

CASE FILE 36 / 237UAP00410

237UAP00410

High-altitude public UAP report; score 60

NORMAL-OBJECT FAVORED

REPORT NO.	UAP-OM-36-237UAP00410	DISPOSITION	NORMAL-OBJECT FAVORED
PRIMARY CASE	237UAP00410	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2022-08-14T07:22:00+00:00	OBSERVER	33.22557, -76.53696
SOURCE CASE IDS	237UAP00410		

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

237UAP00410 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: historical Starlink object traffic at the report spacetime. Dense satellite presence alone is not treated as causation in this packet.

1.1 Key Findings

- Source score 60 based on: multiple aircraft/facility witnesses, high-altitude report, maneuvering/motion anomaly, UAP/UFO language.
- Report time used: 2022-08-14T07:22:00+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.
- Non-causal context / rejection screens: source language itself invokes satellite/space/launch context; NASA/JPL known-small-body rejection screen present.
- Remaining hard features: multiple witnesses/facilities.
- Objects above horizon: 137; at/above 10 deg: 48.
- 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

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
237UAP00410	8/14/2022 3:22:00 AM (-04 EDT)	N782HG MISCELLANEOUS 08-14-2022	text extract present	237UAP00410.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Washington Operations Center Date: 8/14/2022 3:22:00 AM (-04 EDT) Title: N782HG MISCELLANEOUS 08-14-2022 Latitude: 34.271138890000003 Latitude: -77.90288889 DESCRIPTION PRELIM INFO FROM FAA OPS: WILMINGTON, NC/MISCELLANEOUS/0322E/REPORTED POSSIBLE UFO LOCATED AT 11 O'CLOCK POSITION AT FL450 WHILE WESTBOUND 95 SE ILM. THE PILOT DESCRIBED IT AS 3 LIGHTS IN A ROW ABOVE THEM THEY SAID THE LIGHTS WERE IN A GEOSYNCHRONOUS ORBIT. SEVERAL OTHER AIRCRAFT REPORTED THE SAME SIGHTING. WOC 7-3333 EC/TB
REPORT TIME USED	2022-08-14T07:22:00+00:00
OBSERVER COORDINATE USED	33.22557, -76.53696
OBSERVER SOURCE BASIS	aviation_offset:95 SE ILM (public text extract 237UAP00410)

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	2794	HISTORICAL ELEMENT ROWS	2748
ABOVE HORIZON AT REPORT MINUTE	137	AT/ABOVE 10 DEG	48
LARGEST SAME-SKY CLUSTER	11		

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-1527	352.12	70.53	579.79	eastward, setting	2020-08-07
STARLINK-3077	325.22	67.71	620.59	eastward, setting	2021-09-14
STARLINK-2615	166.74	49.54	701.33	westward, setting	2021-05-26
STARLINK-1789	262.02	42.64	775.62	eastward, rising	2020-10-18
STARLINK-3111	289.38	42.07	772.14	eastward, setting	2021-11-13
STARLINK-3924	343.1	41.36	782.93	eastward, rising	2022-05-13
STARLINK-1053	325.34	39.19	823.17	eastward, setting	2019-11-11
STARLINK-3746	171.89	35.31	872.4	westward, setting	2022-04-21
STARLINK-2387	110.36	31.47	957.6	westward, setting	2021-03-11
STARLINK-2701	344.15	31.44	961.08	eastward, rising	2021-05-26
STARLINK-1058	7.48	27.89	1043.76	eastward, setting	2019-11-11
STARLINK-1790	67.54	27.53	1051.52	westward, setting	2020-10-18

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	11	7.48-358.66 deg	10.07-41.36 deg	eastward, rising, eastward, setting
2	8	41.86-80.64 deg	14.26-27.53 deg	eastward, setting, westward, setting
3	4	209.21-224.02 deg	12.66-25.22 deg	eastward, rising, westward, rising
4	4	296.35-318.89 deg	10.37-15.92 deg	

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
				eastward, level, eastward, rising, westward, rising
5	3	262.1-280.6 deg	10.49-17.72 deg	westward, rising

