	19.48
2020 OE	2023-Jul-21 09:40	0.17979481131286	22.09	206.20	26.69	19.55
2023 MM3	2023-Jul-22 14:58	0.0489051038995479	24.52	241.65	72.41	19.58
2023 OA1	2023-Jul-21 08:46	0.166354748900526	21.71	255.42	8.23	20.02
2023 OG6	2023-Jul-21 22:55	0.0875130534059121	24.73	182.12	27.16	20.52

5.8 NASA/JPL Bright-Candidate Result

OBJECT	AZ	EL	APP MAG
No above-horizon close-approach object met the apparent magnitude ≤ 10 screen.			

- NASA/JPL CAD listed 21 near-Earth close approaches in the event-date ± 1 day window within 0.2 au.
- Horizons placed 14 of those objects above the local horizon at the report coordinate/time.
- None of the above-horizon close-approach objects were remotely bright enough for naked-eye explanation using the $\text{mag} \leq 10$ screen.

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.

HOURLY UTC	2023072206
CLOUD AMOUNT	91.83%
PRECIPITATION	0.74 mm/hr
10 M WIND	5.79 m/s
TEMPERATURE	29.79 C
RELATIVE HUMIDITY	80.3%
DONKI ± 1 DAY	CME: 12; FLR: 3; GST: 0; HSS: 0; IPS: 2; MPC: 0; RBE: 0; SEP: 0; WSAEnlilSimulations: 4

5.10 Horizons Sky Geometry Context

OBJECT	AZ	EL	APP MAG
Sun	15.47	-40.70	-26.71
Moon	309.43	-40.75	-7.97
Venus	335.00	-50.58	-4.64
Mars	322.96	-45.28	1.77
Jupiter	78.57	9.53	-2.30
Saturn	144.43	44.76	0.62

- Sun elevation was -40.7 deg, so this was a dark-sky/nighttime sighting.
- Moon was below horizon at elevation -40.7 deg.
- Planets above horizon: Jupiter (9.5 deg), Saturn (44.8 deg).
- NASA POWER cloud amount for the hour was 91.83%, with precipitation 0.74 mm/hr.
- DONKI event counts in ± 1 day: CME=12, GST=0, FLR=3, SEP=0, IPS=2, MPC=0, RBE=0, HSS=0, WSAEnlilSimulations=4.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1112.9 MiB; planes-readsb-prod-1 1112.9 MiB; planes-readsb-prod-0 1112.9 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 adslol/globe_history_2023 for 2023-07-22, then filter +/-60 min and 250 nmi around 27.4930,-77.1753.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00279 at 2023-07-22T06:05:00+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/2023/203/06/
GOES GLM LIGHTNING PREFIX	https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2023/203/06/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
MYAT	Treasure Cay Airport	85.80	26.75, -77.39
MYAM	Leonard M. Thompson International Airport	109.60	26.51, -77.08
MYGF	Grand Bahama International Airport	183.00	26.56, -78.70
MYBG	Great Harbour Cay Airport	206.00	25.74, -77.84
MYEH	North Eleuthera Airport	229.60	25.48, -76.68

- MYAT: [IEM ASOS/METAR daily CSV query](#)
- MYAM: [IEM ASOS/METAR daily CSV query](#)
- MYGF: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00074794	CAPE KENNEDY	348.60	28.47, -80.55
USM00072202	MIAMI; FL (72202-0)	373.10	25.75, -80.38
USM00072210	TAMPA BAY AREA; FL.	515.40	27.71, -82.40
USM00072206	JACKSONVILLE/INTNL.; FL.	551.60	30.48, -81.70
USM00072201	KEY WEST/INT; FL	565.00	24.55, -81.79

5.15 ASOS/METAR Surface Weather Observations

No ASOS/METAR observations were retrieved in the configured window. 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
MYAT	85.80	no retained observation	n/a	n/a	n/a / n/a	
MYAM	109.60	no retained observation	n/a	n/a	n/a / n/a	
MYGF	183.00	no retained observation	n/a	n/a	n/a / n/a	

