17803 - The first multi-phase survey of the circumgalactic medium of quasar hosts at z<1

Cycle: 32, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*
Prof. Sean Johnson (PI) (Contact)	**University of Michigan**
Prof. Hsiao-Wen Chen (CoI)	University of Chicago
Prof. Jenny Emma Greene (CoI)	Princeton University
Dr. John S. Mulchaey (CoI)	Carnegie Institution of Washington
Prof. Joop Schaye (CoI) (ESA Member)	Universiteit Leiden
Prof. Fakhri S Zahedy (CoI)	University of North Texas
Dr. Gregory Walth (CoI)	California Institute of Technology
Dr. Gwen C. Rudie (CoI)	Carnegie Institution of Washington
Dr. Erin Boettcher (CoI)	University of Maryland
Dr. Benjamin Weiner (CoI)	University of Arizona
Dr. Jennifer I. Li (CoI)	University of Illinois at Urbana - Champaign
Will Liu (CoI)	University of Michigan
Dr. Zhijie Qu (CoI)	Tsinghua University
Mr. Nishant Mishra (CoI)	University of Michigan

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) J143624.30+353709.4	COS/FUV COS/NUV	3	25-Mar-2026 14:00:15.0	yes
02	(1) J143624.30+353709.4	COS/FUV COS/NUV	3	25-Mar-2026 14:00:16.0	yes
03	(2) J084331.84+111235.3	COS/FUV COS/NUV	3	25-Mar-2026 14:00:17.0	yes
04	(2) J084331.84+111235.3	COS/FUV COS/NUV	3	25-Mar-2026 14:00:19.0	yes
05	(3) J152122.42+092650.8	COS/FUV COS/NUV	3	25-Mar-2026 14:00:19.0	yes
06	(3) J152122.42+092650.8	COS/FUV COS/NUV	3	25-Mar-2026 14:00:20.0	yes
07	(4) J015101.85+005631.7	COS/FUV COS/NUV	3	25-Mar-2026 14:00:21.0	yes
57	(4) J015101.85+005631.7	COS/FUV COS/NUV	2	25-Mar-2026 14:00:22.0	yes
17	(4) J015101.85+005631.7	COS/FUV COS/NUV	3	25-Mar-2026 14:00:22.0	yes
67	(4) J015101.85+005631.7	COS/FUV COS/NUV	3	25-Mar-2026 14:00:23.0	yes
08	(5) J131939.28+521849.2	COS/FUV COS/NUV	4	25-Mar-2026 14:00:24.0	yes
09	(9) J101642.56+081835.9	COS/FUV COS/NUV	4	25-Mar-2026 14:00:25.0	yes
10	(9) J101642.56+081835.9	COS/FUV COS/NUV	4	25-Mar-2026 14:00:26.0	yes
11	(6) J010506.03-295556.4	COS/FUV COS/NUV	2	25-Mar-2026 14:00:27.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
61	(6) J010506.03-295556.4	COS/FUV COS/NUV	1	25-Mar-2026 14:00:27.0	yes
12	(6) J010506.03-295556.4	COS/FUV COS/NUV	3	25-Mar-2026 14:00:28.0	yes
13	(7) J010534.73-273657.9	COS/FUV COS/NUV	3	25-Mar-2026 14:00:29.0	yes
63	(7) J010534.73-273657.9	COS/FUV COS/NUV	2	25-Mar-2026 14:00:30.0	yes
14	(7) J010534.73-273657.9	COS/FUV COS/NUV	2	25-Mar-2026 14:00:30.0	yes
15	(8) J145420.00+192629.4	COS/FUV COS/NUV	2	25-Mar-2026 14:00:31.0	yes
65	(8) J145420.00+192629.4	COS/FUV COS/NUV	1	25-Mar-2026 14:00:31.0	yes
16	(8) J145420.00+192629.4	COS/FUV COS/NUV	3	25-Mar-2026 14:00:32.0	yes

60 Total Orbits Used

ABSTRACT

Feedback from quasars plays a vital role in galaxy evolution, but the relationship between quasars and the circumgalactic medium (CGM) that dominates baryon reservoirs and provides a record of feedback is not well constrained. The cool CGM of quasar hosts observed on 100 kpc scales is strongly correlated with the quasar luminosity and exceeds that of non-AGN galaxies by 2x, even though BH accretion occurs at <1 pc. These observations provide evidence for a connection between AGN activity and the CGM despite the large difference in scale. The observed CGM-quasar connection can result from (1) winds associated with quasar feedback or (2) debris from interactions thought to trigger luminous quasars. If the correlation is due to feedback, the observed low-ionization gas results from entrainment or cooling in a hot wind, predicting significant highly ionized absorption and high metallicity. Lower ionization species will dominate if the correlation is driven by debris from interactions. We propose testing these possibilities through a multi-phase study of the CGM of the only nine quasars at z<1 with NUV-bright background probes at d<160 kpc. The proposed UV spectra will cover the HI Lyman series and a suite of low-to-high ions including CII, CIII, and OVI to enable: (1) accurate

measurements of N(HI) and metallicities, (2) comparison of the kinematics of gas in different ionization states, and (3) a multi-phase CGM comparison of the eight quasars with inactive galaxies in the literature. The proposed UV spectra will test the quasar feeding vs. feedback scenarios through ionization analysis and kinematic comparison with nearby galaxies revealed in ongoing ground-based surveys.

