

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 12/10/3

Satellite Name and  
Element Set Satellite ID HST (20580)

Date of Element Set Used 12/7/3

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

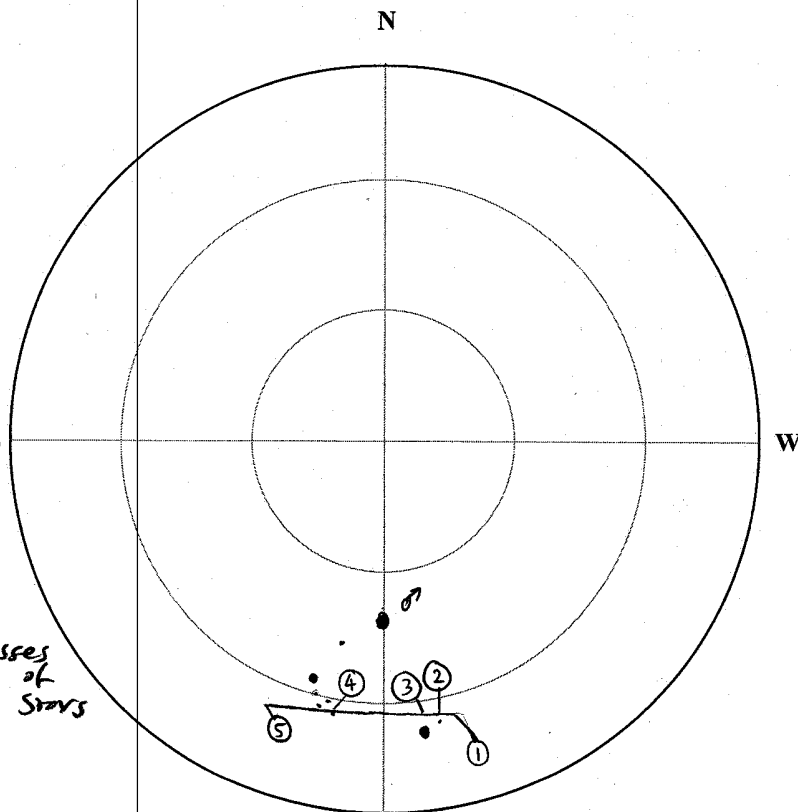
Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars - *for detailed passes of stars*  
☐ Telescope - specify aperture \_\_\_\_\_

Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone* and *daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



DETAIL @ (4) **S**

① 18:59:31 CST  
② 18:59:38 CST  
③ 18:59:50 CST  
④ 19:00:42 CST  
⑤ No time recorded

Observation Number (1-28) 4

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

① First sighted (65)  
② 10° N of  $\epsilon$  PsA  
③ 4° N of  $\alpha$  PsA  
④ Very close to  $\sigma$  n \*  
⑤ Position noted, approx. time was not noted (fast in shadow)

\* (in binoculars) = Oh 38m - 25°

# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 1/22/4

Satellite Name and  
Element Set Satellite ID Lacrosse 2 (21147)

Date of Element Set Used 1/17/4

Location of Observer

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative)

Elevation 650 feet  
(specify feet or meters)

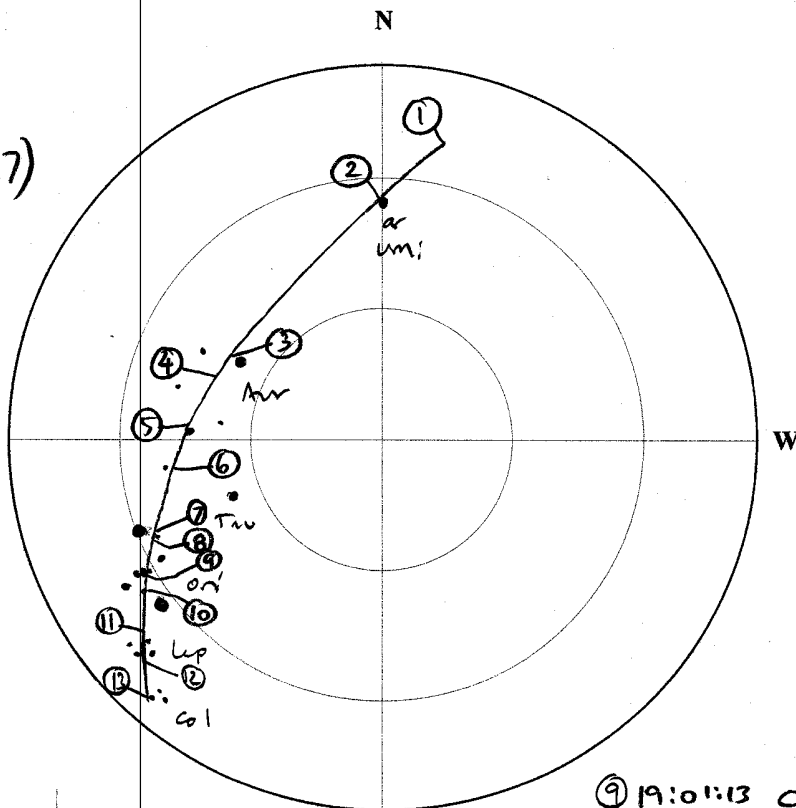
Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars (at m42)  
\_\_\_\_ Telescope - specify aperture \_\_\_\_\_

Comments see attached  
PHENOMENAL PASS  
mag 2.5

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



⑨ 19:01:13 CST  
⑩ 19:01:50  
⑪ 19:02:38  
⑫ 19:03:12  
⑬ 19:04:00  
① 18:57:15 CST  
② 18:58:20  
③ 18:59:53  
④ 19:00:04  
⑤ 19:00:25 CST  
⑥ 19:00:40  
⑦ 19:01:01  
⑧ 19:01:10  
Observation Number (1-28) 2

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 ☒ \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name BRAD YOUNG

Date of Observation 11/18/03

Satellite Name and  
Element Set Satellite ID Lacrosse 4 (26473)

Date of Element Set Used 11/16/03

Location of Observer  
Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) E

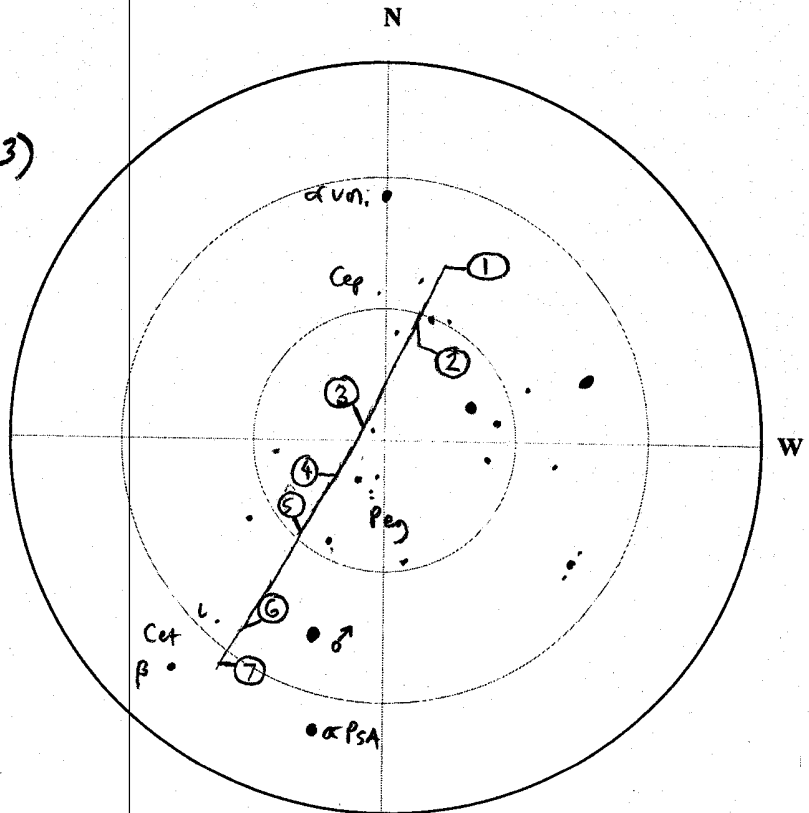
Elevation 650 ft  
(specify feet or meters)

Instrument Used (check one)  
☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Nice & bright ~2.3  
mag at best (compared  
to α Peg

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



① 19:02:37 CST  
② 17:02:54 CST  
③ 19:03:22 CST  
④ 19:04:01 CST  
⑤ 19:04:26 CST  
⑥ 19:05:31 CST  
⑦ 19:05:55 CST  
Observation Number (1-28) 11

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 ☒ \_\_\_\_\_  
4 \_\_\_\_\_  
Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_  
Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_  
Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_  
Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

③ - overhead -  
very near  
o And  
④ - "into" square  
⑤ - "left" square  
⑦ - seemed to  
enter shadow  
too far N,  
but there  
was a slight  
cloud in way.

# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 12/1/3

Satellite Name and  
Element Set Satellite ID UARS (21701)

Date of Element Set Used 11/29/3

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative)

Elevation 650 feet  
(specify feet or meters)

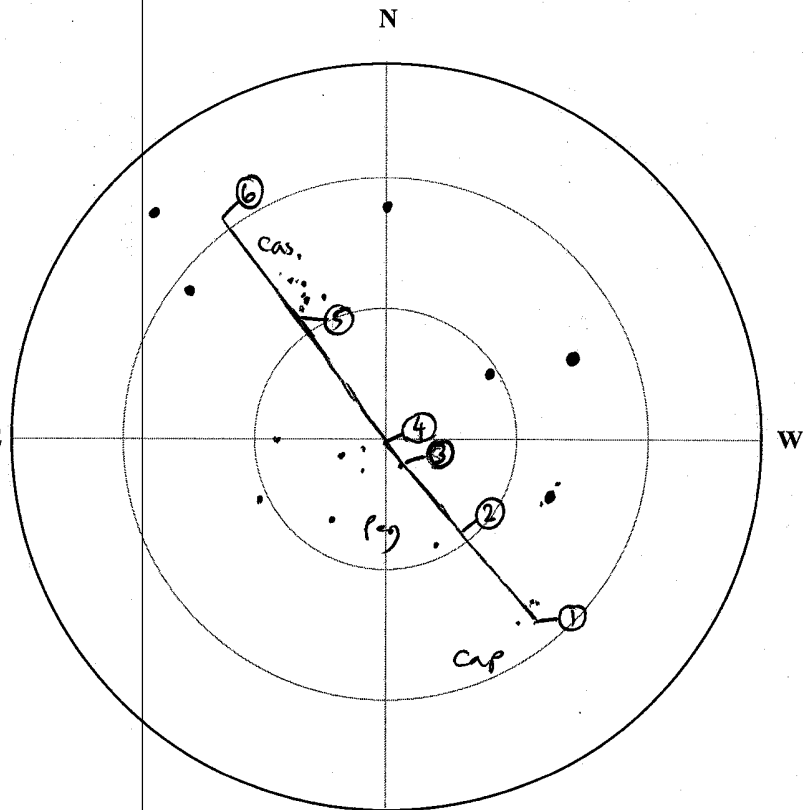
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Tried to use for multi-pass but too cloudy at 20:00 to catch

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



① (w/b's) near or cap  
② easily caught w/eye  
③ or e Peg  
④ directly overhead!  
⑤ or S Cas (<2°)  
⑥ enters shadow

Observation Number (1-28) 14

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 ☒  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 ☒

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

① 18:21:26 CST  
② 18:22:49 CST  
③ 18:23:13 CST  
④ 18:23:36 CST  
⑤ 18:24:08 CST  
⑥ 18:26:10 CST

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 1/23/4

Satellite Name and LACROSSE 4 ROCKET  
Element Set Satellite ID 26474

Date of Element Set Used 1/21/4

Location of Observer

Latitude ~~+36.154~~ +35.8  
(use decimal degrees only)

Longitude ~~95.993~~ 96.1  
(use decimal degrees only, east is negative) E

Elevation 650 feet  
(specify feet or meters)

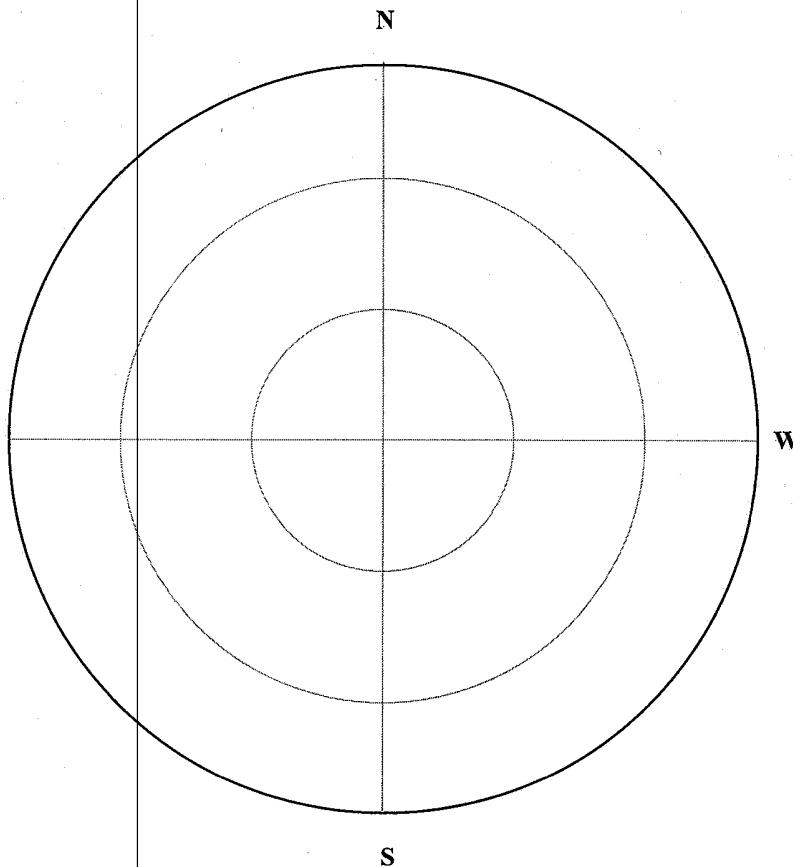
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Very bright (2.5 mag)  
& easy

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone and daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



SEE ATTACHED

Observation Number (1-28) 3

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 X  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name BRAD YOUNG / HARRIET YOUNG

Date of Observation 11/18/03

Satellite Name and  
Element Set Satellite ID Helios 1A Rocket <sup>23608</sup>

Date of Element Set Used 11/12/03

**Location of Observer**

Latitude +36.138  
(use decimal degrees only)