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 82.2 deg at 3.99 m/s; a passive balloon could drift about 28.8 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
USM00074794	CAPE KENNEDY	348.60	2023-07-22T12:00:00+00:00	82.20	3.99	28.80	17.50 at 12470.00 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/2023/203/06/OR_ABI-L2-CMIPF-M6C01_G16_s20232030600215_e20232030609523_c20232030609571.nc](#)
- [ABI-L2-CMIPF/2023/203/06/OR_ABI-L2-CMIPF-M6C01_G16_s20232030610215_e20232030619524_c20232030619580.nc](#)
- [ABI-L2-CMIPF/2023/203/06/OR_ABI-L2-CMIPF-M6C01_G16_s20232030620215_e20232030629523_c20232030629579.nc](#)
- [ABI-L2-CMIPF/2023/203/06/OR_ABI-L2-CMIPF-M6C01_G16_s20232030630215_e20232030639523_c20232030639584.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2023/203/06/OR_GLM-L2-LCFA_G16_s20232030600000_e20232030600200_c20232030600217.nc](#)
- [GLM-L2-LCFA/2023/203/06/OR_GLM-L2-LCFA_G16_s20232030600200_e20232030600400_c20232030600415.nc](#)
- [GLM-L2-LCFA/2023/203/06/OR_GLM-L2-LCFA_G16_s20232030600400_e20232030601000_c20232030601018.nc](#)
- [GLM-L2-LCFA/2023/203/06/OR_GLM-L2-LCFA_G16_s20232030601000_e20232030601200_c20232030601216.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.

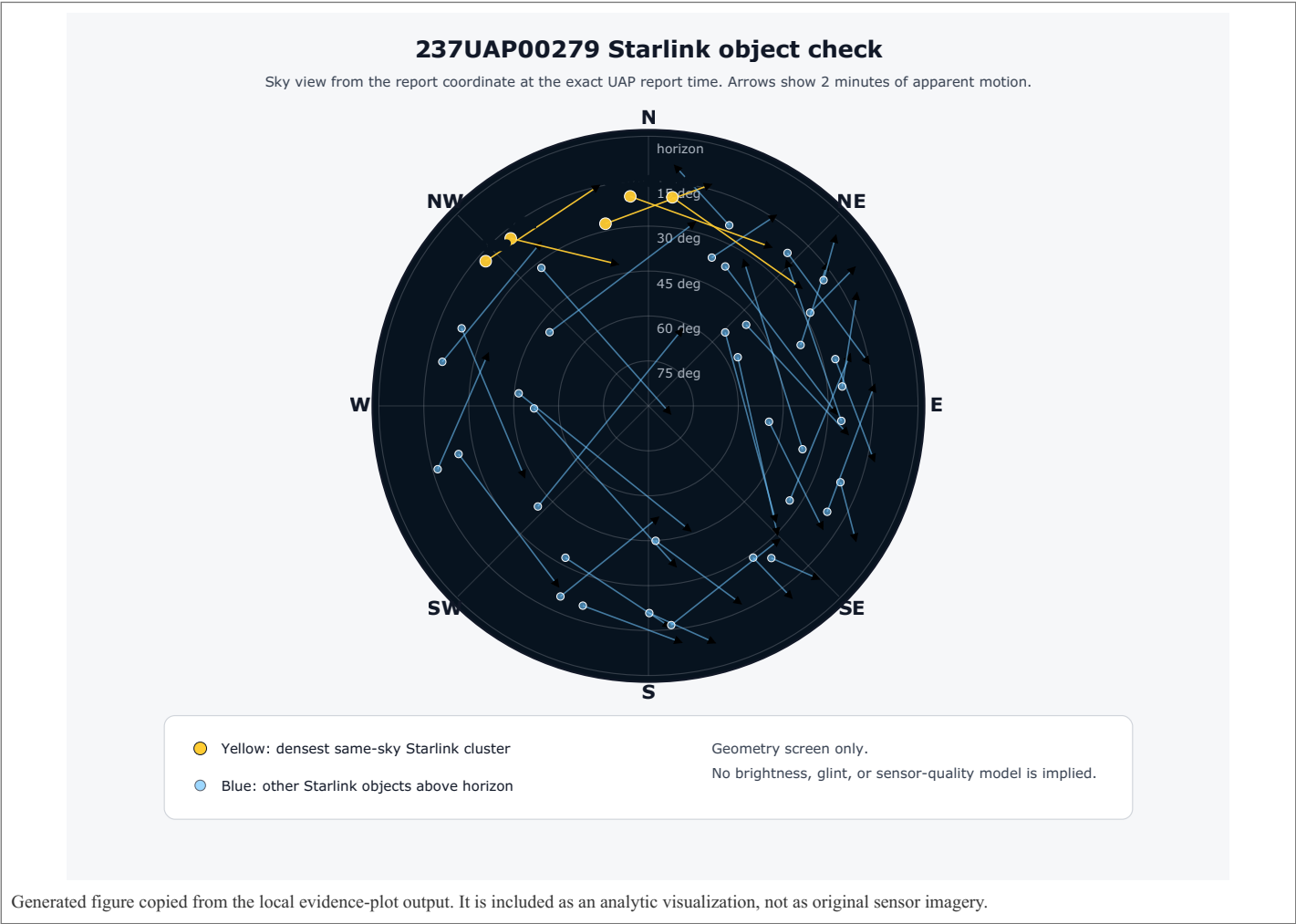
ARCHIVE WINDOW	2023-07-22T05:05:00+00:00 to 2023-07-22T07:05:00+00:00	RADIUS	250.00 nmi
TRACE FILES SCANNED	49204	TRACKS RETAINED	86
SUPPORT STATUS	aircraft plausible candidate present	BEST-CANDIDATE NOTE	ordinary-object favored only if source wording is weak; high-value reports with radar/video/rapid maneuver language remain unresolved residuals.
STRONG CANDIDATES	0	PLAUSIBLE CANDIDATES	4