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
46048	STARLINK-1527	PAYLOAD	US	2020-08-07	n/a
49133	STARLINK-3077	PAYLOAD	US	2021-09-14	n/a
48678	STARLINK-2615	PAYLOAD	US	2021-05-26	n/a
46690	STARLINK-1789	PAYLOAD	US	2020-10-18	2026-02-24
49418	STARLINK-3111	PAYLOAD	US	2021-11-13	n/a
52570	STARLINK-3924	PAYLOAD	US	2022-05-13	2024-12-27
44758	STARLINK-1053	PAYLOAD	US	2019-11-11	2026-04-01
52268	STARLINK-3746	PAYLOAD	US	2022-04-21	n/a
47806	STARLINK-2387	PAYLOAD	US	2021-03-11	n/a
48656	STARLINK-2701	PAYLOAD	US	2021-05-26	n/a
44763	STARLINK-1058	PAYLOAD	US	2019-11-11	2025-04-04
46691	STARLINK-1790	PAYLOAD	US	2020-10-18	2026-05-14

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	33.23, -76.54
CLOSE-APPROACH OBJECTS	19	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
2022 QO6	2022-Aug-13 12:17	0.0211122545226011	25.24	161.10	8.26	19.00
2015 OT78	2022-Aug-13 16:45	0.178877747511234	22.32	219.08	45.08	19.61
2022 MN2	2022-Aug-13 12:56	0.084222937881602	21.58	335.73	13.49	19.80
2022 QT1	2022-Aug-14 02:33	0.028518393541731	24.50	345.14	45.62	19.83
2022 QE2	2022-Aug-13 05:35	0.00544535786377567	28.97	294.53	73.85	20.05
2022 OP2	2022-Aug-14 02:06	0.146864214898811	23.19	224.80	13.40	20.26

OBJECT	CLOSE APPROACH UTC	DIST AU	H	AZ	EL	APP MAG
2022 QG	2022-Aug-14 03:27	0.140507752625719	23.61	222.85	17.46	20.45
2022 PS1	2022-Aug-14 23:37	0.0795882727512975	24.10	188.45	79.00	20.46
2022 OA4	2022-Aug-14 09:07	0.0465272161049547	26.05	172.39	29.31	21.02
2022 OT2	2022-Aug-13 18:25	0.191598294423459	21.85	122.52	9.38	21.10

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 19 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.

HOUR UTC	2022081407
CLOUD AMOUNT	89.55%
PRECIPITATION	4.34 mm/hr
10 M WIND	6.86 m/s
TEMPERATURE	27.81 C
RELATIVE HUMIDITY	74.27%
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	38.75	-33.08	-26.71
Moon	183.41	49.18	-12.00
Venus	50.25	-17.83	-3.89
Mars	91.53	36.30	0.09
Jupiter	158.56	56.86	-2.75
Saturn	217.23	32.59	0.29

- Sun elevation was -33.1 deg, so this was a dark-sky/nighttime sighting.
- Moon was above horizon at azimuth 183.4 deg / elevation 49.2 deg.
- Planets above horizon: Mars (36.3 deg), Jupiter (56.9 deg), Saturn (32.6 deg).
- NASA POWER cloud amount for the hour was 89.55%, with precipitation 4.34 mm/hr.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	not yet exhausted	v2022-08-14-planes-readsb-prod-0, v2022-08-14-planes-readsb-prod-1, v2022-08-14-planes-readsb-staging-0, v2022-08-14-planes-readsb-mlatonly-0
ADSB TRACKS DOWNLOADED	not yet exhausted	

LAYER	STATUS	CASE-SPECIFIC NOTE
		Requires targeted extraction from large daily history archives before claiming aircraft exhaustion.
NOAA GOES IMAGERY	not yet exhausted	Needed for cloud/lightning visual context.
NOAA GOES ABI/GLM MANIFEST	screened/present	Public S3 object availability for the report hour.
NOAA NEXRAD WEATHER RADAR	not yet exhausted	Weather radar only; not ATC radar.
NOAA IGRA RADIOSONDE	screened/present	Needed for balloon drift plausibility.
ASOS/METAR WEATHER OBSERVATIONS	screened/present	Nearest station surface observations around report time.

- ADSB.lol historical: extract aircraft traces from no public ADSB.lol annual repo found for 2022-08-14, then filter +/-60 min and 250 nmi around 33.2256,-76.5370.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00410 at 2022-08-14T07:22:00+00:00.
- NOAA GOES: pull nearest ABI/GLM products for the UTC hour and render cloud/lightning map.
- NOAA NEXRAD: select nearest radar stations and render Level-II/III weather radar sweep around event time.
- NOAA IGRA: find nearest radiosonde station launches bracketing the event and model wind drift for balloon-like descriptions.
- Space-Track gp_history/decay: fetch exact historical element rows and decay/reentry status for top candidate NORAD IDs.

