

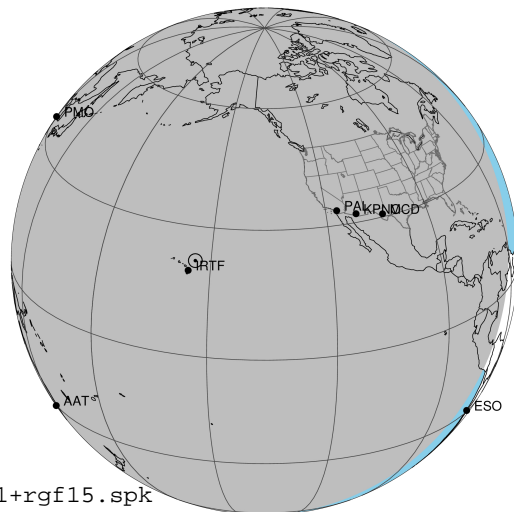
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2048-12-03T10:05:37.170
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3427344525956528896
 2Mass ID (if available) : 05472281+2257330

Jupiter 2048-12-03T10:05:37 K9.06 G12.06 Pgt

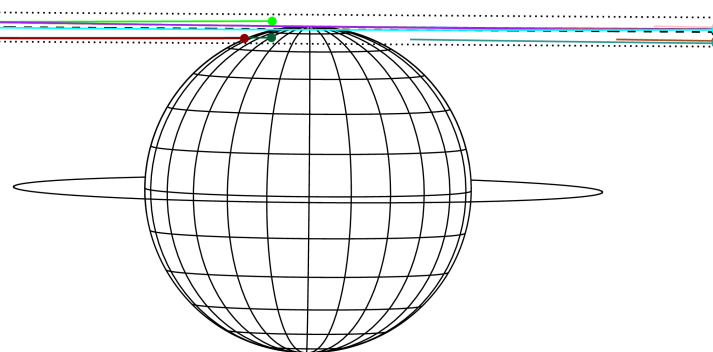
ICRS Star Coord at Epoch: 05h 47m 22.82054s +22:57:33.12961s

RUWE (>1.4 is poor) : 1.42
 K magnitude : 9.056
 G magnitude : 12.063
 RP magnitude : 11.181
 BP magnitude : 12.869
 DUPflag : 0
 Distance (au) : 4.146
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.89
 Sun-Target sep (deg) : 164.13
 Sun-Moon sep (deg) : 133.14
 B (ring opening deg) : 2.54
 PA of pole (deg) : -0.52
 Pole direction: RA (deg): 268.05737
 Dec (deg): 64.49721
 C/A sky separation (") : 23.351
 C/A sky separation (km) : 70211.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2048-12-03T10:05:37 K9.06 G12.06
 Pgt



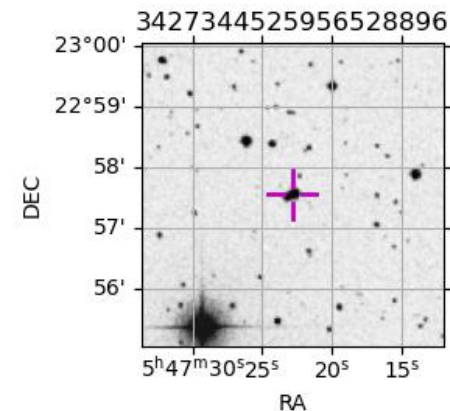
Earth
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 MSO



2048-12-03T10:05:37.1700 a: 05 47 22.8205 s: +22 57 33.130 C/A ***** PA 179.60 deg v_sky -15.89 km/s D 04.15 AU
 Credit: Styled after SORA/Lucky Star