OBSERVING DESCRIPTION

This program will observe COS FUV spectra with the PSA in medium-resolution mode of background quasars probing the CGM of foreground quasars. The foreground quasars range in redshift between z=0.29 and z=0.7, placing the absorption features of interest (the HI Lyman series, CIII, and OVI, for example) in different parts of the FUV spectral coverage. This requires observations of G130M and/or G160M and associated cenwave settings that are customized for each quasar. The details of the spectroscopic disperser and cenwave choice for each system are given in the comments associated with the visits. In some cases, no features fall in segment gaps, so we observe fewer cenwave settings to minimize overheads without loss of scientific return on the CGM absorption spectra at the redshift of the foreground quasar. In other cases, the observations include multiple cenwave settings to fill the segment gap or cover features near the edges of the G130M or G160M coverage. To ensure spectral quality in the coadded COS spectra, we observe multiple FP-POS settings. We note that the S/N requirement for the proposed Lya observations (when needed) are significantly lower than the metal ions and rest of the HI Lyman series because the Lya observations are only designed to constrain the presence or absence of damping wings, which will be performed on heavily rebinned spectra.

Acquisition: All targets are detected in GAIA and, therefore, have highly accurate coordinates. Moreover, all are detected in GALEX, ensuring good UV brightness constraints. As a result, we use the ACQ/IMAGE acquisition mode which provides good centering of the quasars in the science aperture with minimal overheads. We use Mirror A whenever possible, but use Mirror B when required for brighter sources.

Visit strategy: To minimize overheads while maintaining schedulability, we pack visits with 2-4 orbits each.

The UV bright quasars are not expected to be extended in the FUV channel and a search of the GAIA archive reveals that none have nearby sources that would fall within the 2.5" PSA and contaminate the COS spectrum. We therefore do not set the EXTENDED flag for the sources.

Visit

Proposal 17803, Visit 01, completed Wed Mar 25 18:00:32 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: 3 orbit G130M visit for background quasar J143624.3+353709.4 at redshift z=0.767 probing the CGM of a quasar at z=0.3916.

At the redshift of the foreground quasar, covering all the features of interest requires observations in both the 1222 and 1291 cenwave settings. For both cenwaves, the visit includes all available FP-POS settings (3 & 4 for 1291 and 1-4 for 1222).

This visit will complete G130M observations for J143624.3+353709.4.

Diagnostics

(Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

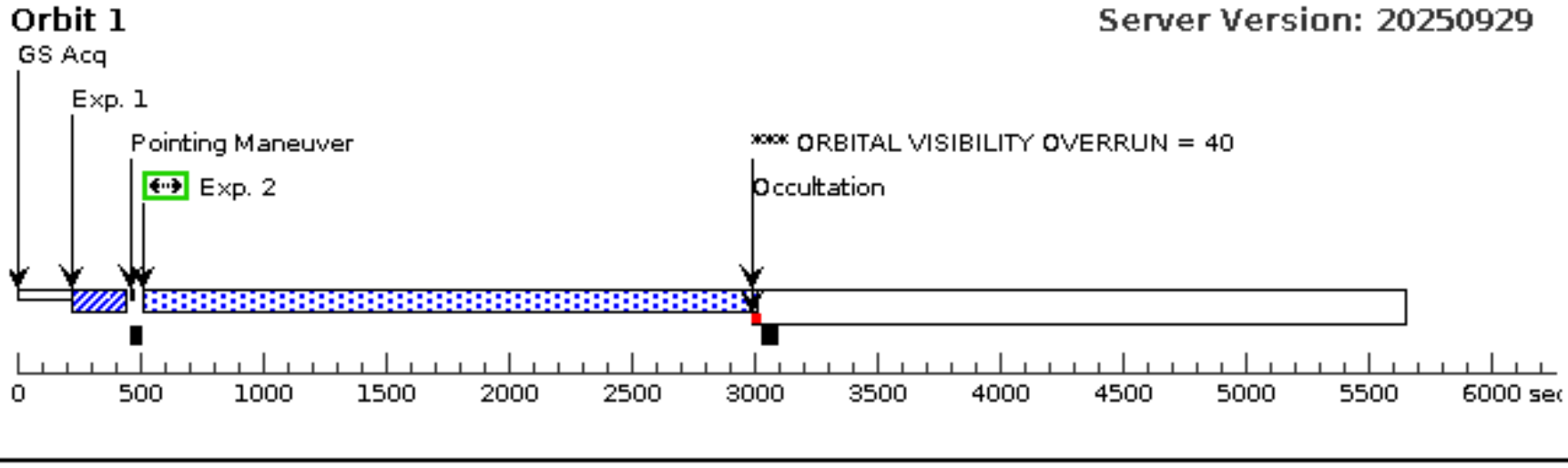
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	J143624.30+353709.4	RA: 14 36 24.2980 (219.1012417d) Dec: +35 37 9.43 (35.61929d) Equinox: J2000		V=18.6 NUV=18.9	Reference Frame: ICRS