REPORTING-AIRCRAFT TRACKS EXCLUDED	0	WEAK CANDIDATES	12
------------------------------------	---	-----------------	----

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
EC-NIG A359 34640e	plausible aircraft candidate	45.19	172.20	0.49	40000	257.00	3.27
HK-5335 A320 0ac98a	plausible aircraft candidate	44.48	135.40	0.85	36975	284.70	4.12
HP-1539CMP B738 0c204c	plausible aircraft candidate	27.63	145.00	1.87	37000	303.20	3.32
N128AM B789 a07176	plausible aircraft candidate	18.95	166.70	0.08	37975	283.10	3.21
N779JB A320 aa8b40	weak aircraft candidate	29.81	196.30	0.27	35000	316.10	1.47
CC-CXH B763 e80244	weak aircraft candidate	24.46	156.20	0.52	34000	330.90	1.67
N938NK A20N ad0497	weak aircraft candidate	21.37	180.70	1.39	36975	323.20	1.61
HP-9924CMP B39M 0c217a	weak aircraft candidate	17.25	147.60	3.99	35000	248.90	3.46

6. Annotated Evidence Figure



7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2023-07-22T06:05:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	27.49295, -77.17528	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	two-object/light language present	No compact same-launch count match; retained for unresolved report features.
MOTION LANGUAGE	climbing, descending, disappear	Reported motion remains only partly explained; this is a principal reason for high-value unresolved status.
RADAR / OFFICIAL CHECK	not specified	Radar or hard maneuvering language is treated as a conflict/collection gap, not hand-waved away.
ANALYTIC DISPOSITION	unresolved	237UAP00279 was screened against historical Starlink orbital elements at the extracted time and observer coordinate. The screen did not produce enough mundane evidence to close the case under the normal-object favored standard. Hard features retained for follow-up: radar/primary evidence, multiple witnesses/facilities, hard maneuver language, video/footage referenced.

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

237UAP00279

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 06:05 07/22/2023

Status: Closed

POD: DEN

Reporting Facility: ZMA

Callsign: AVA062

Aircraft: A320

Tail Number:

Operator: AVA

Origin: SKCL

Destination: JFK

New Destination:

Operator Type: Commercial

Paged: YES

REMARKS

Multiple aircraft reported 4 unidentified aerial phenomenon while N bound at 37,000 feet, 130NM NNE of ZFP. The unknown phenomenon was lighted green climbing and descending rapidly and disappearing from 37,000feet. AVA062 PIC has video of the objects and will contact ZMA OMIC with detail on how to obtain footage. EADS and NORAD notified. 0628 EADS is capturing primary returns in the area. They are working to capture a FRD. 0638 EADS reporting primaries ZFP055099. AMOCC searching. 0650 AMOCC unable to correlate a target. 0828 ZMA provided PIC contact info, Raul Salazar, +573183119631.