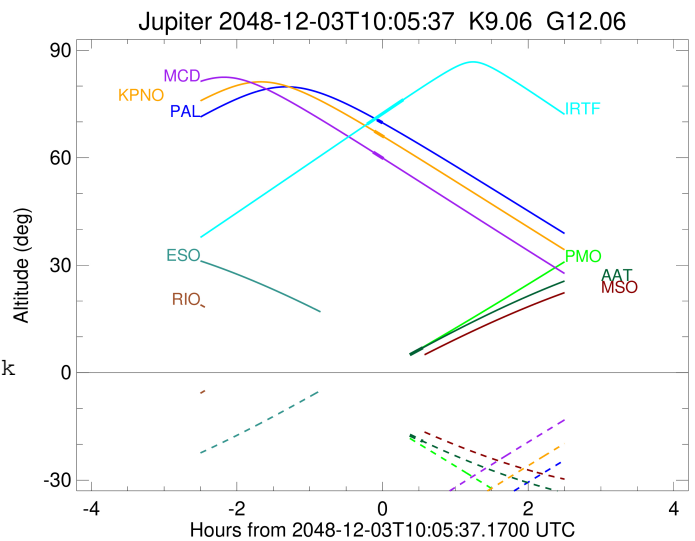
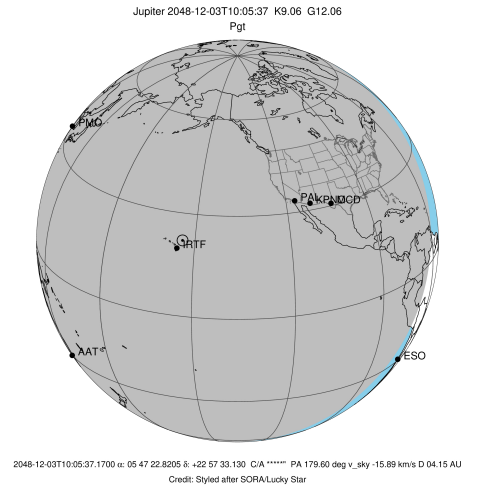
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	DEC 03 10:01 - DEC 03 10:05	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	DEC 03 09:58 - DEC 03 10:07	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	DEC 03 09:57 - DEC 03 10:06	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	DEC 03 09:52 - DEC 03 10:22	Pie
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	DEC 03 10:38 - DEC 03 10:38	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2048-12-03T10:03:31.890
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PAL
Location              : Palomar Mt (200")
Latitude (deg)        : 33.35622
E. Longitude (deg)    : 243.13601
Altitude (km)         : 1.706
Gaia source ID        : 3427344525956528896
2Mass ID (if available) : 05472281+2257330
ICRS Star Coord at Epoch: 05h 47m 22.82054s +22:57:33.12961s
RUWE (>1.4 is poor) : 1.42
K magnitude           : 9.056
G magnitude           : 12.063
RP magnitude          : 11.181
BP magnitude          : 12.869
DUPflag              : 0
Distance (au)         : 4.146
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 164.13
Sun-Moon sep (deg)   : 134.00
B (ring opening deg) : 2.54
PA of pole (deg)     : -0.52
Pole direction: RA (deg): 268.05737
Dec (deg): 64.49721
C/A sky separation ("): 23.765
C/A sky separation (km): 71455.4
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
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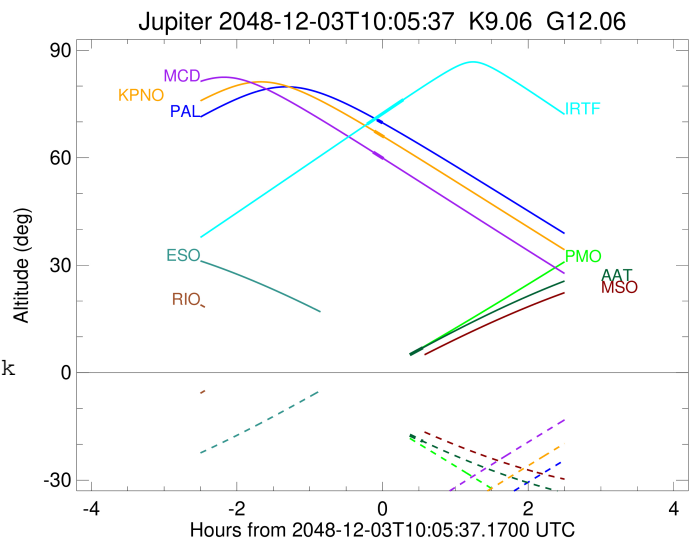
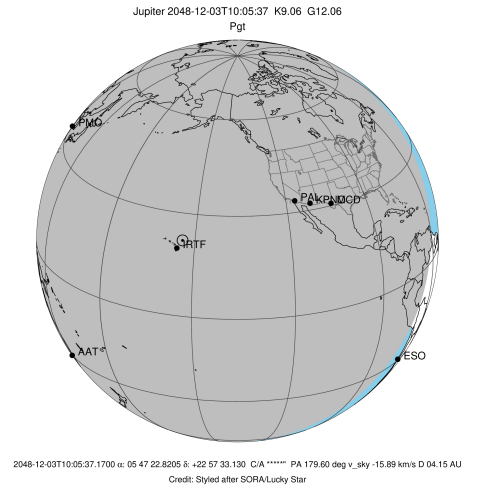