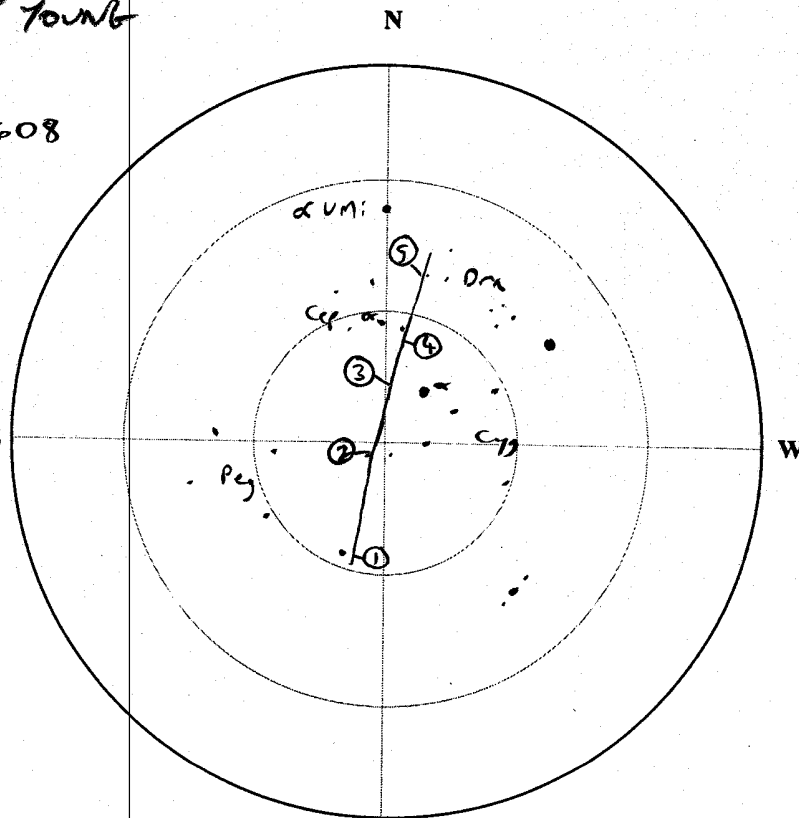
Longitude 95.984  
(use decimal degrees only, east is negative) **E**

Elevation 650 ft  
(specify feet or meters)

**Instrument Used (check one)**

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Harriet followed  
it with me from (4) to (5)



Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

(1) = 18:03:30 CST S  
(2) = 18:04:08 CST  
(3) = 18:04:37 CST  
(4) = 18:04:53 CST  
(5) = 18:05:19 CST  
Observation Number (1-28) 10

**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 ☒ \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 12/11/3

Satellite Name and  
Element Set Satellite ID (07004)  
AUNGOUS 2 Rocket

Date of Element Set Used 12/6/3

Location of Observer

Latitude +36.1  
(use decimal degrees only)

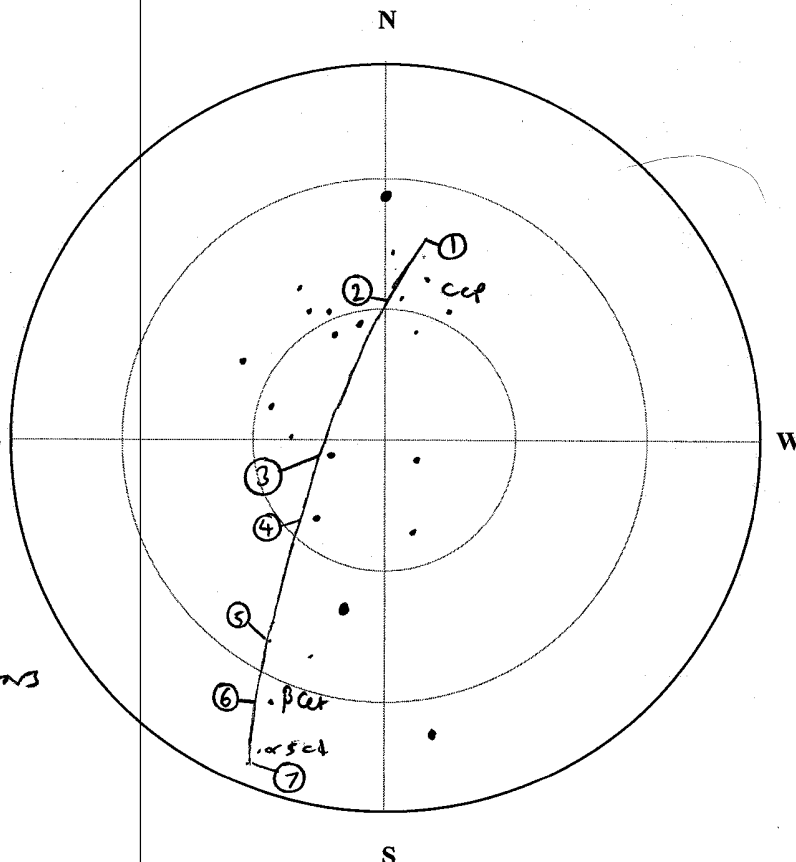
Longitude 96.0  
(use decimal degrees only, east is negative)

Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars for specific passes of  
Telescope - specify aperture 5ms

Comments A little dim & very  
fast whd.



Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

① 18:33:07 CST first seen (w/eye)  
② 18:33:34 CST due E - Cer  
③ 18:34:12 CST due E (~20°) or And  
Observation Number (1-28) 12

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 ☒  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

④ 18:34:25 CST due E (~30°)  
of γ Peg  
⑤ 18:34:50 CST very close  
(E) of 13 cet (binoes)  
⑥ 18:35:16 CST ~20° E  
of β cer  
⑦ 18:35:53 CST passed  
"over" α cer (in  
10x50's)

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 11/24/3

Satellite Name and (10582)  
 Element Set Satellite ID Cosmos 975 Rkt

Date of Element Set Used 11/21/3

Location of Observer

Latitude +36.1  
 (use decimal degrees only)

Longitude 96.0  
 (use decimal degrees only, east is negative) **E**

Elevation 650 feet  
 (specify feet or meters)

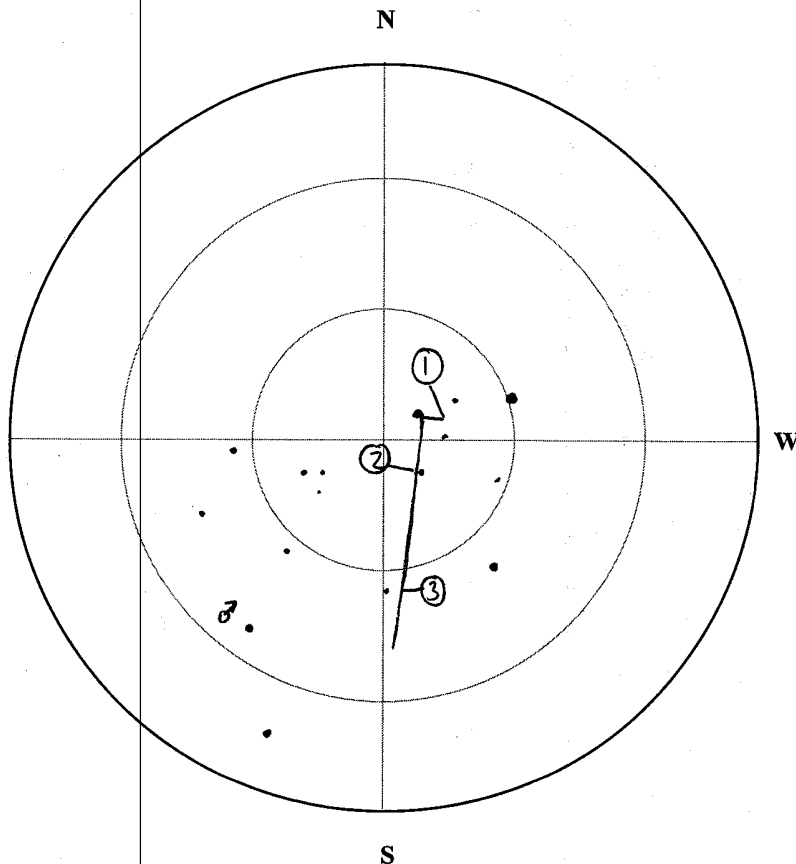
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope – specify aperture \_\_\_\_\_

Comments FOUND w/10x50 WHEN IT  
PASSED OR CLOS - THEN FOLLOWED  
w/eye

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone* and *daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



Observation Number (1-28) 15

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 \_\_\_\_\_

Manned Spaceflight (2)  
 STS \_\_\_\_\_  
 ISS \_\_\_\_\_  
 Other \_\_\_\_\_

Multinational (4)  
 Russia \_\_\_\_\_  
 China \_\_\_\_\_  
 Japan \_\_\_\_\_  
 Brazil \_\_\_\_\_  
 Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 X

Iridium Flares (4) 1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
 2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
 2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
 2 a \_\_\_\_\_ b \_\_\_\_\_



# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 2/7/2004

Satellite Name and  
Element Set Satellite ID ISS (25544)

Date of Element Set Used 2/7/4

Location of Observer

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) E

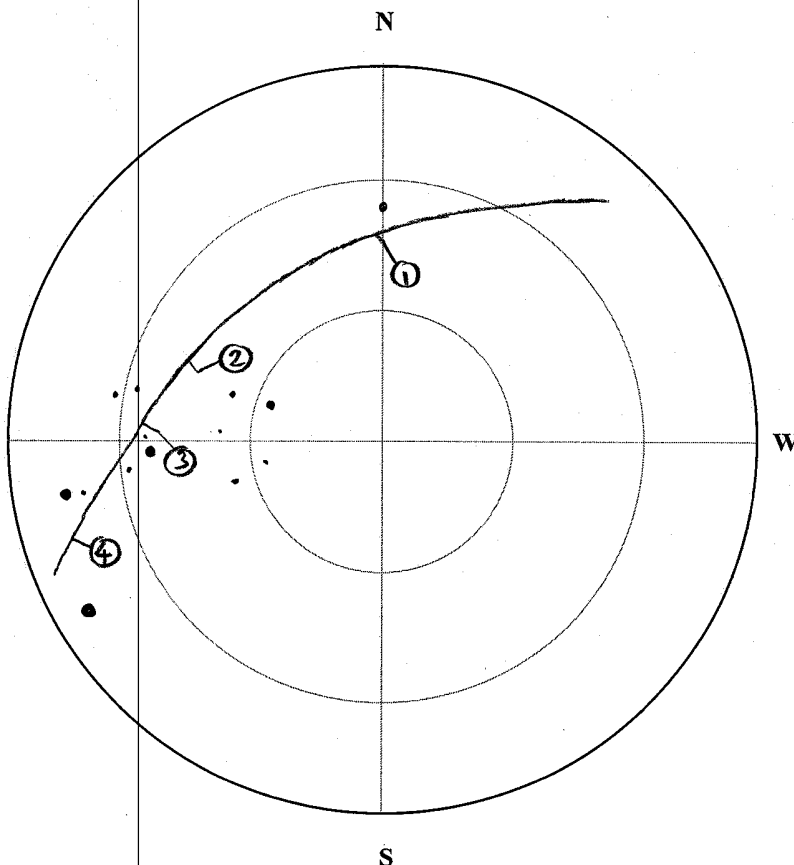
Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Seen very easily, seems  
to be 2 arc min for much  
of path, say -1.5 mag

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.



**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

① 18:28:05 CST      ④ 18:30:20 CST  
② 18:28:53 CST  
③ 18:29:13 CST  
Observation Number (1-28) 17

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a ☒ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 2/7/4

Satellite Name and  
Element Set Satellite ID ISS (25544)

Date of Element Set Used 2/7/4

**Location of Observer**

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

**Instrument Used (check one)**

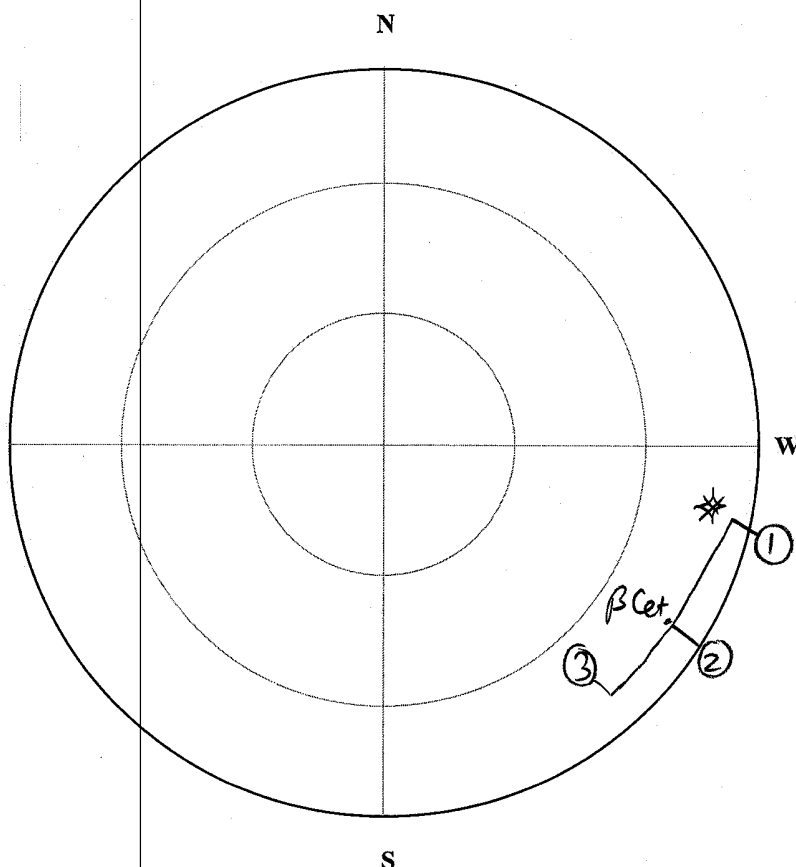
☒ Unaided Eye  
☐ Binoculars  
☐ Telescope – specify aperture \_\_\_\_\_

Comments STILL BRIGHT, =  
PCET ~ 2.5 mag,  
EASY multipass

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time “hacks” on at least two locations on the satellite track, including the *timezone* and *daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

Observation Number (1-28) 20



**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b X  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name BRAD YOUNG

Date of Observation 12/17/03

Satellite Name and  
Element Set Satellite ID (26474) Lacrosse 4 Rocket

Date of Element Set Used 12/6/3

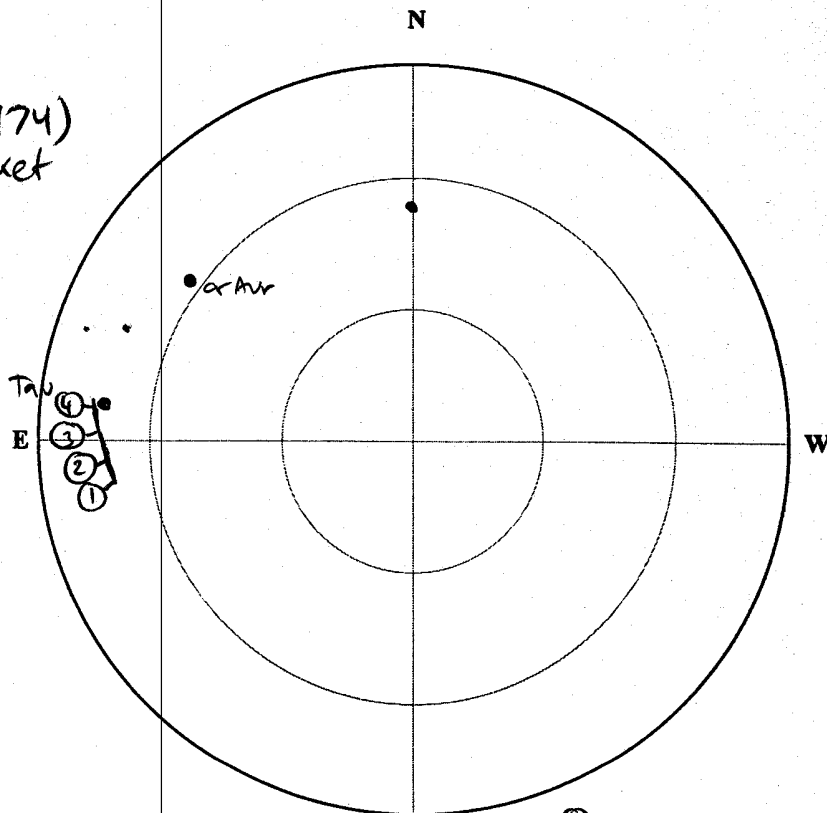
Location of Observer  
Latitude +38.138  
(use decimal degrees only)