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": "2023-07-22T06:05:00+00:00",
  "source_excerpt": "Multiple aircraft reported 4 unidentified aerial phenomenon while N bound at 37,000 feet, 130NM NNE of ZFP. The unknown phenomenon was lighted green climbing and descending rapidly and disappearing from 37,000feet. AVA062 PIC has video of the objects and will contact ZMA OMIC with detail on how to obtain footage. EADS and NORAD notified. 0628 EADS is capturing primary returns in the area. They are working to capture a FRD. 0638 EADS reporting primaries ZFP055099. AMOCC searching. 0650 AMOCC unable to correlate a target. 0828 ZMA provided PIC contact info, Raul Salazar, +573183119631.",
  "historical_starlink_element_rows": 3966,
  "observer": {
    "lat": 27.492951618401797,
    "lon": -77.17528375300753,
    "source": "aviation_radial:ZFP055099 (public text extract 237UAP00279)"
  },
  "case_id": "237UAP00279",
  "starlink_above_horizon_at_report_time": 212,
  "starlink_catalog_ids_considered": 4497,
  "largest_same-sky_cluster_count": 14,
  "starlink_at_or_above_10_deg": 67,
  "top_starlinks": [
    {
      "azimuth_deg": 61.43,
      "azimuth_plus_2m_deg": 134.83,
      "azimuth_plus_5m_deg": 149.67,
      "element_age_hours": 23.09,
      "element_epoch": "2023-07-21T06:59:20.114592+00:00",
      "elevation_deg": 56.04,
      "elevation_plus_2m_deg": 29.25,
      "elevation_plus_5m_deg": 5.96,
      "epoch_altitude_km": 576.7,
      "ground_track_bearing_deg": 160.5,
      "ground_track_label": "SSE",
      "launch_date": "2023-03-03",
      "name": "STARLINK-5544",
      "norad_id": "55757",
      "range_km": 682.03,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 28.9651,
      "subpoint_lon": -74.025
    },
    {
      "azimuth_deg": 46.24,
      "azimuth_plus_2m_deg": 132.18,
      "azimuth_plus_5m_deg": 149.33,
      "element_age_hours": 23.09,
      "element_epoch": "2023-07-21T06:59:34.300608+00:00",
      "elevation_deg": 54.52,
      "elevation_plus_2m_deg": 32.67,
      "elevation_plus_5m_deg": 7.12,
      "epoch_altitude_km": 576.74,
      "ground_track_bearing_deg": 160.29,
      "ground_track_label": "SSE",
      "launch_date": "2023-03-03",
      "name": "STARLINK-5560",
      "norad_id": "55749",
      "range_km": 693.38,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 29.7695,
      "subpoint_lon": -74.4175
    },
    {
      "azimuth_deg": 268.74,
      "azimuth_plus_2m_deg": 170.4,
      "azimuth_plus_5m_deg": 151.97,
      "element_age_hours": 13.38,
      "element_epoch": "2023-07-21T16:42:14.045760+00:00",
      "elevation_deg": 51.79,
      "elevation_plus_2m_deg": 35.77,
      "elevation_plus_5m_deg": 7.85,
      "epoch_altitude_km": 553.13,
      "ground_track_bearing_deg": 140.44,
      "ground_track_label": "SE",
      "launch_date": "2020-10-06",
      "name": "STARLINK-1733",
      "norad_id": "46564",
      "range_km": 680.28,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 27.3609,
      "subpoint_lon": -81.0946
    }
  ],
}
```