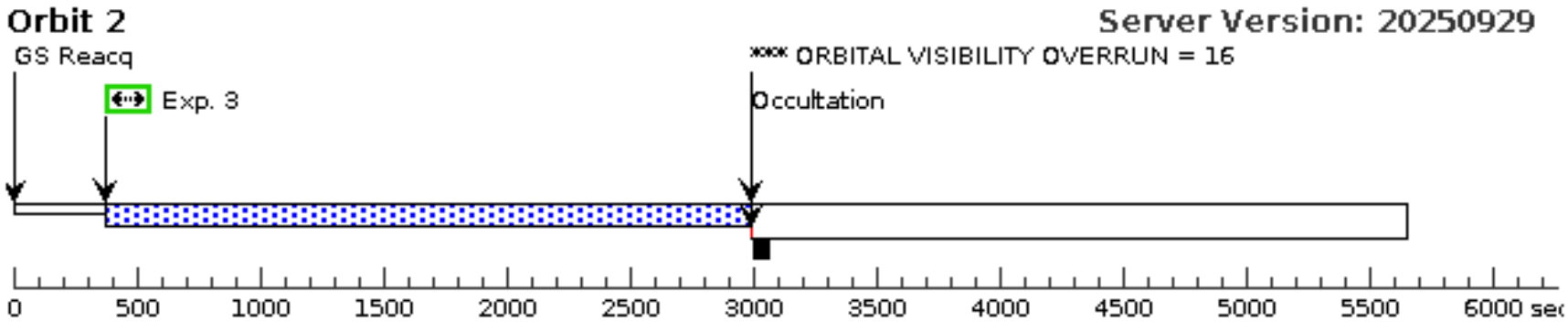
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

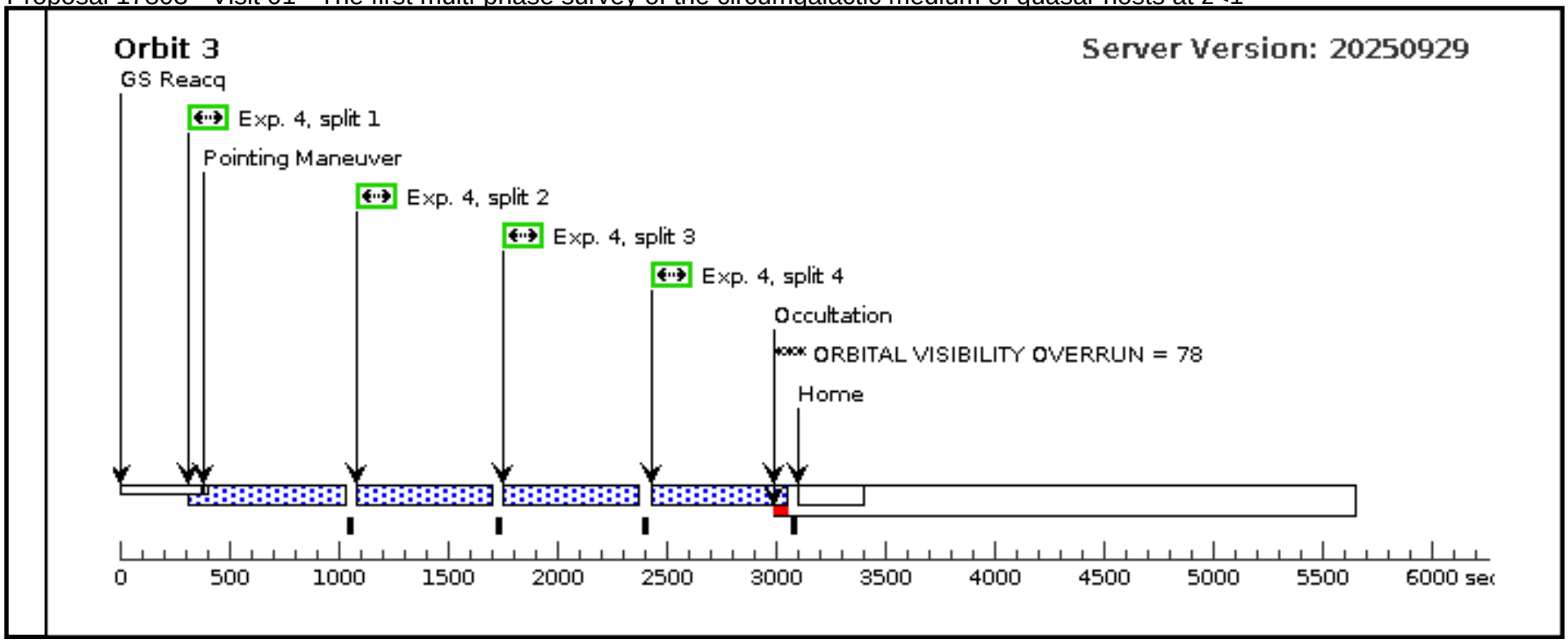
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1927791)	(1) J143624.30+353709.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5.0 Secs (5 Secs) *[==>]*	*[1]*
2	(COS.sp.1927797)	(1) J143624.30+353709.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=4922			2330 Secs (2330 Secs) *[==>]*	*[1]*
3	(COS.sp.1927797)	(1) J143624.30+353709.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=4922			2330 Secs (2564 Secs) *[==>2564.0 Secs]*	*[2]*
4	(COS.sp.1927797)	(1) J143624.30+353709.4	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=10431			500 Secs (2280 Secs) *[==>570.0 Secs (Split 1)]* *[==>570.0 Secs (Split 2)]* *[==>570.0 Secs (Split 3)]* *[==>570.0 Secs (Split 4)]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
GS Reacq
Exp. 4, split 1
Pointing Maneuver
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Occultation
**** ORBITAL VISIBILITY OVERRUN = 78
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 02, completed Wed Mar 25 18:00:32 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: 3 orbit G160M visit for background quasar J143624.3+353709.4 at redshift z=0.767 probing the CGM of a quasar at z=0.3916.