Longitude 95.984  
(use decimal degrees only, east is negative)

Elevation 650 ft  
(specify feet or meters)

Instrument Used (check one)  
☐ Unaided Eye  
☒ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

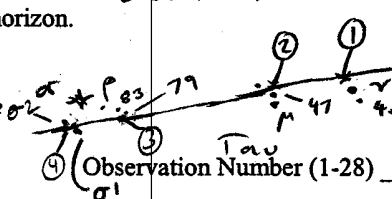
Comments Easily seen in 10x50's



Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone and daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

DETAIL:



- ① 17:51:44 CST
- ② 17:52:00 CST
- ③ 17:52:21 CST
- ④ 17:53:36 CST

Observation Number (1-28) 22

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a X b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

Observers Name Bral Young

Date of Observation 12/17/3

Satellite Name and  
Element Set Satellite ID (26474)  
Lacrosse 4 Rocket

Date of Element Set Used 12/6/3

Location of Observer

Latitude +36.138  
(use decimal degrees only)

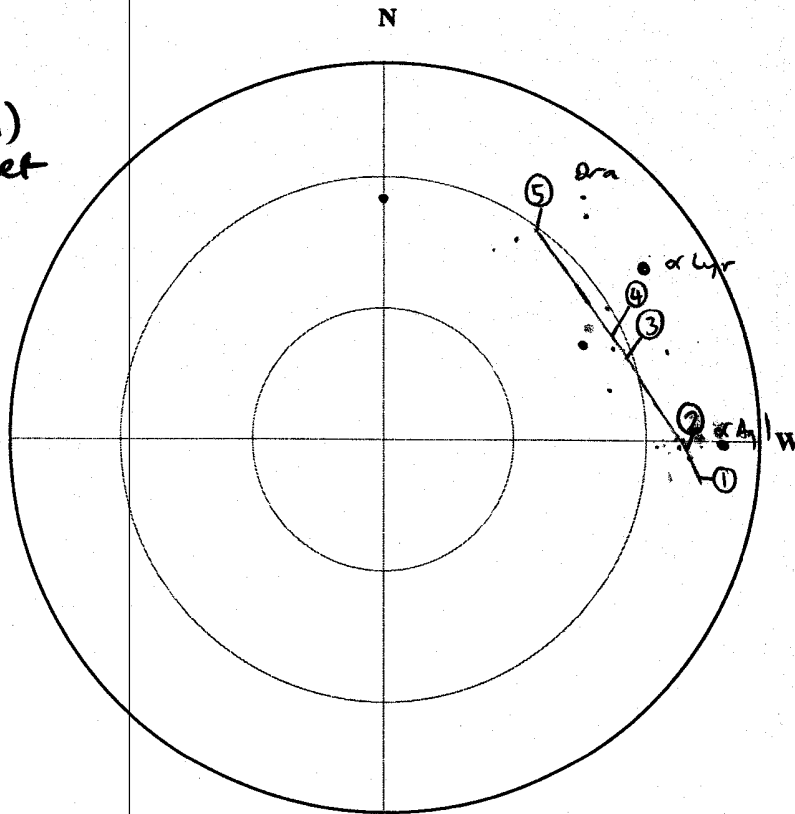
Longitude 95.984  
(use decimal degrees only, east is negative) E

Elevation 650 ft  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye seen  
☒ Binoculars 10x50 (details)  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Great 2nd pass -  
only esp. in Delphinus



Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

① 19:28:39 CSR general position where first seen  
② 19:28:54 CSR see detail  
③ 19:29:52 CSR see detail  
④ 19:30:00 CSR see detail  
⑤ 19:31:04 gone (in shadow)  
Observation Number (1-28) 23  
3° SW of JOrn

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

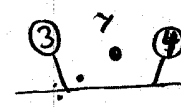
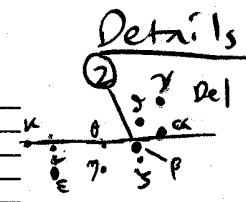
Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b X

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_



# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 12/11/03

Satellite Name and  
Element Set Satellite ID ISS (25544)

Date of Element Set Used 12/10/3

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative) E

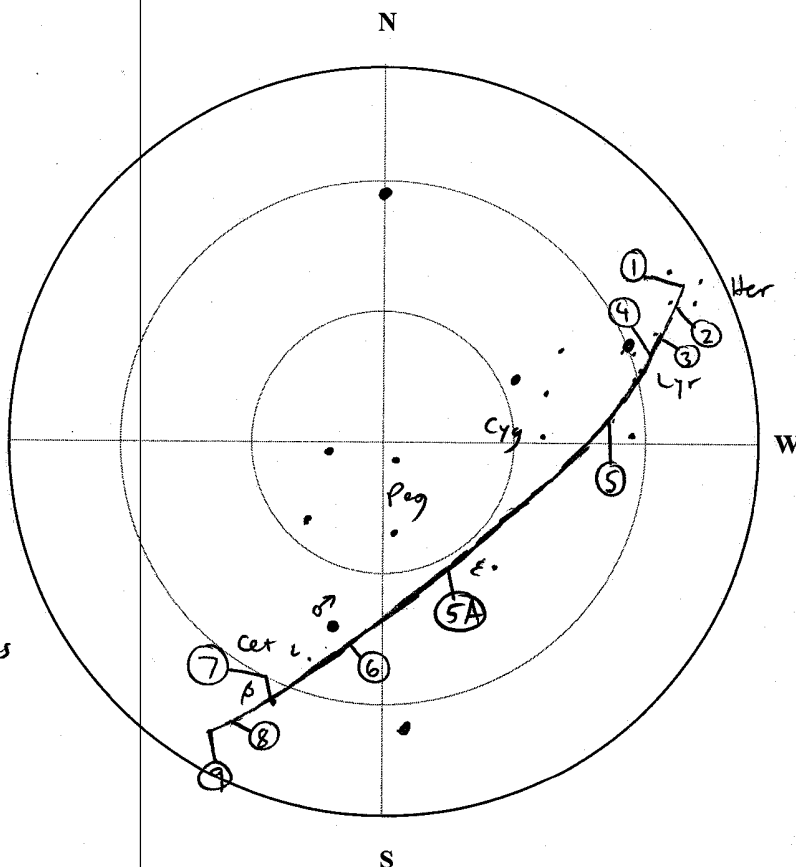
Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

- ☒ Unaided Eye  
☒ Binoculars *for specific passages*  
Telescope - specify aperture \_\_\_\_\_

Comments AMAZING PASS, I WOULD  
ESTIMATE -0.5 AT BEST  
I SEEN ALL ACROSS SKY

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.



**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

- ① 18:24:17 CST first seen w/eye inside Keystone  
② 18:24:48 CST of  $\pi$  Her (w/ R 69 Her) ( $< 1^\circ$  of  $\pi$ )  
③ 18:25:30 CST of  $\theta$  Her ( $< 1^\circ$ )  
④ 18:26:40 CST of  $\alpha$  Lyr ( $\sim 5^\circ$ ) \*  
Observation Number (1-28) 6

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS ☒  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

- ⑤ 18:26:04 CST 0.8  $\gamma \rightarrow \beta$  Cyg  
& really moving  
⑥ Near  $\delta$ , 18:27:23 CST  
⑦  $< 1^\circ$  NE of  $\beta$  Cet 18:27:53 CST  
⑧ 18:29:00 dimming  
⑨ 18:29:37 CST - gone  
in shadow  
⑤A - 18:26:55 right  
on top of  $\beta$  Peg

\* Cannot believe I didn't watch it near  
 $\beta$  &  $\gamma$  Lyr - just missed it!

# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 5/31/4

Satellite Name and  
Element Set Satellite ID ISS-25544

Date of Element Set Used 5/31/4

Location of Observer

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

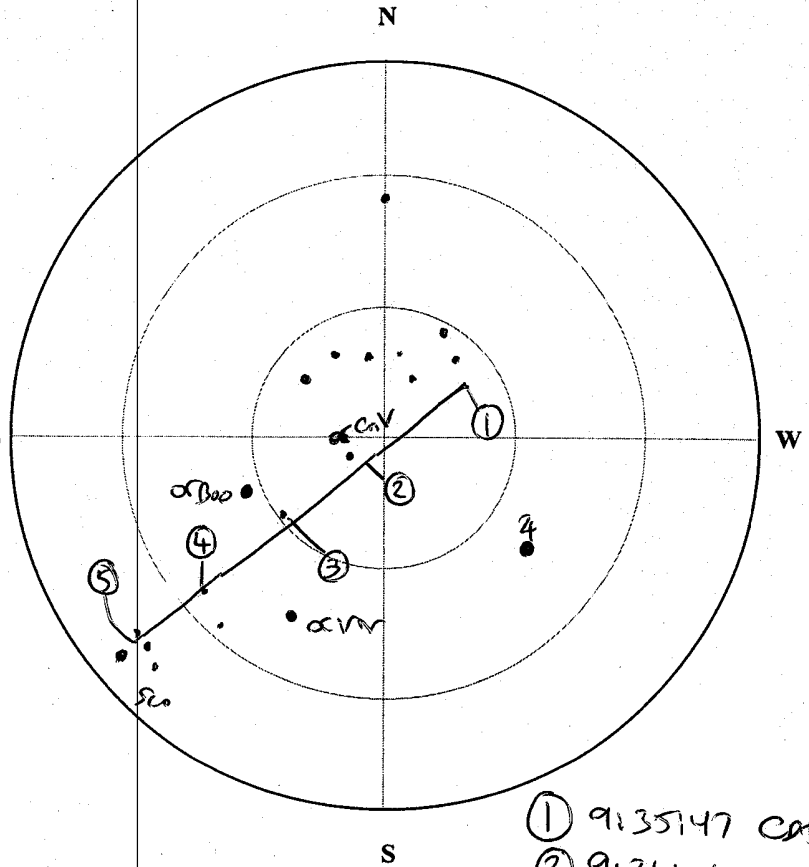
☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments WONDERFUL OVERHEAD  
PASS - MURDERY - 10 mag  
when seen (nearly = 4)

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone* and *daylight/standard time* references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

Observation Number (1-28) 28



① 9:35:47 CAT  
② 9:36:06  
③ 9:36:27  
④ 9:37:16  
⑤ 9:38:12

↓  
totally  
Anted  
in shadow,  
took ~ 10s  
to dm fully

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS ☒ (#2)  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

+ Iridium 96 = a spare, so this  
is a formation pass, also  
3 SATS!

BEST SEEN YET

Astronomical League

# Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name BY

Date of Observation 12/29/3

Satellite Name and  
Element Set Satellite ID Iridium 55 15272 Iridium 96 27376

Date of Element Set Used 12/7/3 12/7/3

Location of Observer

Latitude +36.130  
(use decimal degrees only)

Longitude 95.984  
(use decimal degrees only, east is negative)

Elevation 650 ft  
(specify feet or meters)

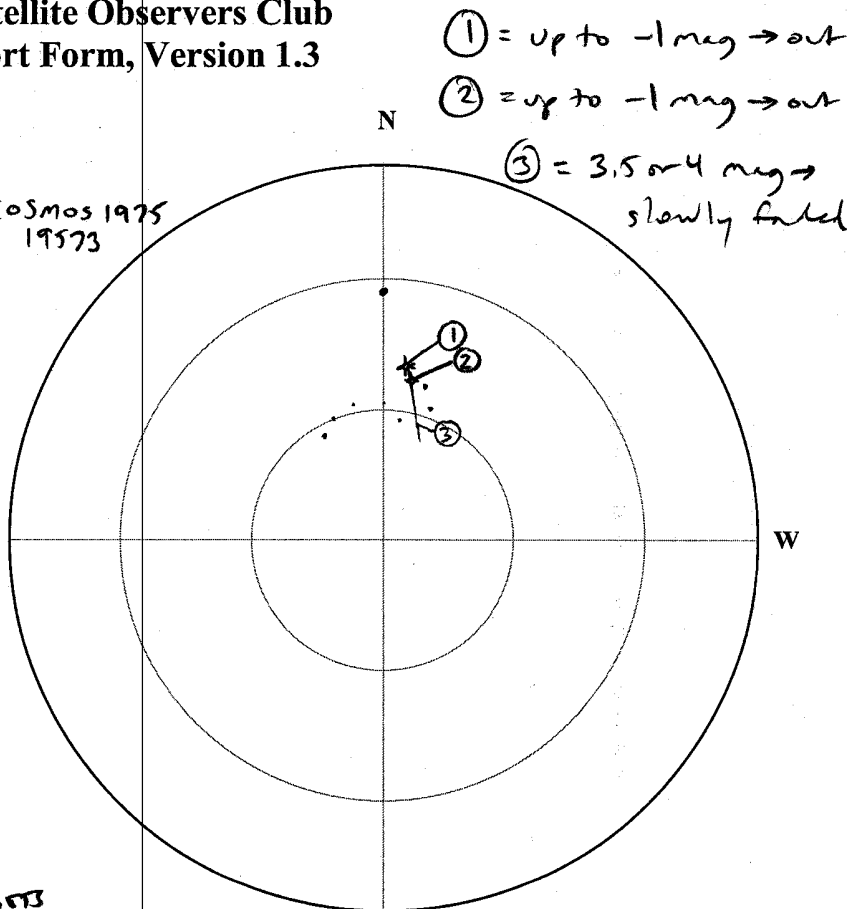
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments JUST AMAZING - Iridium  
96 NOT AS BRIGHT AS PREDICTED -  
BOTH OFF PATH & TIMING, OLD ELSETS

Draw or sketch the path of the satellite across the sky  
relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two  
locations on the satellite track, including the timezone  
and daylight/standard time references, for example  
01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



① = 11h 0m  
+67°

② = 11h 4m  
+66°

③ = 11h 31m +55° 30'  
Observation Number (1-28) 7

① = Iridium 96  
Flash 06:22:59 UNT  
06:23:19 CST

② = Iridium 55  
Flash

06:23:24  
UNT 06:23:49  
CST

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 X  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