```

"azimuth_deg": 97.48,
"azimuth_plus_2m_deg": 125.13,
"azimuth_plus_5m_deg": 132.56,
"element_age_hours": 22.9,
"element_epoch": "2023-07-21T07:11:03.046848+00:00",
"elevation_deg": 49.4,
"elevation_plus_2m_deg": 18.95,
"elevation_plus_5m_deg": 1.74,
"epoch_altitude_km": 545.99,
"ground_track_bearing_deg": 140.85,
"ground_track_label": "SE",
"launch_date": "2022-07-17",
"name": "STARLINK-4116",
"norad_id": "53164",
"range_km": 692.46,
"sky_motion_label": "eastward, setting",
"subpoint_lat": 26.9426,
"subpoint_lon": -73.0237
},
{
"azimuth_deg": 306.68,
"azimuth_plus_2m_deg": 14.15,
"azimuth_plus_5m_deg": 31.74,
"element_age_hours": 24.01,
"element_epoch": "2023-07-21T06:04:09.473952+00:00",
"elevation_deg": 48.83,
"elevation_plus_2m_deg": 26.89,
"elevation_plus_5m_deg": 5.34,
"epoch_altitude_km": 545.84,
"ground_track_bearing_deg": 41.15,
"ground_track_label": "NE",
"launch_date": "2022-01-19",
"name": "STARLINK-3398",
"norad_id": "51120",
"range_km": 697.65,
"sky_motion_label": "eastward, setting",
"subpoint_lat": 29.7316,
"subpoint_lon": -80.6873
},
{
"azimuth_deg": 50.32,
"azimuth_plus_2m_deg": 97.99,
"azimuth_plus_5m_deg": 111.96,
"element_age_hours": 29.31,
"element_epoch": "2023-07-21T00:46:33.832128+00:00",
"elevation_deg": 47.6,
"elevation_plus_2m_deg": 22.84,
"elevation_plus_5m_deg": 3.99,
"epoch_altitude_km": 565.43,
"ground_track_bearing_deg": 124.7,
"ground_track_label": "SE",
"launch_date": "2023-02-12",
"name": "STARLINK-5718",
"norad_id": "55620",
"range_km": 734.78,
"sky_motion_label": "eastward, setting",
"subpoint_lat": 30.0699,
"subpoint_lon": -73.5372
},
{
"azimuth_deg": 275.53,
"azimuth_plus_2m_deg": 161.54,
"azimuth_plus_5m_deg": 138.09,
"element_age_hours": 30.92,
"element_epoch": "2023-07-20T23:09:45.088416+00:00",
"elevation_deg": 46.48,
"elevation_plus_2m_deg": 46.15,
"elevation_plus_5m_deg": 10.93,
"epoch_altitude_km": 565.29,
"ground_track_bearing_deg": 126.7,
"ground_track_label": "SE",
"launch_date": "2023-02-02",
"name": "STARLINK-5701",
"norad_id": "55487",
"range_km": 746.19,
"sky_motion_label": "westward, setting",
"subpoint_lat": 27.8217,
"subpoint_lon": -81.9535
},
{
"azimuth_deg": 176.97,
"azimuth_plus_2m_deg": 155.01,
"azimuth_plus_5m_deg": 148.6,
"element_age_hours": 22.96,
"element_epoch": "2023-07-21T07:07:33.416256+00:00",
"elevation_deg": 44.9,
"elevation_plus_2m_deg": 17.3,
"elevation_plus_5m_deg": 1.05,

```