At the foreground quasar redshift, all features of interest are covered by the G160M 1533 cenwave so we limit observations to this cenwave and the visit includes all four FP-POS settings available for it. This will leave a small gap between the detectors from 1515-1533 Angstroms, but no features at z=0.3916 fall in this range.

This visit will complete G160M observations for J143624.3+353709.4.

Diagnostics

(Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

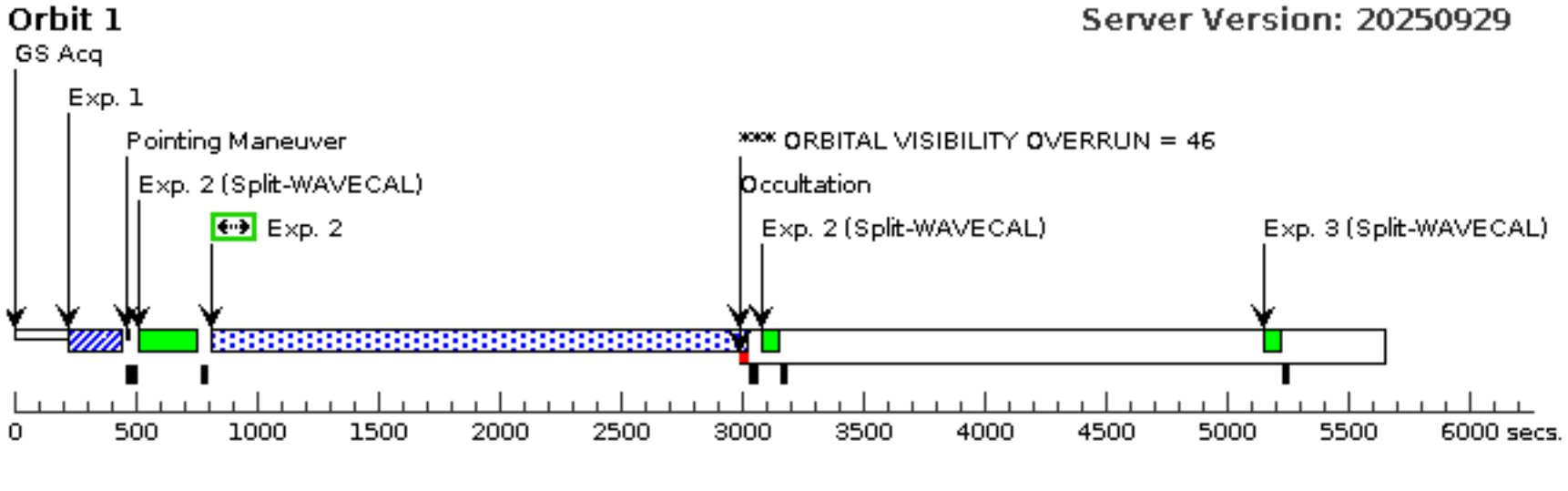
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	J143624.30+353709.4	RA: 14 36 24.2980 (219.1012417d) Dec: +35 37 9.43 (35.61929d) Equinox: J2000		V=18.6 NUV=18.9	Reference Frame: ICRS