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-12-03T10:01:29.540	70.52	-56.45	71483.2	86.97	87.32
Jupiter	E	2048-12-03T10:05:34.237	69.75	-55.61	71483.2	87.03	87.38

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-12-03T10:02:58.130
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 3427344525956528896
2Mass ID (if available) : 05472281+2257330
ICRS Star Coord at Epoch: 05h 47m 22.82054s +22:57:33.12961s
RUWE (>1.4 is poor) : 1.42
K magnitude           : 9.056
G magnitude           : 12.063
RP magnitude         : 11.181
BP magnitude         : 12.869
DUPflag              : 0
Distance (au)        : 4.146
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 164.13
Sun-Moon sep (deg)  : 134.04
B (ring opening deg) : 2.54
PA of pole (deg)    : -0.52
Pole direction: RA (deg): 268.05737
Dec (deg): 64.49721
C/A sky separation (" ) : 23.738
C/A sky separation (km) : 71375.0
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
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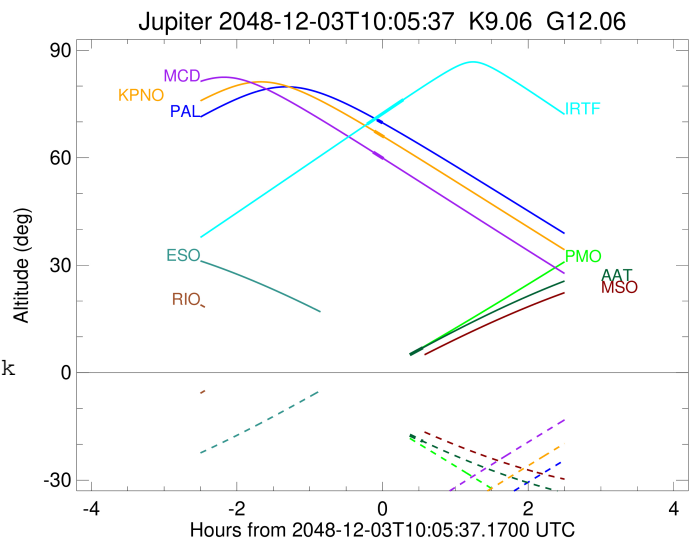
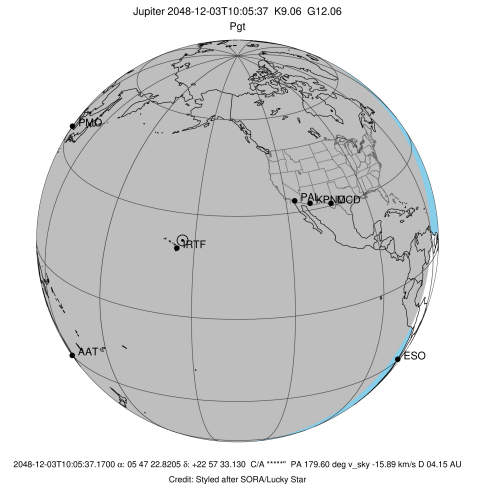