5.12 Weather, Imagery, and Balloon Query Plan

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

GOES SATELLITE	GOES16
GOES ABI PREFIX	https://noaa-goes16.s3.amazonaws.com/ABI-L2-CMIPF/2022/226/07/
GOES GLM LIGHTNING PREFIX	https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2022/226/07/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KILM	Wilmington International Airport	171.90	34.27, -77.91
KNCA	MCAS New River / McCutcheon Field	184.70	34.71, -77.44
KNKT	Cherry Point MCAS / Cunningham Field/	189.00	34.90, -76.88
KOAJ	Albert J Ellis Airport	204.00	34.83, -77.61
KEWN	Coastal Carolina Regional Airport	210.60	35.07, -77.04

- KILM: [IEM ASOS/METAR daily CSV query](#)
- KNCA: [IEM ASOS/METAR daily CSV query](#)
- KNKT: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072305	NEWPORT; NC.	175.20	34.78, -76.88
USM00072208	CHARLESTON/MUN.; SC.	327.30	32.90, -80.03
USM00072317	GREENSBORO/G.-HIGH PT.; NC.	446.10	36.10, -79.94
USM00072402	WALLOPS ISLAND; VA.	532.10	37.93, -75.48
USM00072318	BLACKSBURG; VA.	565.30	37.20, -80.41

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 7-10 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
KILM	171.90	2022-08-14T06:53:00 +00:00	10.00	CLR, M, M, M	40.00 / 5.00	KILM 140653Z AUTO 04005KT 10SM CLR 19/16 A3004 RMK AO2 SLP171 T01940161
KNCA	184.70	2022-08-14T06:56:00 +00:00	10.00	CLR, M, M, M	330.00 / 5.00	KNCA 140656Z AUTO 33005KT 10SM CLR 19/17 A3004 RMK AO2 SLP174 T01940172 \$
KNKT	189.00	2022-08-14T06:56:00 +00:00	10.00	SCT09500, M, M, M	40.00 / 3.00	KNKT 140656Z 04003KT 10SM SCT095 20/16 A3005 RMK AO2 SLP172 T02000161

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 125.6 deg at 6.77 m/s; a passive balloon could drift about 48.8 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
USM00072305	NEWPORT; NC.	175.20	2022-08-14T12:00 :00+00:00	125.60	6.77	48.80	18.50 at 24120.00 m

5.17 NOAA GOES ABI/GLM Public File Manifest

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

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

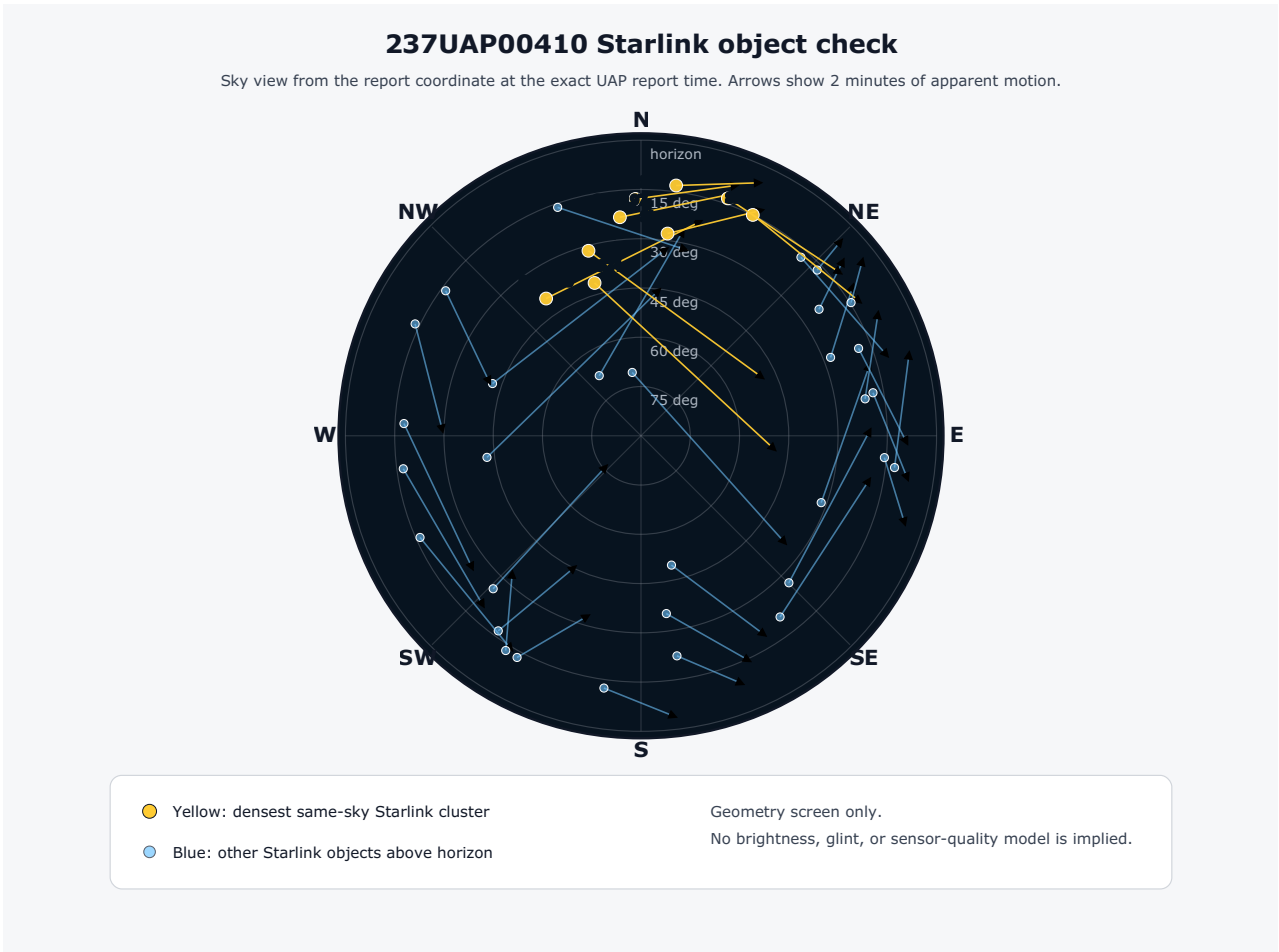
ABI sample objects:

- [ABI-L2-CMIPF/2022/226/07/OR_ABI-L2-CMIPF-M6C01_G16_s20222260700207_e20222260709515_c20222260709581.nc](#)
- [ABI-L2-CMIPF/2022/226/07/OR_ABI-L2-CMIPF-M6C01_G16_s20222260710207_e20222260719515_c20222260719578.nc](#)
- [ABI-L2-CMIPF/2022/226/07/OR_ABI-L2-CMIPF-M6C01_G16_s20222260720207_e20222260729515_c20222260729591.nc](#)
- [ABI-L2-CMIPF/2022/226/07/OR_ABI-L2-CMIPF-M6C01_G16_s20222260730207_e20222260739515_c20222260739582.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2022/226/07/OR_GLM-L2-LCFA_G16_s20222260700000_e20222260700200_c20222260700227.nc](#)
- [GLM-L2-LCFA/2022/226/07/OR_GLM-L2-LCFA_G16_s20222260700200_e20222260700400_c20222260700421.nc](#)
- [GLM-L2-LCFA/2022/226/07/OR_GLM-L2-LCFA_G16_s20222260700400_e20222260701000_c20222260701024.nc](#)
- [GLM-L2-LCFA/2022/226/07/OR_GLM-L2-LCFA_G16_s20222260701000_e20222260701200_c20222260701225.nc](#)

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	2022-08-14T07:22:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	33.22557, -76.53696	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	three-object/light language present	No compact same-launch count match; retained for unresolved report features.
MOTION LANGUAGE	orbit	Apparent motion labels in the object table provide a plausible but not definitive comparison.
RADAR / OFFICIAL CHECK	not specified	No ATC radar return can be consistent with distant orbital objects or visual aircraft-light hypotheses, but it does not prove the match.
ANALYTIC DISPOSITION	normal-object	237UAP00410 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: historical Starlink object traffic at the report spacetime. 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

237UAP00410

Washington Operations Center

Date: 8/14/2022 3:22:00 AM (-04 EDT)

Title: N782HG MISCELLANEOUS 08-14-2022

Latitude: 34.271138890000003

Latitude: -77.90288889

DESCRIPTION

PRELIM INFO FROM FAA OPS: ILMINGTON, NC/MISCELLANEOUS/0322E/REPORTED POSSIBLE UFO LOCATED AT 11 O'CLOCK POSITION AT FL450 WHILE WESTBOUND 95 SE ILM. THE PILOT DESCRIBED IT AS 3 LIGHTS IN A ROW ABOVE THEM THEY SAID THE LIGHTS WERE IN A GEOSYNCHRONOUS ORBIT. SEVERAL OTHER AIRCRAFT REPORTED THE SAME SIGHTING. WOC 7-3333 EC/TB