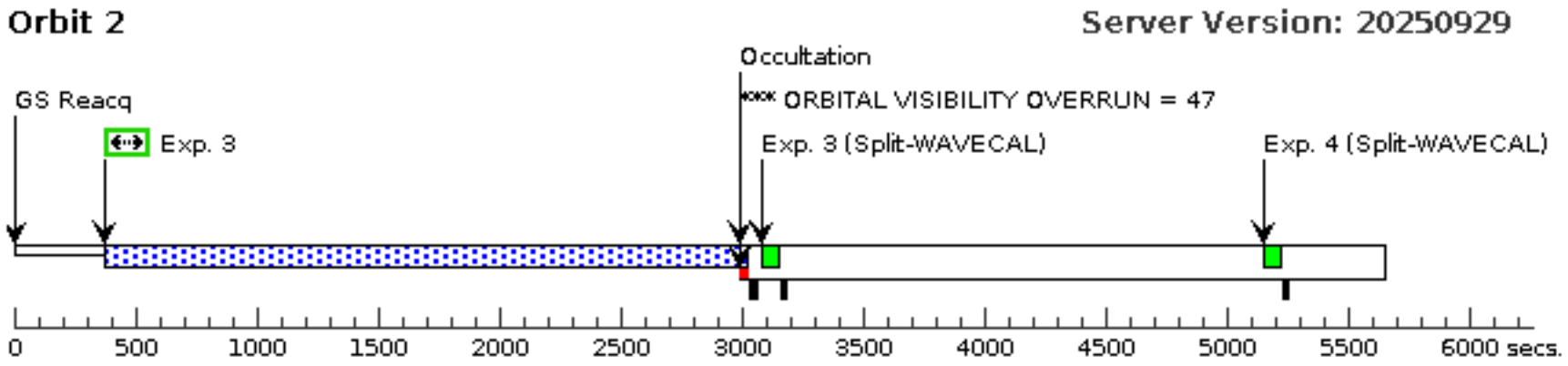
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

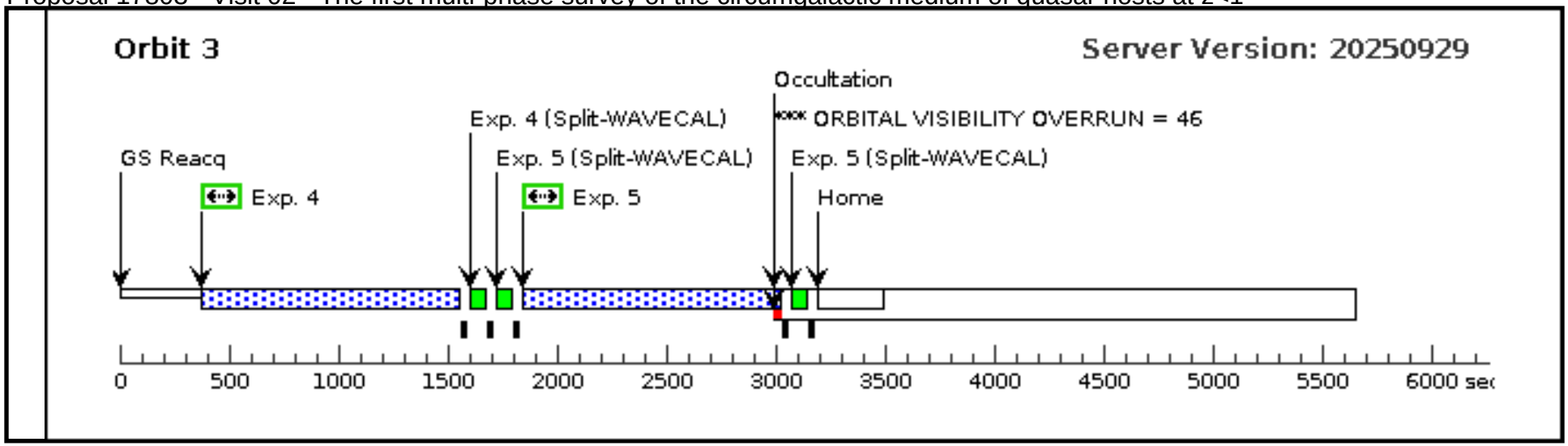
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1927791)	(1) J143624.30+353709.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5.0 Secs (5 Secs) *[==>]*	*[1]*
2	(COS.sp.1927804)	(1) J143624.30+353709.4	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=1; BUFFER-TIME=11552			2000 Secs (2163 Secs) *[==>2163.0 Secs]*	*[1]*
3	(COS.sp.1927806)	(1) J143624.30+353709.4	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=2; BUFFER-TIME=11812			2000 Secs (2599 Secs) *[==>2599.0 Secs]*	*[2]*
4	(COS.sp.1927806)	(1) J143624.30+353709.4	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=3; BUFFER-TIME=11812			600 Secs (1128 Secs) *[==>1128.0 Secs]*	*[3]*
5	(COS.sp.1927806)	(1) J143624.30+353709.4	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=4; BUFFER-TIME=11812			600 Secs (1128 Secs) *[==>1128.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
Exp. 4 (Split-WAVECAL)
*** ORBITAL VISIBILITY OVERRUN = 46
GS Reacq
Exp. 5 (Split-WAVECAL)
Exp. 5 (Split-WAVECAL)
Exp. 4
Exp. 5
Home
0
500
1000
1500
2000
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3000
3500
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4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 03, completed Wed Mar 25 18:00:32 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: 3 orbit G160M visit for J084331.84+111235.3, a z=1.0276 quasar probing the CGM of a foreground quasar at z=0.7075. At this redshift, all key features are covered by G160M. This visit constitutes half of the G160M orbits for J084331.84+111235.3 and will be devoted to teh 1600 cenwave setting, observed in FP-POS=1-4.