```

    "epoch_altitude_km": 553.42,
    "ground_track_bearing_deg": 142.35,
    "ground_track_label": "SE",
    "launch_date": "2021-05-09",
    "name": "STARLINK-2729",
    "norad_id": "48430",
    "range_km": 746.3,
    "sky_motion_label": "westward, setting",
    "subpoint_lat": 23.1008,
    "subpoint_lon": -76.9241
  },
  {
    "azimuth_deg": 227.71,
    "azimuth_plus_2m_deg": 23.75,
    "azimuth_plus_5m_deg": 37.88,
    "element_age_hours": 12.85,
    "element_epoch": "2023-07-21T17:13:52.695264+00:00",
    "elevation_deg": 40.09,
    "elevation_plus_2m_deg": 62.16,
    "elevation_plus_5m_deg": 12.92,
    "epoch_altitude_km": 545.89,
    "ground_track_bearing_deg": 38.25,
    "ground_track_label": "NE",
    "launch_date": "2022-09-19",
    "name": "STARLINK-4778",
    "norad_id": "53836",
    "range_km": 796.84,
    "sky_motion_label": "eastward, rising",
    "subpoint_lat": 24.017,
    "subpoint_lon": -81.2651
  },
  {
    "azimuth_deg": 28.85,
    "azimuth_plus_2m_deg": 92.35,
    "azimuth_plus_5m_deg": 118.81,
    "element_age_hours": 19.69,
    "element_epoch": "2023-07-21T10:23:48.425568+00:00",
    "elevation_deg": 36.85,
    "elevation_plus_2m_deg": 27.09,
    "elevation_plus_5m_deg": 6.31,
    "epoch_altitude_km": 546.01,
    "ground_track_bearing_deg": 137.69,
    "ground_track_label": "SE",
    "launch_date": "2022-01-06",
    "name": "STARLINK-3327",
    "norad_id": "50819",
    "range_km": 846.93,
    "sky_motion_label": "eastward, setting",
    "subpoint_lat": 32.3981,
    "subpoint_lon": -73.969
  },
  {
    "azimuth_deg": 105.72,
    "azimuth_plus_2m_deg": 33.28,
    "azimuth_plus_5m_deg": 3.14,
    "element_age_hours": 22.51,
    "element_epoch": "2023-07-21T07:34:24.187872+00:00",
    "elevation_deg": 36.56,
    "elevation_plus_2m_deg": 31.96,
    "elevation_plus_5m_deg": 7.76,
    "epoch_altitude_km": 569.18,
    "ground_track_bearing_deg": 348.42,
    "ground_track_label": "NNW",
    "launch_date": "2022-08-12",
    "name": "STARLINK-4442",
    "norad_id": "53480",
    "range_km": 890.21,
    "sky_motion_label": "westward, setting",
    "subpoint_lat": 25.7419,
    "subpoint_lon": -70.8622
  },
  {
    "azimuth_deg": 23.13,
    "azimuth_plus_2m_deg": 33.75,
    "azimuth_plus_5m_deg": 38.11,
    "element_age_hours": 24.07,
    "element_epoch": "2023-07-21T06:00:40.656384+00:00",
    "elevation_deg": 36.16,
    "elevation_plus_2m_deg": 13.65,
    "elevation_plus_5m_deg": -0.66,
    "epoch_altitude_km": 553.47,
    "ground_track_bearing_deg": 43.39,
    "ground_track_label": "NE",
    "launch_date": "2020-11-25",
    "name": "STARLINK-1845",
    "norad_id": "47135",
    "range_km": 868.85,
    "sky_motion_label": "eastward, setting",

```

```
    "subpoint_lat": 32.8321,  
    "subpoint_lon": -74.4641  
  },  
  ],  
  "adsb_lol_analysis": {  
    "classificationSupport": {  
      "bestCandidate": {  
        "bestScoredPoin
```

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: 237UAP00279
TIME AND OBSERVER COORDINATE	extracted	2023-07-22T06:05:00+00:00 at 27.49295, -77.17528
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	screened	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	49204 trace files scanned; 86 tracks retained; aircraft plausible 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

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. *237UAP00279.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-615/493468575/237UAP00279.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/JPL Solar System Dynamics. *Close-Approach Data API documentation for known small-body encounter screening*. <https://ssd-api.jpl.nasa.gov/doc/cad.html>
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 POWER. *Hourly point API documentation for meteorological context*. <https://power.larc.nasa.gov/docs/services/api/temporal/hourly/>
12. NASA. *DONKI space weather API documentation*. <https://api.nasa.gov/>
13. ADSB.lol. *Interactive API documentation and OpenAPI definition*. <https://api.adsb.lol/docs>
14. ADSB.lol. *Historical open-data release documentation*. <https://www.adsb.lol/docs/open-data/historical/>
15. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
16. OpenSky Network. *Historical data via Trino documentation*. <https://openskynetwork.github.io/opensky-api/trino.html>
17. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
18. NASA Earthdata. *Common Metadata Repository search API documentation*. <https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html>
19. NOAA / AWS Open Data. *GOES public dataset registry*. <https://registry.opendata.aws/noaa-goes/>
20. NOAA / AWS Open Data. *NEXRAD public dataset registry*. <https://registry.opendata.aws/noaa-nexrad/>
21. NOAA NCEI. *Integrated Global Radiosonde Archive*. <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>
22. Iowa Environmental Mesonet. *ASOS/AWOS/METAR data download service*. <https://mesonet.agron.iastate.edu/request/download.phtml>
23. CelesTrak. *Spacetrack Report No. 3: Models for propagation of NORAD element sets*. <https://celestrak.org/NORAD/documentation/spacetrk.pdf>
24. CelesTrak. *Supplemental GP element sets documentation and current endpoint index*. <https://celestrak.org/NORAD/elements/supplemental/>