Appendix B. Computational Evidence Digest

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

```
{
  "report_time_utc": "2022-08-14T07:22:00+00:00",
  "source_excerpt": "Washington Operations Center\n\n\n\nDate: 8/14/2022 3:22:00 AM (-04 EDT)\nTitle: N782HG MISCELLANEOUS\n08-14-2022\nLatitude: 34.271138890000003\nLatitude: -77.90288889\n\n\n\nDESCRIPTION\n\nPRELIM INFO\nFROM FAA OPS: WILMINGTON, NC/MISCELLANEOUS/0322E/REPORTED POSSIBLE UFO LOCATED AT\n11 O'CLOCK POSITION AT FL450 WHILE WESTBOUND\n95 SE ILM. THE PILOT DESCRIBED IT AS 3 LIGHTS IN A ROW\nABOVE THEM THEY SAID THE LIGHTS WERE IN A GEOSYNCHRONOUS ORBIT. SEVERAL\nOTHER AIRCRAFT\nREPORTED THE SAME SIGHTING. WOC 7-3333 EC/TB",
  "historical_starlink_element_rows": 2748,
  "observer": {
    "lat": 33.22557048569516,
    "lon": -76.53696261805874,
    "source": "aviation_offset:95 SE ILM (public text extract 237UAP00410)"
  },
  "case_id": "237UAP00410",
  "starlink_above_horizon_at_report_time": 137,
  "starlink_catalog_ids_considered": 2794,
  "largest_same-sky_cluster_count": 11,
  "starlink_at_or_above_10_deg": 48,
  "top_starlinks": [
    {
      "azimuth_deg": 352.12,
      "azimuth_plus_2m_deg": 126.7,
      "azimuth_plus_5m_deg": 132.97,
      "element_age_hours": 1.0,
      "element_epoch": "2022-08-14T08:21:51.591456+00:00",
      "elevation_deg": 70.53,
      "elevation_plus_2m_deg": 35.04,
      "elevation_plus_5m_deg": 7.11,
      "epoch_altitude_km": 553.31,
      "ground_track_bearing_deg": 135.69,
      "ground_track_label": "SE",
      "launch_date": "2020-08-07",
      "name": "STARLINK-1527",
      "norad_id": "46048",
      "range_km": 579.79,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 34.8138,
      "subpoint_lon": -76.8035
    },
    {
      "azimuth_deg": 325.22,
      "azimuth_plus_2m_deg": 11.69,
      "azimuth_plus_5m_deg": 18.51,
      "element_age_hours": 4.64,
      "element_epoch": "2022-08-14T12:00:27.774144+00:00",
      "elevation_deg": 67.71,
      "elevation_plus_2m_deg": 25.99,
      "elevation_plus_5m_deg": 4.61,
      "epoch_altitude_km": 576.83,
      "ground_track_bearing_deg": 21.85,
      "ground_track_label": "NNE",
      "launch_date": "2021-09-14",
      "name": "STARLINK-3077",
      "norad_id": "49133",
      "range_km": 620.59,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 34.8164,
      "subpoint_lon": -77.8831
    },
    {
      "azimuth_deg": 166.74,
      "azimuth_plus_2m_deg": 148.09,
      "azimuth_plus_5m_deg": 143.42,
      "element_age_hours": 0.96,
      "element_epoch": "2022-08-14T08:19:52.853664+00:00",
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      "elevation_plus_2m_deg": 18.35,
      "elevation_plus_5m_deg": 1.44,
      "epoch_altitude_km": 553.26,
      "ground_track_bearing_deg": 139.26,
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}
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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: 237UAP00410
TIME AND OBSERVER COORDINATE	extracted	2022-08-14T07:22:00+00:00 at 33.22557, -76.53696
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	not exhausted	ADSB.lol historical release pattern is recorded separately; actual aircraft exhaustion requires targeted trace extraction
NOAA GOES IMAGERY LAYER	not exhausted	Cloud/lightning imagery layer for the report hour
NOAA GOES ABI/GLM MANIFEST	screened	Public S3 object listing for the report hour
NOAA/NEXRAD WEATHER RADAR LAYER	not exhausted	Weather radar only; not ATC/primary radar
NOAA IGRA RADIOSONDE LAYER	screened	Balloon drift plausibility layer
ASOS/METAR SURFACE WEATHER	screened	Nearest station visibility, cloud, wind, precipitation, and METAR observations
WEATHER/BALLOON SOURCE PLAN	planned	Nearest weather-airport, GOES, and radiosonde queries are listed where local plan JSON is present
FINAL ANALYTIC DISPOSITION	normal-object favored	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. *237UAP00410.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-615/493468575/237UAP00410.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/>
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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>
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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/>
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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>
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