③ = Cosmos 1975  
passing right by  
flashes as they  
fade, seen @

① = >13 sec late, 1°-3° SE of expected  
② = >16 sec late, 2° S of expected  
③ = 49 secs late, 1° W of track

③ at  
06:24:24 CST

SEE  
ATTACHED

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 10/29/3

Satellite Name and  
Element Set Satellite ID 1998-051-B  
IRIDIUM 81 (25468)

Date of Element Set Used HEAVENS-ABOVE 10/23/3

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative) E

Elevation 650 feet  
(specify feet or meters)

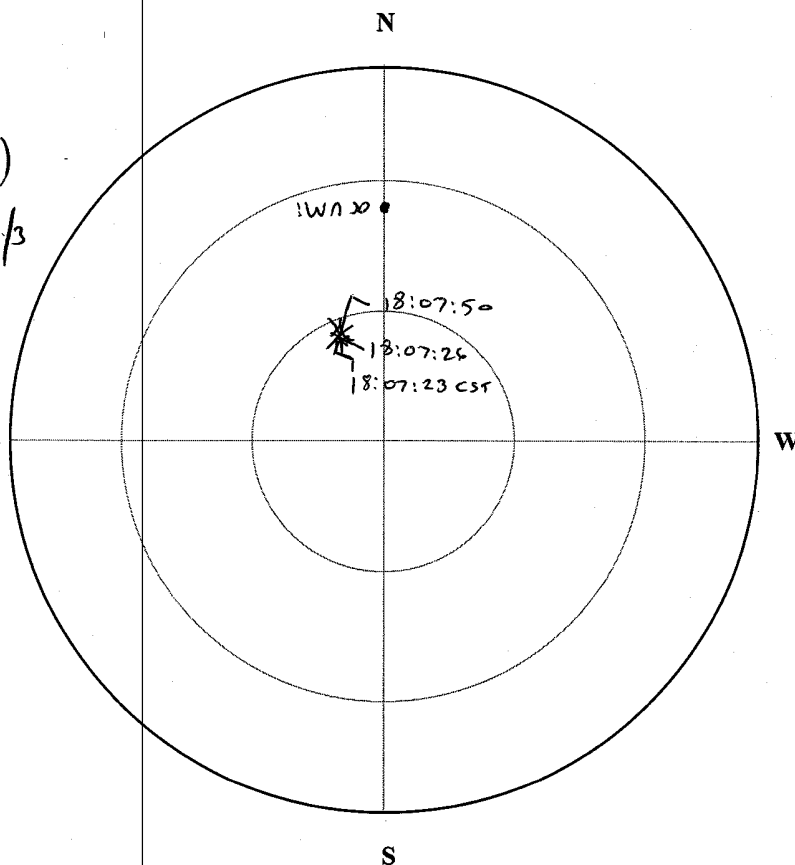
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments VERY BRIGHT - SEE  
ATTACHED SKETCH

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone and daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



Observation Number (1-28) 8

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 ☒ \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_



# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 10/29/03

Satellite Name and 1998-032-D  
Element Set Satellite ID IRIDIUM 74 (29345)

Date of Element Set Used HEAVENS-ABOVE  
10/23/03

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative)

Elevation 650 feet  
(specify feet or meters)

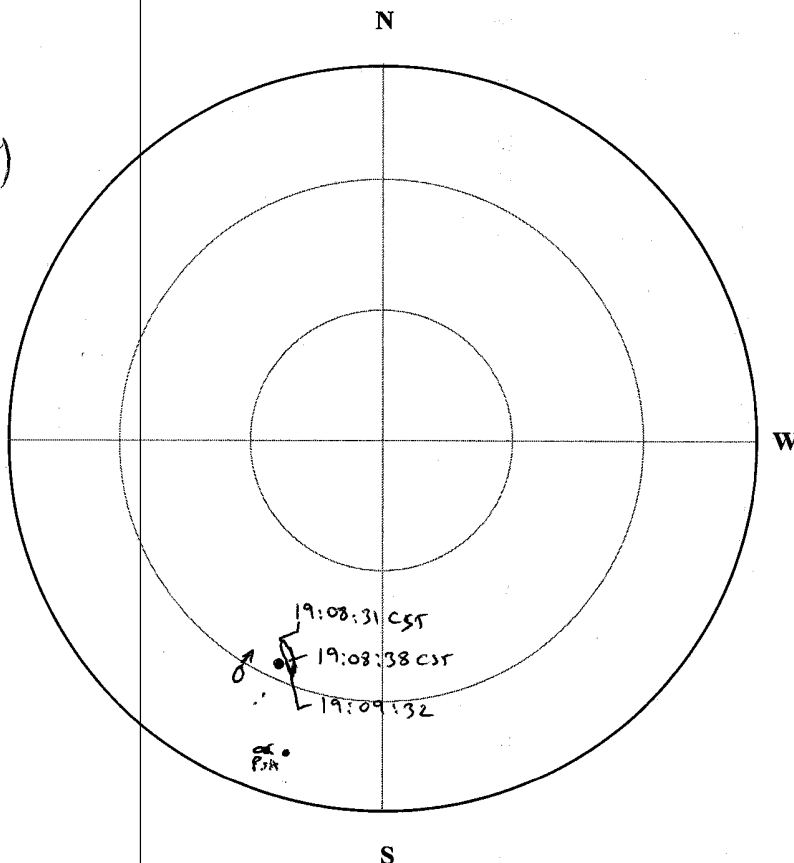
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments PHENOMENAL!  
RIGHT NEXT TO MARS -  
SEE ATTACHED

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone* and *daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



Observation Number (1-28) 9

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 ☒ \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 11/20/3

Satellite Name and  
Element Set Satellite ID IRIDIUM 26 (24903)

Date of Element Set Used 11/18/3 3:01 UTC

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

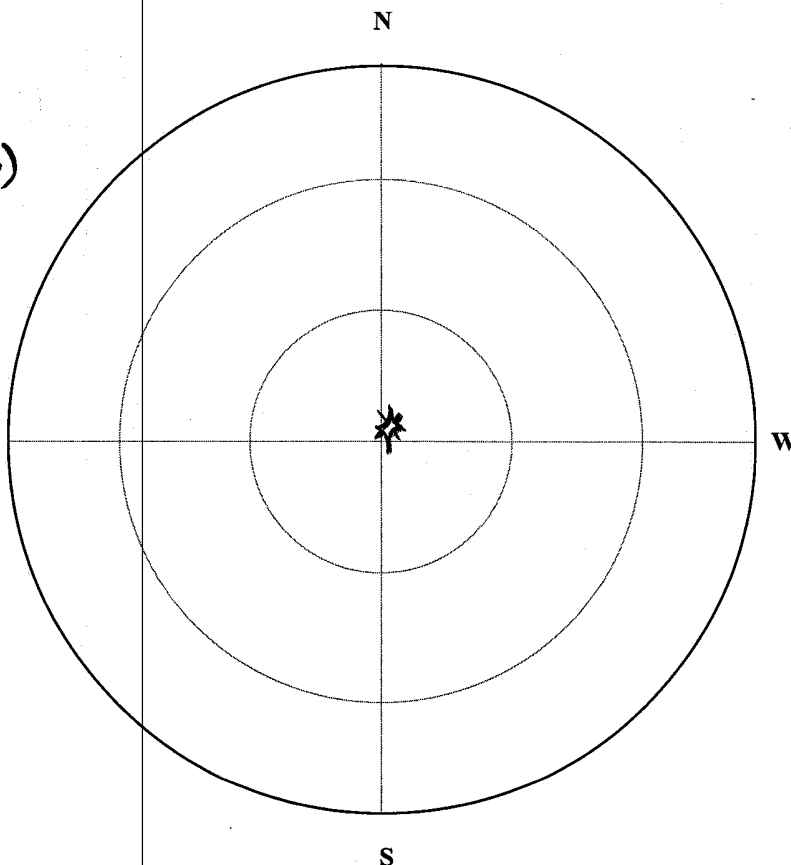
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope – specify aperture \_\_\_\_\_

Comments ✓ VERY EASILY SEEN  
IN BROAD DAYLIGHT!

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time “hacks” on at least two locations on the satellite track, including the *timezone and daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



Observation Number (1-28) 13

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 ☒ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

Observers Name Brad Young

Date of Observation 2/14/04

Satellite Name and  
Element Set Satellite ID 1996-029-F  
TIPS 23937

Date of Element Set Used 2/8/4

**Location of Observer**

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

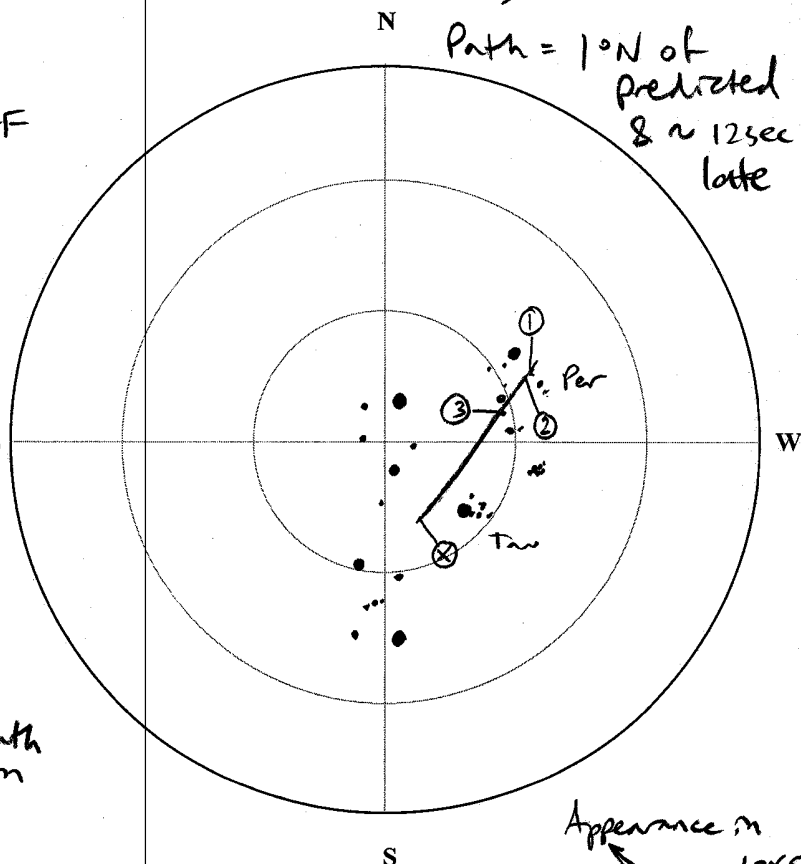
**Instrument Used (check one)**

☒ Unaided Eye  
☒ Binoculars  
\_\_\_\_ Telescope - specify aperture \_\_\_\_\_

Comments ABOUT 1° N of predicted path  
2 sats seen at ①-③, Northern  
one seemed a little brighter

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



**FORMATION**  
JUST SPLIT 7m  
Sat. into a 7.8  
mag "double"  
Path = 1° N of  
predicted  
& ~ 12sec  
late

- ① 20:31:53 CST  
② 20:32:02 CST  
③ 20:32:28 CST

Observation Number (1-28) 27

Appearance in  
10x50s  
just  
split

**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a ☒ b ☒  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

☒ **DISAPPEARED**  
**INTO SHADOW**  
~ 20:33:42  
**MUCH EARLIER**  
**THAN PREDICTED**  
(-1:07 early)  
& 20° early

| Sighting Number | Time (CST) | Instrument | Apparent Total Magnitude | R.A. (2000) | Dec. (2000) | Resolved? | Range (km) | Max Apparent Separation (arcmin) | Notes               |
|-----------------|------------|------------|--------------------------|-------------|-------------|-----------|------------|----------------------------------|---------------------|
| 1               | 20:31:53   | 10 x 50    | 6.5                      | 3h 11m      | +45.0       | Yes       | 1400       | 9.8                              | N > S in magnitude  |
| 2               | 20:32:02   | 10 x 50    | 6.5                      | 3h 22m      | +43.4       | Yes       | 1375       | 10.0                             |                     |
| 3               | 20:32:28   | 10 x 50    | 6.5                      | 4h 01m      | +36.5       | Yes       | 1200       | 11.5                             |                     |
| X               | 20:33:42   | 10 x 50    | 6.8                      | 5h 05m      | +18.7       | No        | 1200       | 11.5                             | Not a good position |
|                 |            |            |                          |             |             |           |            |                                  |                     |
| Assumes         | 4          | km tether  |                          |             |             |           |            |                                  |                     |

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

**FORMATION**

Observers Name Brad Young

Date of Observation 2/21/4

Satellite Name and  
Element Set Satellite ID GRACE-1 (27391)  
GRACE-2 (27392)

Date of Element Set Used 2/20/4 2/20/4

Location of Observer

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) **E**

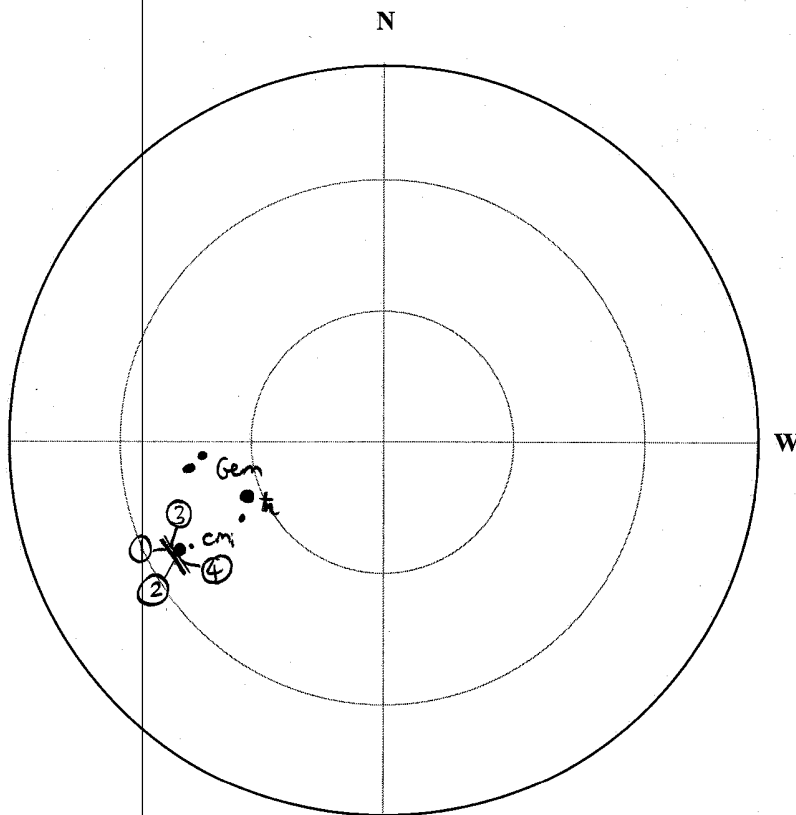
Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars  
\_\_\_\_ Telescope - specify aperture \_\_\_\_\_

Comments Seen easily in 10X50's  
then "partner" follows on  
40' N track 27-28 sec later

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.