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-12-03T09:58:56.483	67.41	-52.75	71483.2	85.87	86.36
Jupiter	E	2048-12-03T10:06:59.817	65.76	-51.04	71483.2	86.03	86.50

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2048-12-03T10:02:11.760
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MCD
Location              : McDonald Obs. 2.7m
Latitude (deg)        : 30.67158
E. Longitude (deg)    : 255.97844
Altitude (km)         : 2.075
Gaia source ID        : 3427344525956528896
2Mass ID (if available) : 05472281+2257330
ICRS Star Coord at Epoch: 05h 47m 22.82054s +22:57:33.12961s
RUWE (>1.4 is poor) : 1.42
K magnitude           : 9.056
G magnitude           : 12.063
RP magnitude          : 11.181
BP magnitude          : 12.869
DUPflag              : 0
Distance (au)         : 4.146
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 164.13
Sun-Moon sep (deg)   : 134.07
B (ring opening deg) : 2.54
PA of pole (deg)     : -0.52
Pole direction: RA (deg): 268.05737
Dec (deg): 64.49721
C/A sky separation (") : 23.735
C/A sky separation (km) : 71365.4
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
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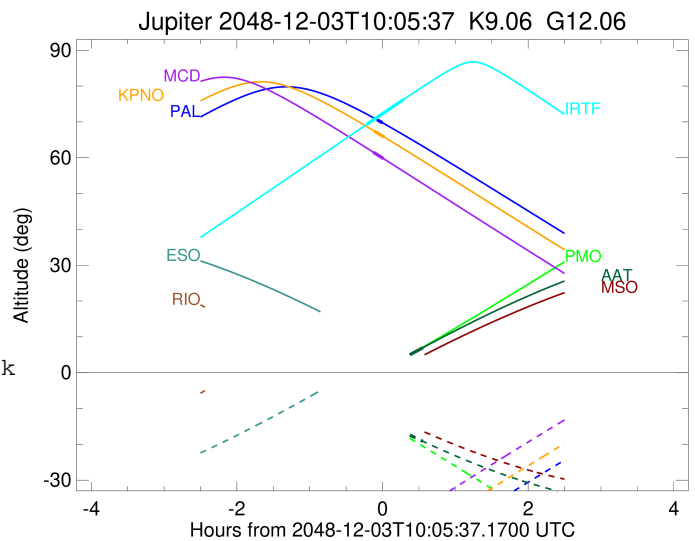
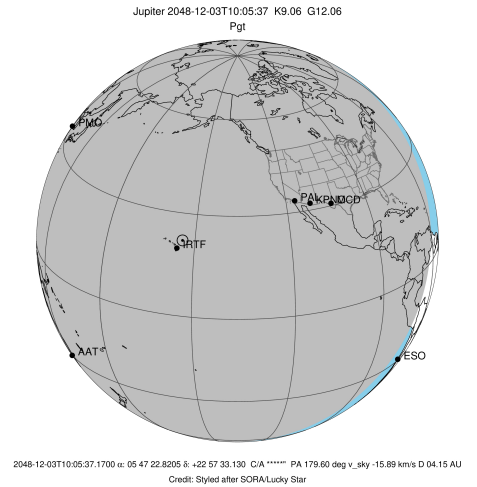


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-12-03T09:57:59.360	61.55	-46.51	71483.2	85.71	86.21
Jupiter	E	2048-12-03T10:06:24.213	59.75	-44.70	71483.2	85.98	86.45