Diagnostics

(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

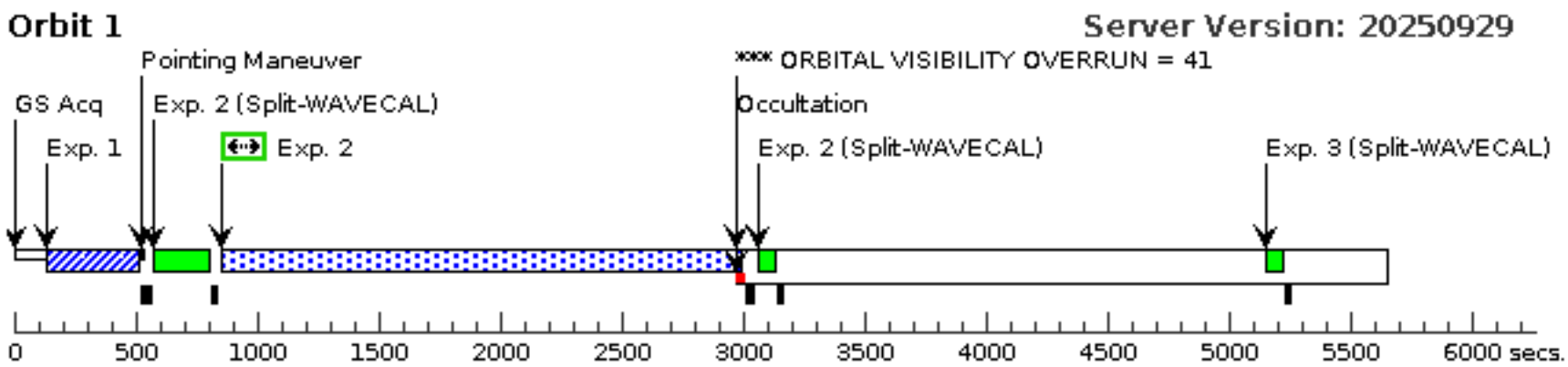
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	J084331.84+111235.3	RA: 08 43 31.8420 (130.8826750d) Dec: +11 12 35.29 (11.20980d) Equinox: J2000		V=17.0 NUV=17.7	Reference Frame: ICRS

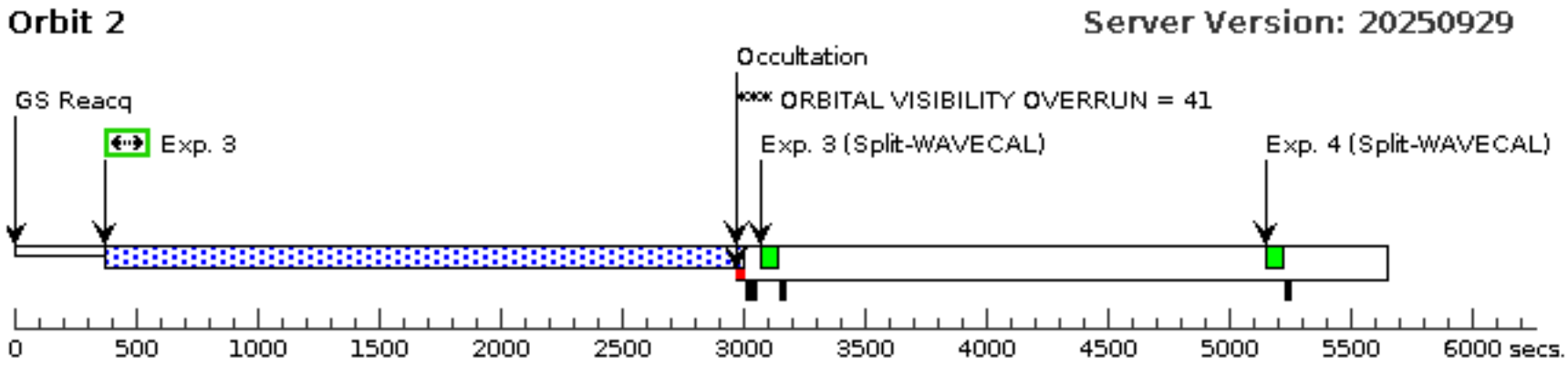
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