**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

GRACE-1

GRACE-2

① 19:21:07 CST

③ 19:21:34 CST

② 19:21:13 CST

④ 19:21:41 CST

Observation Number (1-28) 21

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

① 7h45 +4°  
② 7h40 +29.5  
③ 7h44 +4°  
④ 7h40 +3°

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a ☒ b ☒

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 2/8/4

Satellite Name and  
Element Set Satellite ID CSL-04 DEB (26121)

Date of Element Set Used 3/3/4

**Location of Observer**

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative)

Elevation 650 feet  
(specify feet or meters)

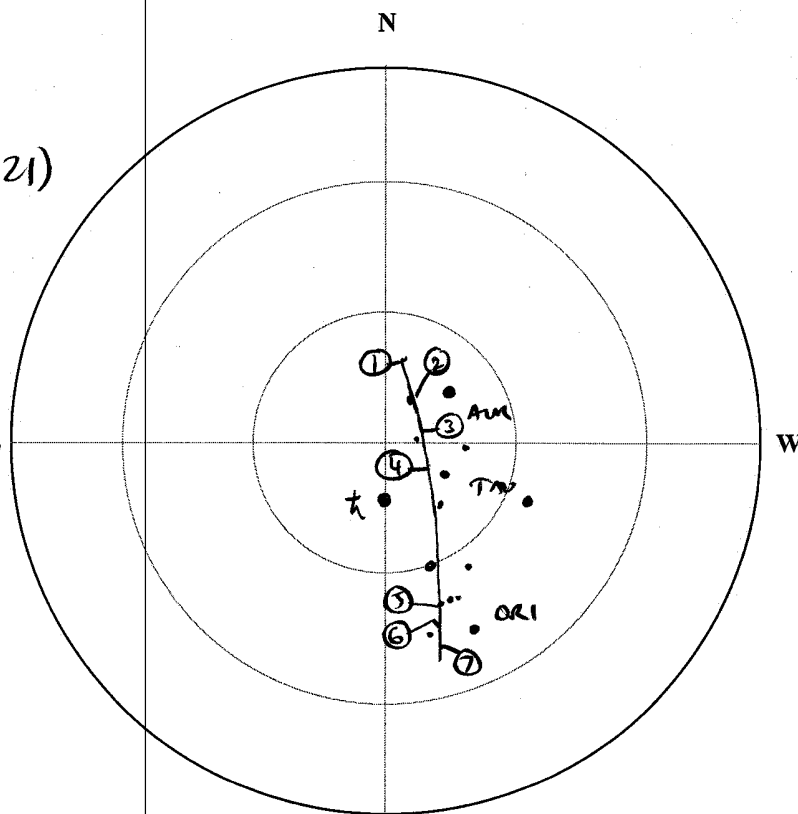
**Instrument Used (check one)**

☒ Unaided Eye  
☒ Binoculars 10x50  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Ery & Fast  
Steady brightness ~5m  
6-7 faded to 6 or 6.5 m

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



① 20:17:21 CSR S  
② 20:17:34  
③ 20:17:42  
④ 20:17:58 CSR  
⑤ 20:18:48  
⑥ 20:19:00  
⑦ 20:19:07  
Observation Number (1-28) 4

**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_  
Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_  
Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_  
Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_  
Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China ☒  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

SEE DETAIL  
SHEETS

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 3/8/04

Satellite Name and  
Element Set Satellite ID IRS-P2 (23323)

Date of Element Set Used 3/3/4

**Location of Observer**

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) E

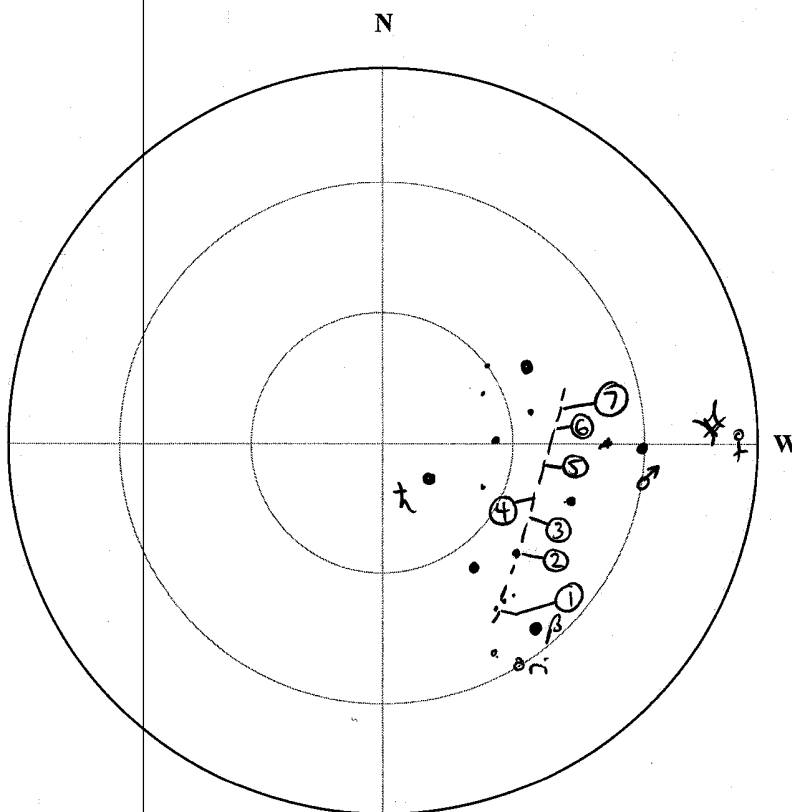
Elevation 650 feet  
(specify feet or meters)

**Instrument Used (check one)**

☒ Unaided Eye  
☒ Binoculars 10x50  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Got it Good! Period  
of 20-25s to go from 28 → 4 mag  
& back - very good sighting

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.



**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

① 20:41:42 CST  
② 20:42:07  
③ 20:42:30  
④ 20:42:43  
⑤ 20:42:53 CST  
⑥ 20:43:08  
⑦ 20:43:22  
Observation Number (1-28) 5

**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other ☒ INDIA

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

Observers Name Bruce Young

Date of Observation 12/17/3

Satellite Name and  
Element Set Satellite ID Sich 1 (23657)

Date of Element Set Used 12/6/3

Location of Observer  
Latitude +36.138  
(use decimal degrees only)

Longitude 95.984  
(use decimal degrees only, east is negative) E

Elevation 650 ft  
(specify feet or meters)

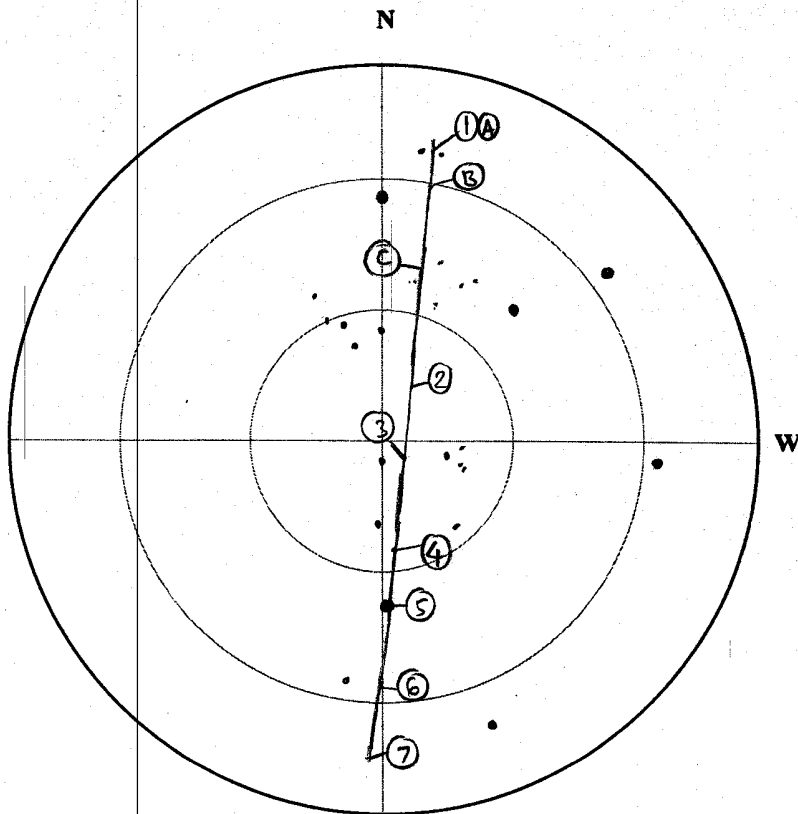
Instrument Used (check one)  
☒ Unaided Eye (see comments)  
☒ Binoculars 10x50  
Telescope - specify aperture \_\_\_\_\_

Comments Picked up very early  
and was bright (3rd mag)  
while near Kochab - then  
dimmed back to 4 or 4.5. "Flash" about  
Draw or sketch the path of the satellite across the sky 10 seconds  
relative to bright stars. The outer ring represents the horizon.

from A to B then fade  
**IMPORTANT** - Place time "hacks" on at least two over 30 sec  
locations on the satellite track, including the timezone to C  
and daylight/standard time references, for example  
01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

**PATH DIFFERENT!**

① 18:50:12 CST ⑥ 18:54:37 CST  
② 18:52:29 CST ⑦ 18:55:21 CST  
③ 18:52:58 CST  
④ 18:53:26 CST  
⑤ 18:53:47 CST



①  $\beta \rightarrow x \rightarrow \gamma$  umi  
② See detail  
③ 10' w of  
④ "Over" psc 24  
⑤ 10' w of  $\sigma$   
⑥ Detail  
⑦ Detail

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other ☒ UKRAINE/  
CHILE

Details

② EW 5.8" ②  
Lac 3 And  
⑥  $\beta$  ⑥ ⑥ ⑥  
⑦ ⑦ ⑦ ⑦



# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 1/8/4

Satellite Name and  
Element Set Satellite ID ODIN (26702)

Date of Element Set Used 12/31/3

Location of Observer

Latitude +36.1  
(use decimal degrees only)

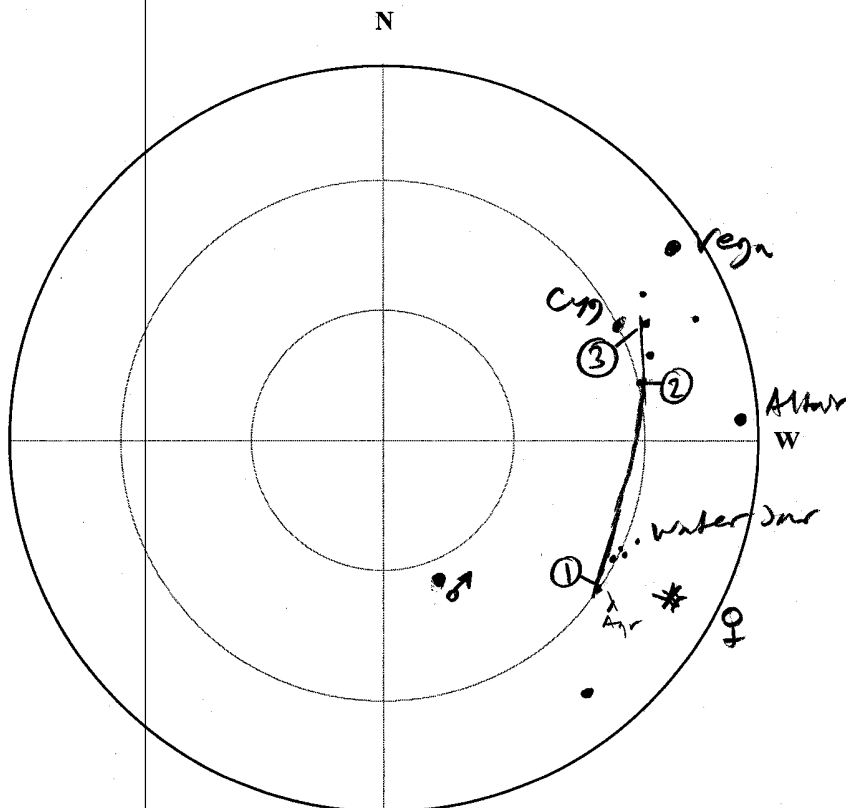
Longitude 96.0  
(use decimal degrees only, east is negative)

Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars only  
☐ Telescope - specify aperture \_\_\_\_\_

Comments MAG 7 - NOT HAND  
IN 10x50'S BUT FAST & LOW



Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

① 18:44:49 CST 22h 55m -7°5  
② 18:46:27 CST 21h 13m +30°2  
③ 18:47:04 CST 20h 23m +41°  
Observation Number (1-28) 6

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other X SWEDEN

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

Observers Name Brad Young

Date of Observation 7/23/3

Satellite Name and (19120)  
Element Set Satellite ID Cosmos 1943 Rocket

Date of Element Set Used 7/22/3

Location of Observer

Latitude ~~+36.1~~ +35.876  
(use decimal degrees only)

Longitude 96.06  
(use decimal degrees only, east is negative) E

Elevation 650 feet  
(specify feet or meters)

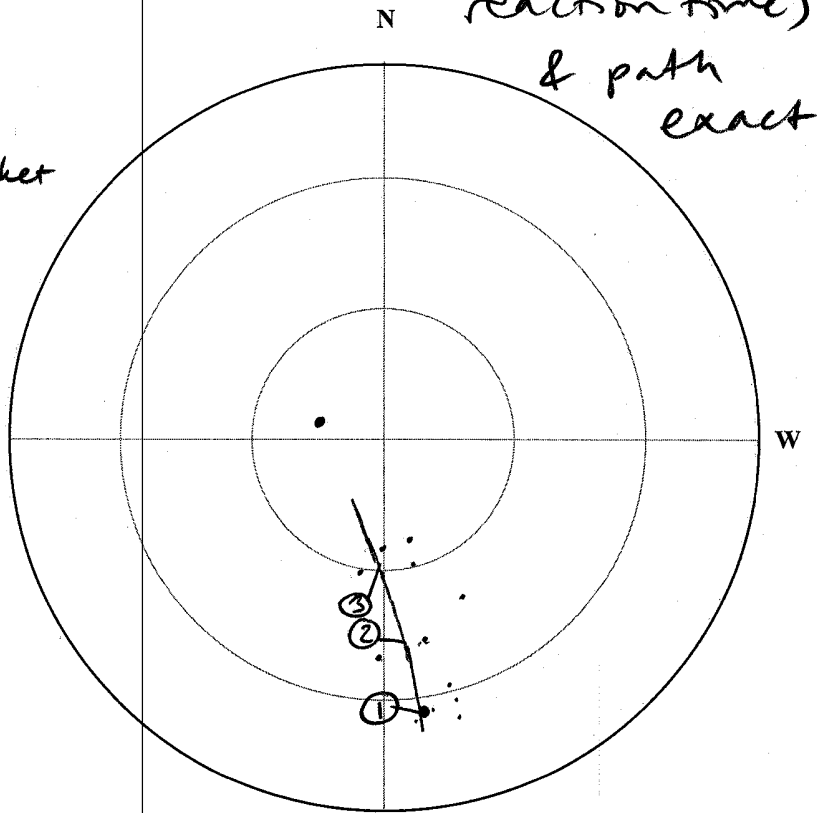
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Easy & about 4 mag