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-12-03T10:07:49.590
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : IRTF
Location            : Mauna Kea/IRTF
Latitude (deg)      : 19.82622
E. Longitude (deg)  : 204.52800
Altitude (km)       : 4.168
Gaia source ID      : 3427344525956528896
2Mass ID (if available) : 05472281+2257330
ICRS Star Coord at Epoch: 05h 47m 22.82054s +22:57:33.12961s
RUWE (>1.4 is poor) : 1.42
K magnitude          : 9.056
G magnitude          : 12.063
RP magnitude         : 11.181
BP magnitude         : 12.869
DUPflag             : 0
Distance (au)       : 4.146
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 164.13
Sun-Moon sep (deg)  : 133.62
B (ring opening deg) : 2.54
PA of pole (deg)    : -0.52
Pole direction: RA (deg): 268.05737
Dec (deg): 64.49721
C/A sky separation ("): 23.270
C/A sky separation (km) : 69967.8
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

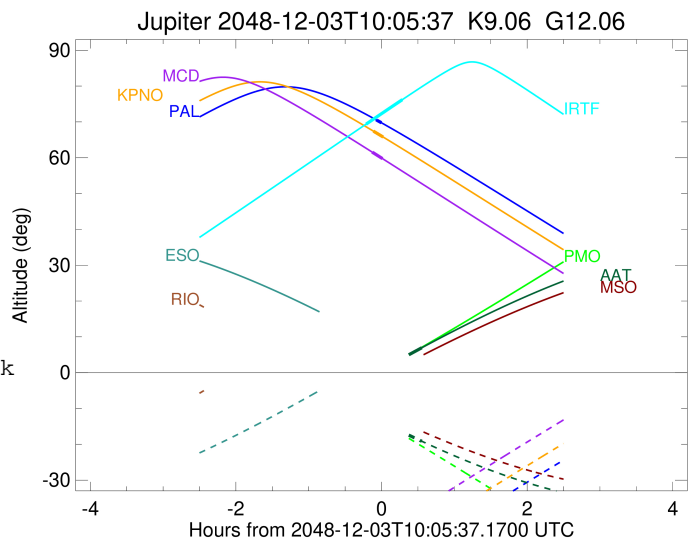
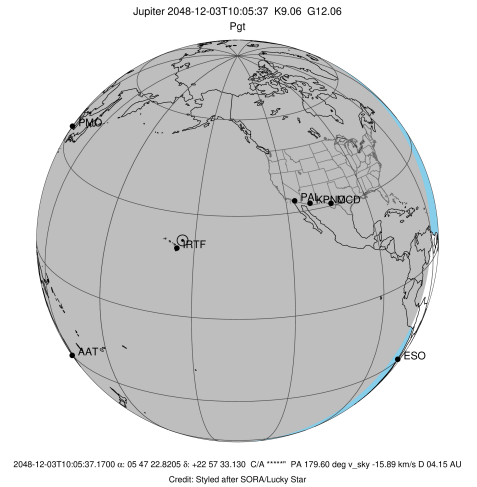


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-12-03T09:52:52.648	69.36	-84.93	71483.5	78.23	79.60
Jupiter	E	2048-12-03T10:22:45.953	76.20	-86.41	71483.5	77.63	79.06

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2048-12-03T10:11:44.260
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : AAT
Location              : Siding Spring (AAT)
Latitude (deg)        : -31.27703
E. Longitude (deg)    : 149.06608
Altitude (km)         : 1.164
Gaia source ID        : 3427344525956528896
2Mass ID (if available) : 05472281+2257330
ICRS Star Coord at Epoch: 05h 47m 22.82054s +22:57:33.12961s
RUWE (>1.4 is poor) : 1.42
K magnitude           : 9.056
G magnitude           : 12.063
RP magnitude          : 11.181
BP magnitude          : 12.869
DUPflag              : 0
Distance (au)         : 4.146
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 164.13
Sun-Moon sep (deg)   : 132.61
B (ring opening deg) : 2.54
PA of pole (deg)     : -0.52
Pole direction: RA (deg): 268.05737
Dec (deg): 64.49721
C/A sky separation ("): 22.135
C/A sky separation (km): 66556.3
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```



x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-12-03T09:44:33.185	-3.28x	-10.01	71484.3	69.11	71.42
Jupiter	E	2048-12-03T10:38:50.324	6.96	-19.15	71484.4	67.82	70.25