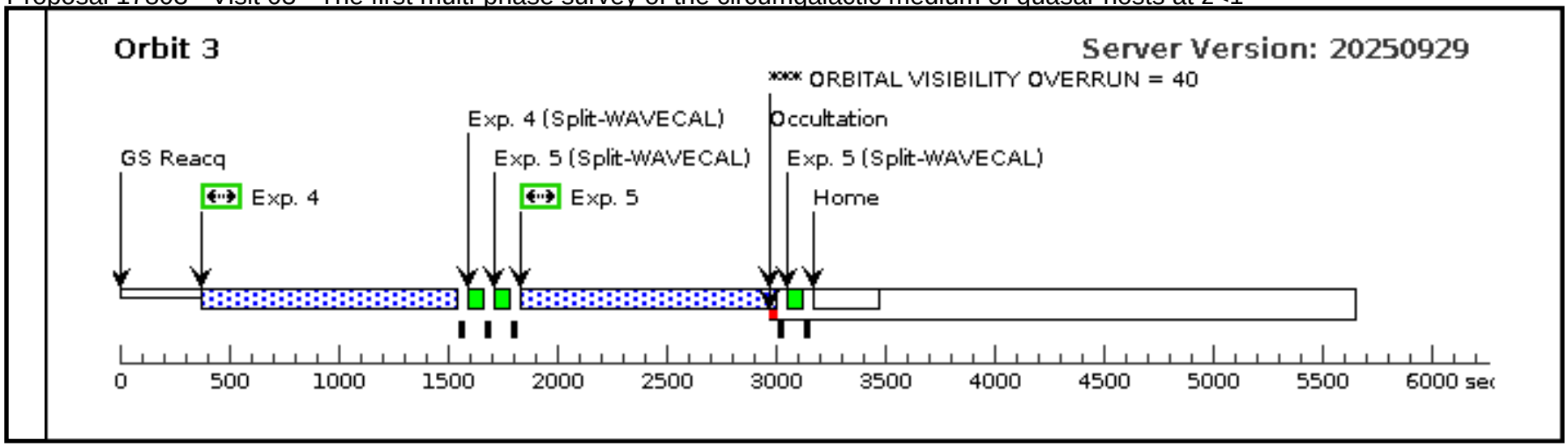
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1927827)	(2) J084331.84+111235.3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				34 Secs (34 Secs) *[==>]*	 ***[1]***
2	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=1; BUFFER-TIME=10836			2000 Secs (2094 Secs) *[==>2094.0 Secs]*	 ***[1]***
3	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=2; BUFFER-TIME=10836			2000 Secs (2575 Secs) *[==>2575.0 Secs]*	 ***[2]***
4	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=10836			1000 Secs (1116 Secs) *[==>1116.0 Secs]*	 ***[3]***
5	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=4; BUFFER-TIME=10836			1000 Secs (1116 Secs) *[==>1116.0 Secs]*	 ***[3]***

Orbit Structure






Orbit 3
Server Version: 20250929
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GS Reacq
Exp. 4
Exp. 4 (Split-WAVECAL)
Exp. 5 (Split-WAVECAL)
Exp. 5
Occultation
Exp. 5 (Split-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 04, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: 3 orbit G160M visit for J084331.84+111235.3, a z=1.0276 quasar probing the CGM of a foreground quasar at z=0.7075. At this redshift, all key features are covered by G160M. This visit constitutes half of the G160M orbits for J084331.84+111235.3 and will be devoted to teh 1623 cenwave setting, observed in FP-POS=1-4.

Diagnostics

(Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

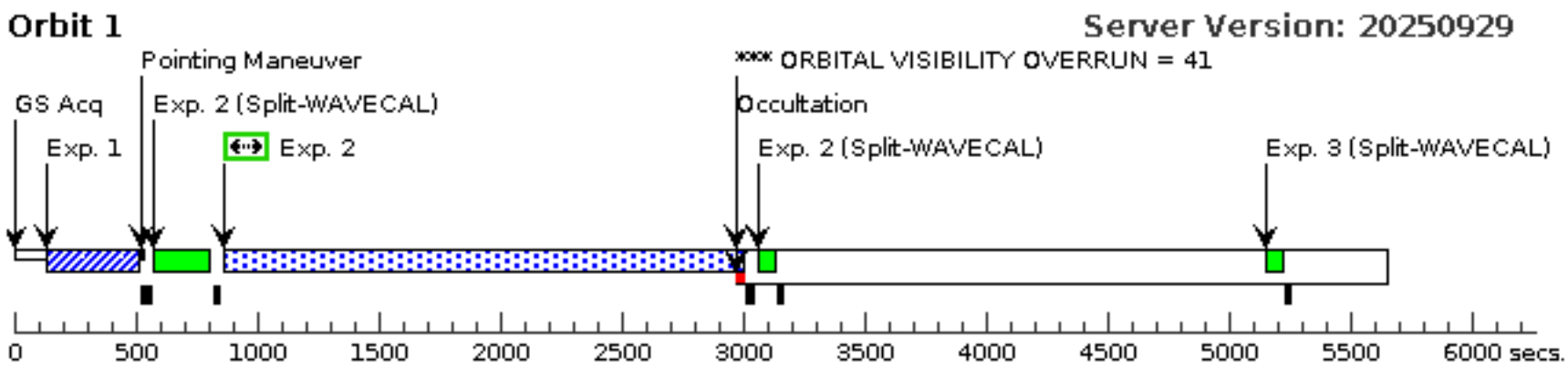
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	J084331.84+111235.3	RA: 08 43 31.8420 (130.8826750d) Dec: +11 12 35.29 (11.20980d) Equinox: J2000		V=17.0 NUV=17.7	Reference Frame: ICRS