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone and daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



SUMMARY  
About :01  
second off  
(probably my  
reaction time)  
& path  
exact

POSITIONS TAKEN  
AT :00 marks

Observation Number (1-28) 18

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

① 10:25:20 CDT  
② 10:26:20 CDT  
③ 10:27:20 CDT

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a ☒ b \_\_\_\_\_  
2 a ☒ b \_\_\_\_\_

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

SUMMARY

Arrived ~20  
seconds earlier  
than predicted  
by old elset,  
path unchanged

Observers Name Brad Young

Date of Observation 12/4/3

Satellite Name and  
Element Set Satellite ID (19120)  
Cosmos 1943 Rocket

Date of Element Set Used 10/28/3 (McCan's

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative) E

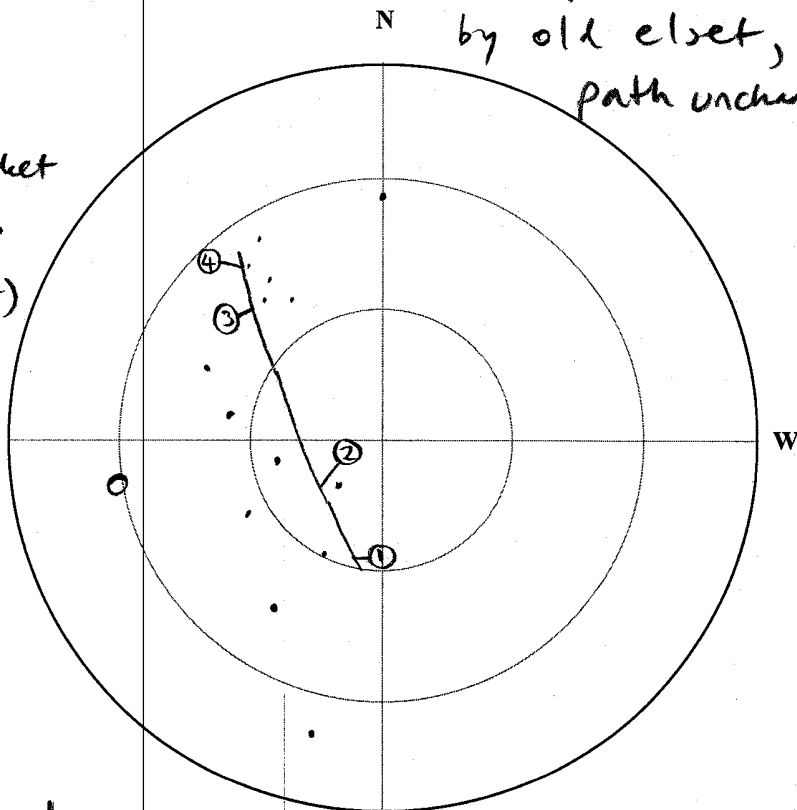
Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars (to catch  $\delta$ 's)  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Pretty much bang on  
path predicted by old  
elset - but timing  
was off noticeably!

Draw or sketch the path of the satellite across the sky  
relative to bright stars. The outer ring represents the horizon.



**IMPORTANT** - Place time "hacks" on at least two  
locations on the satellite track, including the timezone  
and daylight/standard time references, for example  
01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

Observation Number (1-28) 19

S ① 17:50:50 CST  
\* ② 17:51:07 CST  
+ ③ 17:52:17 CST  
④ 17:52:40 CST

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b ☒  
2 a ☒ b ☒

① First seen (in  $\delta$ 's)  
② W of  $\alpha$  Peg (see detail)  
③  $\delta$  of  $\alpha$  Cas  
④  $\delta$  of Cas

\* This timing recorded when it was  
closest to  $\beta$  Peg, not due East  
as I often use with recording

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 1/7/4

Satellite Name and (20625)  
 Element Set Satellite ID Cosmos 2082 Rocket

Date of Element Set Used 12/5/3

Location of Observer

Latitude +36.1  
 (use decimal degrees only)

Longitude 96.0  
 (use decimal degrees only, east is negative) E

Elevation 650 feet  
 (specify feet or meters)

Instrument Used (check one)

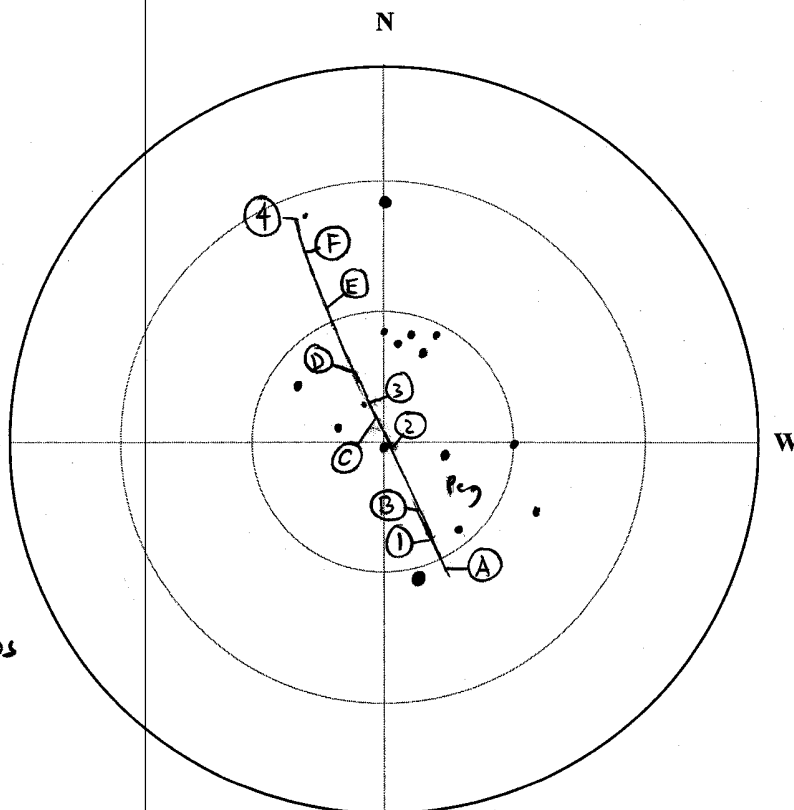
☒ Unaided Eye  
☐ Binoculars - at ②, ③, ④ positions  
☐ Telescope - specify aperture \_\_\_\_\_

Comments VERY DISTINCT TUMBLER!

Also w/ STOPWATCH - STILL USING

± 1 SEC Resolution  
 Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



① 18:53:58 CST Oh 40m +15°  
 ② 18:54:48 CST 1h 05m +36°  
 ③ 18:55:16 CST 1h 34m +48°5  
 ④ 18:57:10 CST 7h 0m +77°  
 Observation Number (1-28) (25)

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 \_\_\_\_\_

Manned Spaceflight (2)  
 STS \_\_\_\_\_  
 ISS \_\_\_\_\_  
 Other \_\_\_\_\_

Multinational (4)  
 Russia \_\_\_\_\_  
 China \_\_\_\_\_  
 Japan \_\_\_\_\_  
 Brazil \_\_\_\_\_  
 Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
 2 a \_\_\_\_\_ b \_\_\_\_\_

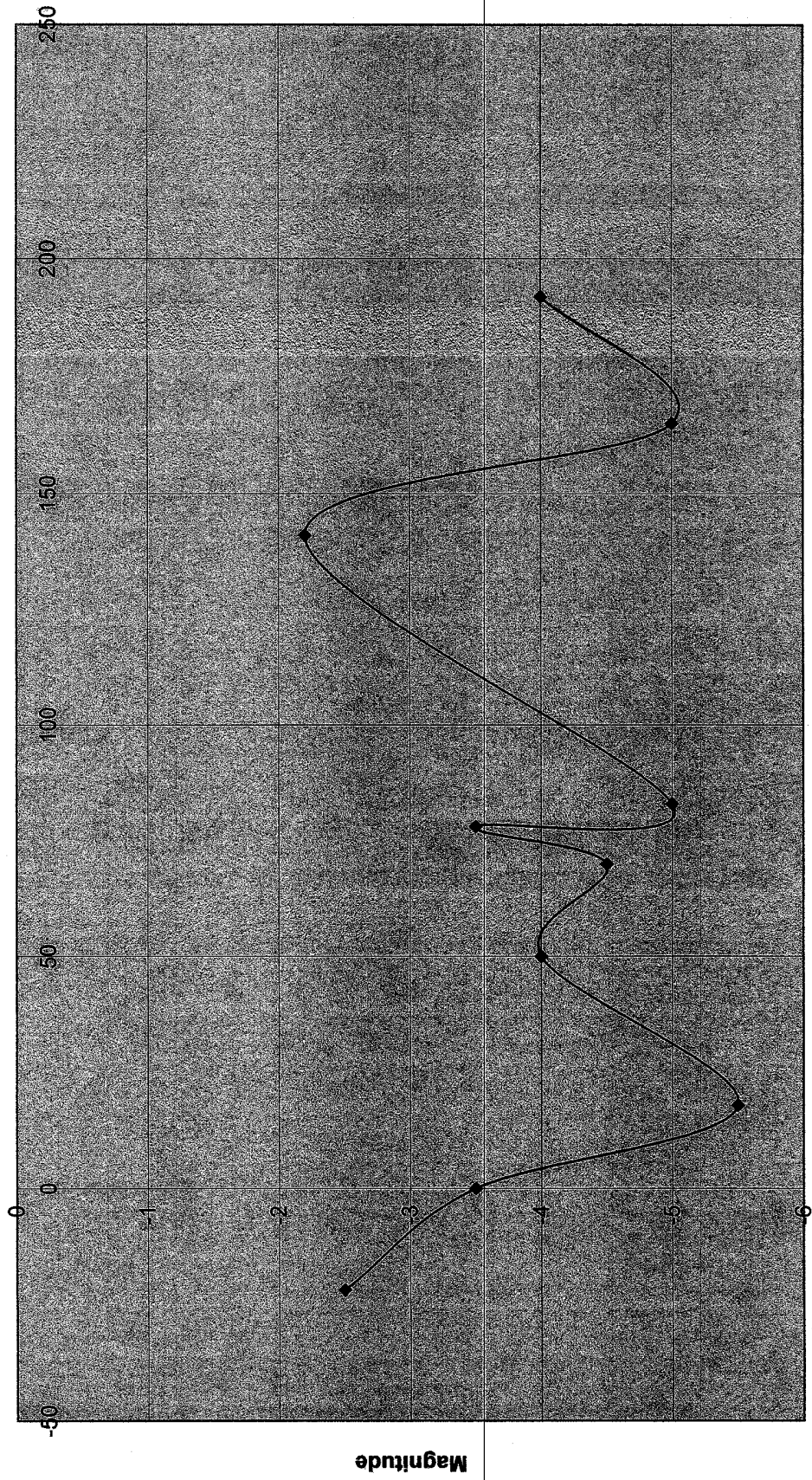
Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
 2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
 2 a X b \_\_\_\_\_  
(4) 4.0

MAGNITUDES ONLY

④ 2.5  
 ① 3.5  
 ③ 5.5  
 ② 4.0  
 ⑤ 2.3  
 ③ 3.5  
 ④ 5.0  
 ⑤ 2.2  
 ⑥ 5.0  
(4) 4.0

# Cosmos 2082 Rocket Flash Period



Time (seconds)

—◆— 1/7/2004

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 1/8/4 *See index*

Satellite Name and  
Element Set Satellite ID COSMOS 2082 Rocket *(20625)*

Date of Element Set Used 1/7/4

Location of Observer

Latitude +36.1  
(use decimal degrees only)

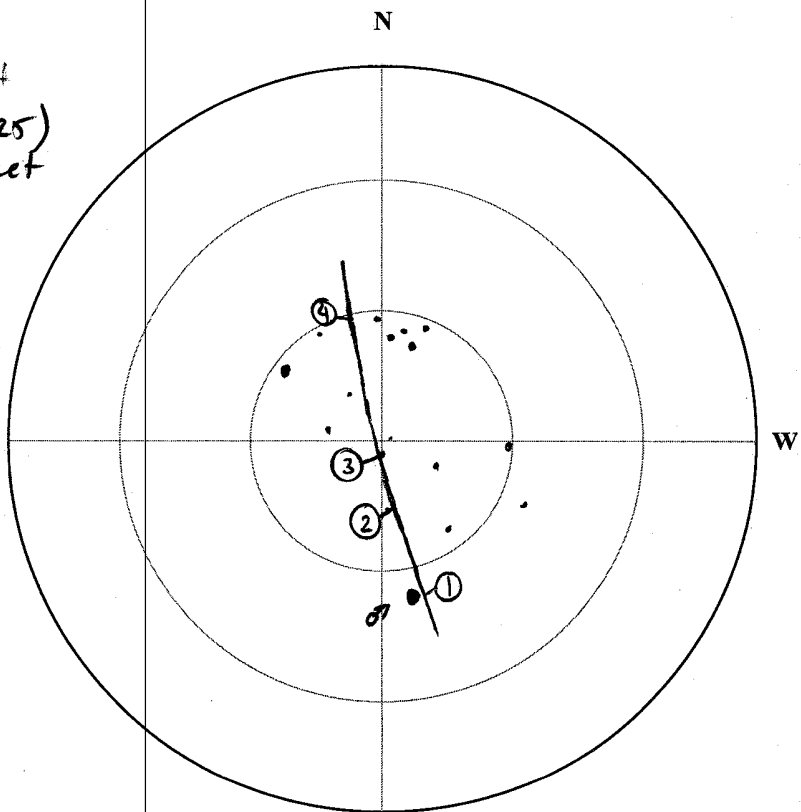
Longitude 96.0  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Still flashing!  
Very interesting to watch



Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

① 18:39:34 CST 0h 45m +5°  
② 18:40:13 CST 0h 55m +22°  
③ 18:40:39 CST 1h 09m +35°  
④ 18:41:43 CST 2h 25m +62°  
Observation Number (1-28) 26

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b ☒

See magnitude  
"schedule" on  
next sheet,  
fairly repetitive  
cycles from 50p  
to nearly 2:  
SEE ATTACHED  
GRAPH

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 3/8/4

Satellite Name and  
Element Set Satellite ID MILSTAR 3 (25724)

Date of Element Set Used 3/6/4

#### Location of Observer

Latitude +36.154  
(use decimal degrees only)

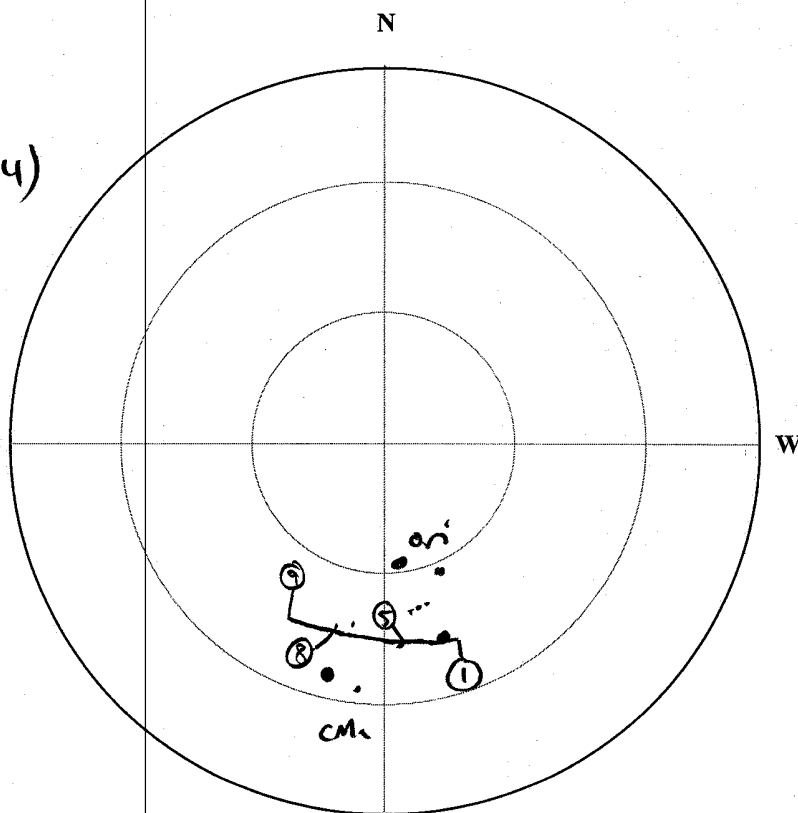
Longitude 95.993  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

#### Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars  
☐ Telescope – specify aperture \_\_\_\_\_

Comments EASILY SEEN NCE  
SLOW PASS



Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the *timezone* and *daylight/standard time references*, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

SEE DETAIL SHEET FOR OTHER TICKETS

① 19:19:02 CST ④ 19:19:20 CST ⑦ 19:20:07 CST  
② 19:19:10 ⑤ 19:19:43 ⑧ 19:20:18  
③ 19:19:13 ⑥ 19:19:47 ⑨ 19:21:16

Observation Number (1-28) \_\_\_\_\_

#### Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_  
Active

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_



Binoculars.com

Zhumell

## Visible Pass Details

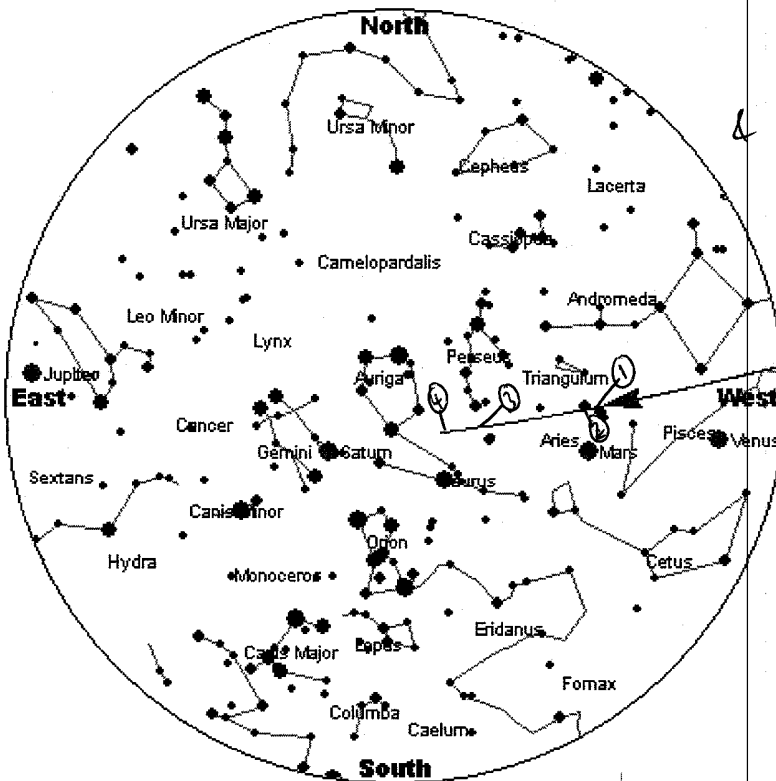
[| Home](#) | [Info](#) | [Orbit](#) | [Help](#) |

### Ground Track

**NEW!** Click here for a view of the ground track during the pass, centred on your location.

### Whole Sky Chart

This chart shows the path of the satellite across the sky. Please note that East and West are **NOT** the "wrong way round" if you hold the chart over your head to correspond to the view of the sky.



ID=20453  
SEEN EASILY W/EYE  
& TRACKED → mag ~ 4

① 20:08:07 CST

② 20:08:13 CST

③ 20:09:02 CST

④ 20:09:19 CST

SAW NOAA 14  
WAITING FOR IT  
(SEE ATTACHED)

### Pass Details

Date: Saturday, 14 February, 2004  
Satellite: Delta 2 Rocket  
Observer's Location: Tulsa ( 36.1380°N, 95.9840°W)  
Local Time: Central Standard Time (GMT - 6:00)  
Orbit: 430 x 996 km, 35.6° (Epoch 11 Feb)  
Sun altitude at time of maximum pass altitude: -25.9°

| Event               | Time     | Altitude | Azimuth   | Distance (km) |
|---------------------|----------|----------|-----------|---------------|
| Rises above horizon | 20:03:04 | -0°      | 274° (W ) | 2,737         |



# Astronomical League Earth Orbiting Satellite Observers Club Observation Report Form, Version 1.3

Observers Name BRAD YOUNG

Date of Observation 12/17/3

Satellite Name and  
Element Set Satellite ID Cosmos 2219 Rocket (22220)

Date of Element Set Used 12/5/3

Location of Observer  
Latitude +36.138  
(use decimal degrees only)

Longitude 95.984  
(use decimal degrees only, east is negative) E

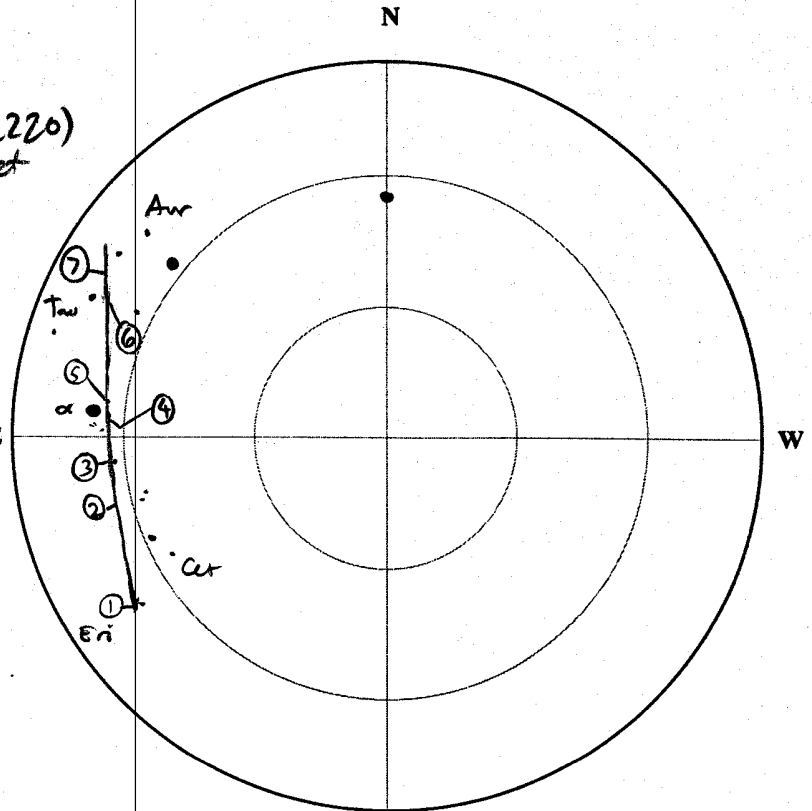
Elevation 650 ft  
(specify feet or meters)

Instrument Used (check one)  
☒ Unaided Eye (6-7)  
☒ Binoculars 10x50 (1-5)  
Telescope - specify aperture \_\_\_\_\_

Comments Visible part of way  
with naked eye (E Tau) -  
seemed > expected 4.5 mag  
(12 say 4.0)

Draw or sketch the path of the satellite across the sky  
relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two  
locations on the satellite track, including the timezone  
and daylight/standard time references, for example  
01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



- ① 18:04:29 CST of Eri S  
② 18:05:50 CST (see detail)  
③ 18:06:19 CST of Tau (10 sec)  
④ 18:06:39 CST of Tau (~5' N)  
⑤ 18:06:48 of Eri (15' S)  
⑥ 18:08:12 of Tau → X → Aur  
⑦ 18:08:44 of Tau → X → Aur  
Observation Number (1-28) \_\_\_\_\_

Observation Objective (subject to change - check only one task per observation)

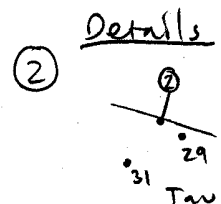
Active Payload (4) 1 \_\_\_\_\_ Manned Spaceflight (2)  
2 \_\_\_\_\_ STS \_\_\_\_\_  
3 \_\_\_\_\_ ISS \_\_\_\_\_  
4 \_\_\_\_\_ Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_ Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_ 2 \_\_\_\_\_  
3 \_\_\_\_\_ 3 \_\_\_\_\_  
4 \_\_\_\_\_ 4 \_\_\_\_\_ (one during daylight or civil twilight hours)

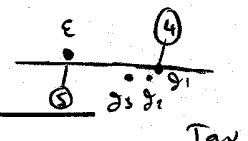
Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_ Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_ 2 a \_\_\_\_\_ b \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_



425



Multipass (2)  
ALT

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

Observers Name Brad Young

Date of Observation 12/17/3

Satellite Name and  
Element Set Satellite ID Cosmos 2219 Rocket (22220)

Date of Element Set Used 12/5/3

Location of Observer  
Latitude +36.138  
(use decimal degrees only)

Longitude 95.984  
(use decimal degrees only, east is negative) E

Elevation 650 ft  
(specify feet or meters)

Instrument Used (check one)  
☐ Unaided Eye  
☒ Binoculars 10x50  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Great 2nd pass

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

Observation Number (1-28) \_\_\_\_\_

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_  
Manned Spaceflight (2) STS \_\_\_\_\_ ISS \_\_\_\_\_ Other \_\_\_\_\_

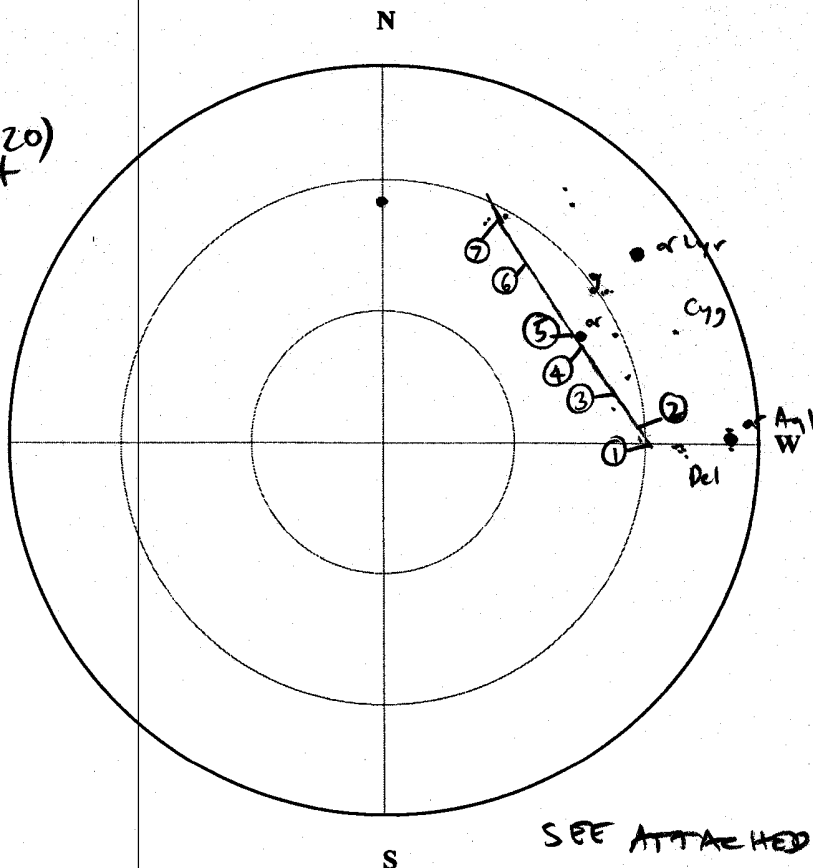
Rocket Bodies (4) 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_  
Iridium Flares (4) 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b 0 Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_ 2 a \_\_\_\_\_ b \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

- ① 19:48:08 CST First seen
- ② 19:48:17 CST 30°W 1 Peg
- ③ 19:48:58 CST 30°3' x 0°7' E Cyg
- ④ 19:49:23 CST 30°56' Cyg
- ⑤ 19:49:39 CST 30°3' x 0°7' SS Cyg
- ⑥ 19:50:27 CST see detail
- ⑦ 19:50:59 CST see detail



SEE ATTACHED  
HEAVENS-ABOVE  
CHART FOR  
POSITIONS-  
MAINLY  
ON PATH  
EXCEPT AT  
NORTH END

BUT TIMINGS  
NOT ON  
PREDICTION-  
approx 4 sec  
early  
Details

08 PM  
-68  
-66  
⑥

08:00  
8:00 ⑦

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 11/3/3

Satellite Name and  
Element Set Satellite ID Iridium 63 (25286)

Date of Element Set Used 10/30/3

**Location of Observer**

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative) **E**

Elevation 650 feet  
(specify feet or meters)

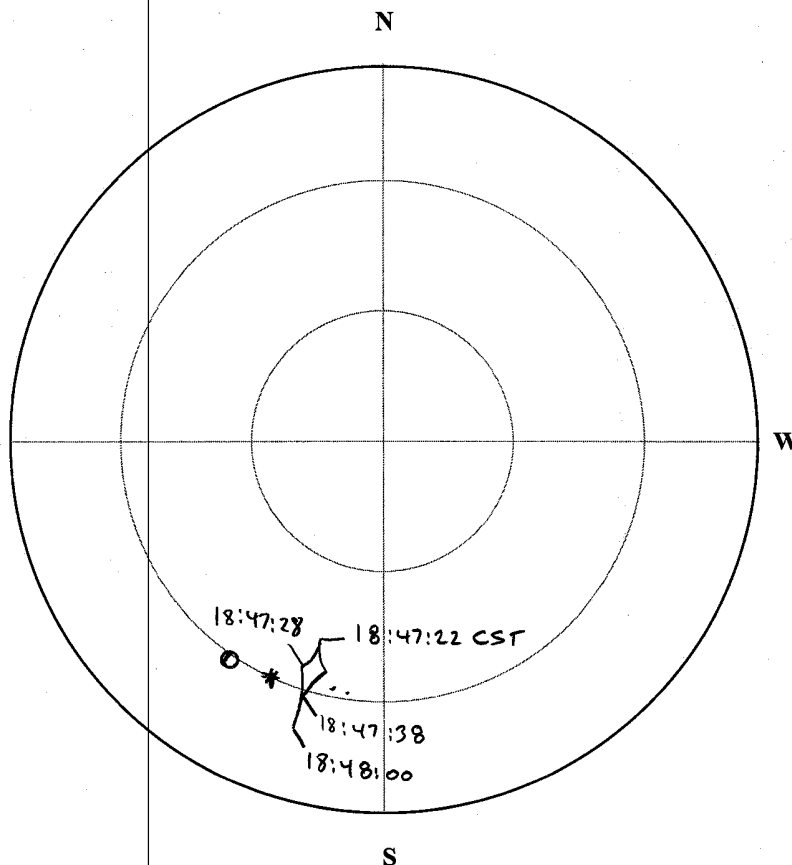
**Instrument Used (check one)**

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope – specify aperture \_\_\_\_\_

Comments Max mag = -6  
Seemed a longer flash  
period than others seen

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



Observation Number (1-28) \_\_\_\_\_

**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

MULTINATIONAL  
FORMATION

Observers Name Brad Young

Date of Observation 3/12/4

Satellite Name and  
Element Set Satellite ID JASON (26997)  
TOPEX (22076)

Date of Element Set Used 3/10/4  
3/10/4

**Location of Observer**

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) **E**

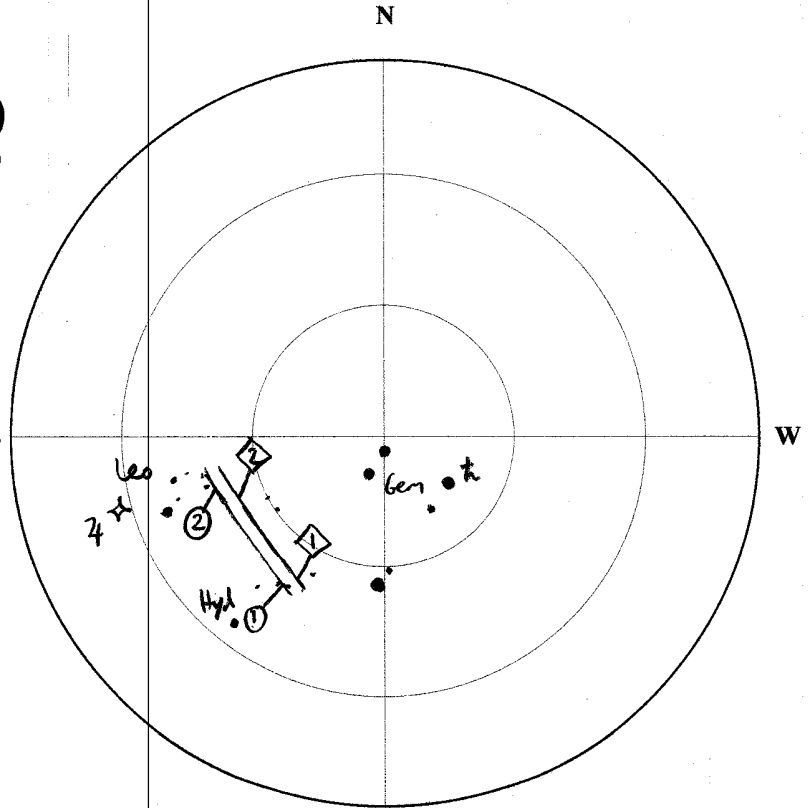
Elevation 650 feet  
(specify feet or meters)

**Instrument Used (check one)**

☐ Unaided Eye  
☒ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments EVEN w/ BROKEN CLOUDS!  
JASON 6.5-7 mag (FEWER CLOUDS)  
TOPEX 5-6 mag (CLOUD HOPPING)

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.



**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

JASON  
① 20:33:45 CST

② 20:35:19 ↓

Observation Number (1-28) \_\_\_\_\_

TOPEX  
① 20:40:43 CST  
② 20:40:50 CST

**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2)  
ALT

1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

US/FRANCE (JASON)

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 2/26/4

Satellite Name and  
Element Set Satellite ID ETS-7 (25064)

Date of Element Set Used 2/23/4

**Location of Observer**

Latitude +36.154  
(use decimal degrees only)

Longitude 95.993  
(use decimal degrees only, east is negative) E

Elevation 650 feet  
(specify feet or meters)

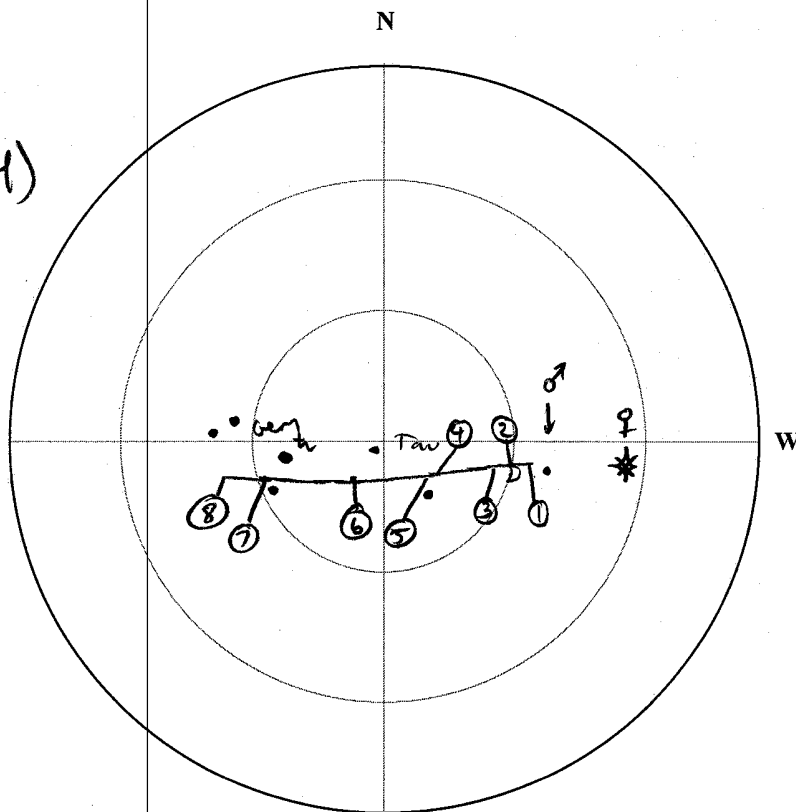
**Instrument Used (check one)**

☒ Unaided Eye 1-5  
☒ Binoculars 6-8  
☐ Telescope - specify aperture \_\_\_\_\_

Comments PASSED 8' N OF  
CRESCENT MOON!  
0.3 sec to "cross" 8' N of D

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).



|                                 |   |                |
|---------------------------------|---|----------------|
| ① 19:09:06 CST                  | S | ⑤ 19:09:30 CST |
| ② 19:09:12                      | } | ⑥ 19:09:53     |
| ③ 19:09:18                      |   | ⑦ 19:10:10     |
| ④ 19:09:28                      |   | ⑧ 19:10:16     |
| Observation Number (1-28) _____ |   |                |

**Observation Objective (subject to change - check only one task per observation)**

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan ☒  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

**Astronomical League  
Earth Orbiting Satellite Observers Club  
Observation Report Form, Version 1.3**

EVENING PASS

000 ELSET

Obs'd Path 10-2° W of  
predicted, approx.  
34 sec late

Observers Name B7

Date of Observation 12/29/03

Satellite Name and  
Element Set Satellite ID Cosmos 1975 (19573)

Date of Element Set Used 12/7/3

Location of Observer

Latitude +36.138  
(use decimal degrees only)

Longitude 95.984  
(use decimal degrees only, east is negative)

Elevation 650  
(specify feet or meters)

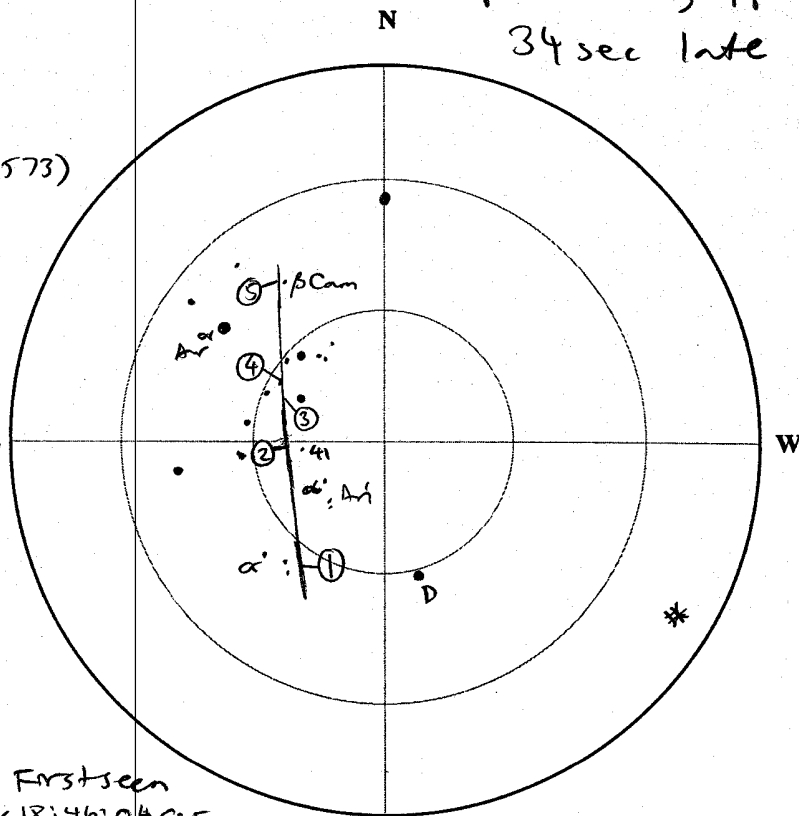
Instrument Used (check one)

☒ Unaided Eye  
☐ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Verifying new orbit  
noticed late & off track  
this a.m.

First seen  
~ 18:46:04 CST

Draw or sketch the path of the satellite across the sky  
relative to bright stars. The outer ring represents the horizon.



**IMPORTANT** - Place time "hacks" on at least two  
locations on the satellite track, including the timezone  
and daylight/standard time references, for example  
01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

- ① 18:46:22 CST  $\alpha \rightarrow 7 \text{ Cet } 0.7 \rightarrow X = 2h 30m + 20.5$
  - ② 18:47:05 CST  $\Delta W/M45 \& \text{ Per} = 3h 10m + 29.0$
  - ③ 18:47:33 CST  $\beta \rightarrow X \rightarrow E \text{ Per} = 3h 32m + 40.5$
  - ④ 18:47:44 CST  $\text{just W of } E \text{ Per} = 3h 44m + 42.35'$
  - ⑤ 18:48:16 CST  $1.0^\circ E \text{ of } \beta \text{ Cam} = 5h 12m + 60.25'$
- Observation Number (1-28) \_\_\_\_\_

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

# Astronomical League

## Earth Orbiting Satellite Observers Club

### Observation Report Form, Version 1.3

Observers Name Brad Young

Date of Observation 12/31/3

Satellite Name and  
Element Set Satellite ID Cosmos 1975 <sup>19573</sup>

Date of Element Set Used 12/7/3

Location of Observer

Latitude +36.1  
(use decimal degrees only)

Longitude 96.0  
(use decimal degrees only, east is negative) E

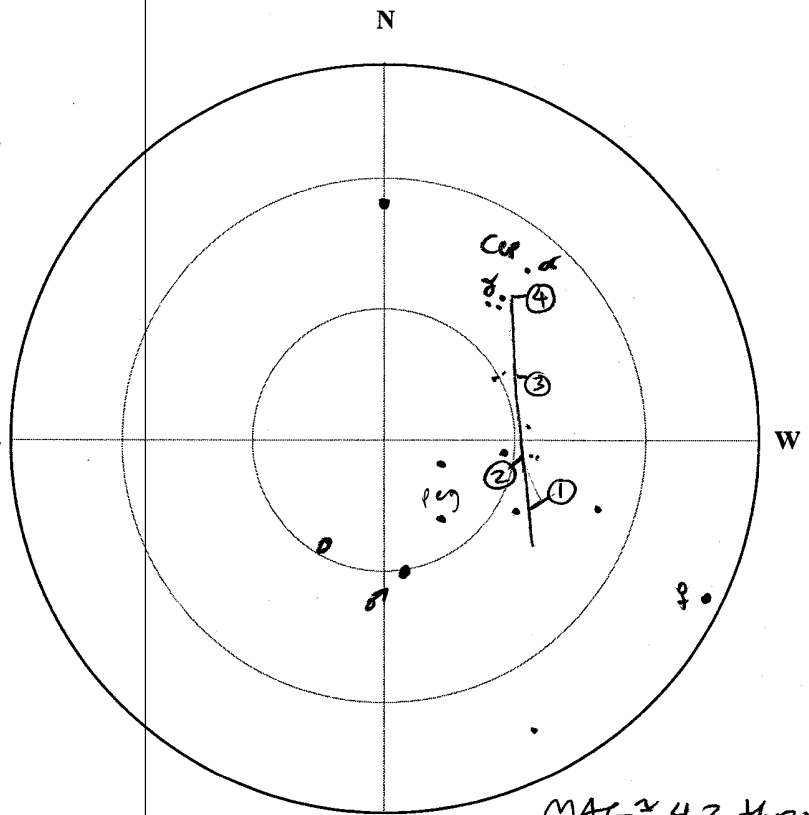
Elevation 650 feet  
(specify feet or meters)

Instrument Used (check one)

☒ Unaided Eye  
☒ Binoculars  
☐ Telescope - specify aperture \_\_\_\_\_

Comments Definitely misty/moon  
glare required b's to track  
Glimpsed w/ n. eye but  
couldn't get track well

Draw or sketch the path of the satellite across the sky relative to bright stars. The outer ring represents the horizon.



*MAE ≈ 4.2 throat  
(1.3rd @ 4.5)*

**IMPORTANT** - Place time "hacks" on at least two locations on the satellite track, including the timezone and daylight/standard time references, for example 01:20:50 UTC, 19:30:40 EST, 23:10:59 PDT, etc.).

- ① 18:59:45 CST 22h 53m +14° 5'
  - ② 19:00:06 CST 22h 56m +26°
  - ③ 19:00:22 CST 22h 50m +42° 5'
  - ④ 19:00:55 CST 22h 3m +58° \*
- Observation Number (1-28) \_\_\_\_\_

Observation Objective (subject to change - check only one task per observation)

Active Payload (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Manned Spaceflight (2)  
STS \_\_\_\_\_  
ISS \_\_\_\_\_  
Other \_\_\_\_\_

Multinational (4)  
Russia \_\_\_\_\_  
China \_\_\_\_\_  
Japan \_\_\_\_\_  
Brazil \_\_\_\_\_  
Other \_\_\_\_\_

*\* - not sure of position*

Rocket Bodies (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_

Iridium Flares (4) 1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_  
4 \_\_\_\_\_ (one during daylight or civil twilight hours)

Multipass (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Formation (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

Aged Elsets (2) 1 a \_\_\_\_\_ b \_\_\_\_\_  
2 a \_\_\_\_\_ b \_\_\_\_\_

*ALT*