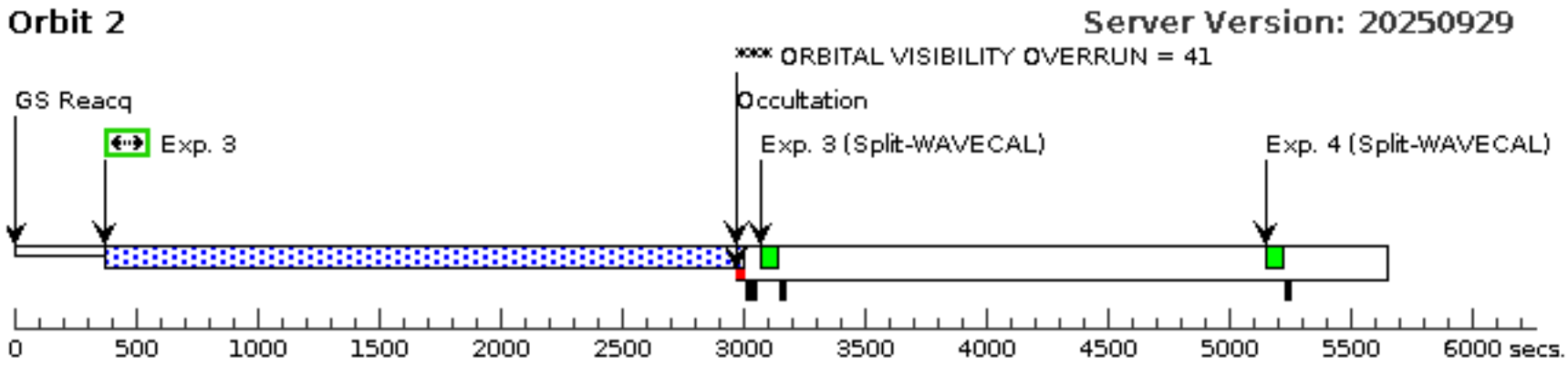
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

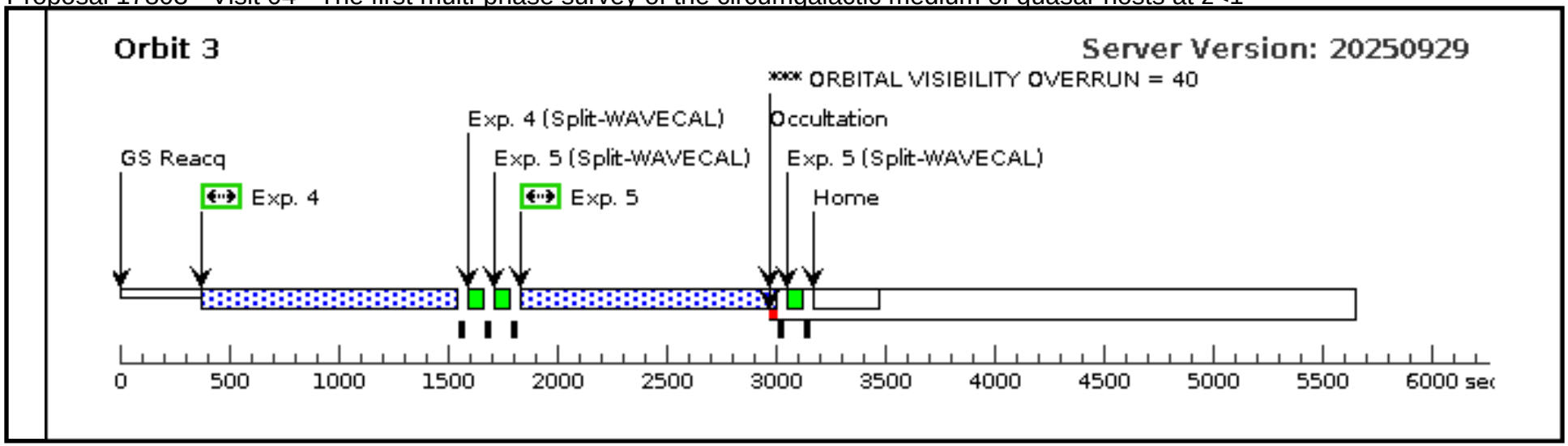
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1927827)	(2) J084331.84+111235.3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				34 Secs (34 Secs) *[==>]*	 ***[1]***
2	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=1; BUFFER-TIME=10836			2000 Secs (2087 Secs) *[==>2087.0 Secs]*	 ***[1]***
3	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=2; BUFFER-TIME=10836			2000 Secs (2575 Secs) *[==>2575.0 Secs]*	 ***[2]***
4	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=3; BUFFER-TIME=10836			600 Secs (1116 Secs) *[==>1116.0 Secs]*	 ***[3]***
5	(COS.sp.1927825)	(2) J084331.84+111235.3	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=4; BUFFER-TIME=10836			600 Secs (1116 Secs) *[==>1116.0 Secs]*	 ***[3]***

Orbit Structure






Orbit 3
Server Version: 20250929
**** ORBITAL VISIBILITY OVERRUN = 40
GS Reacq
Exp. 4
Exp. 4 (Split-WAVECAL)
Exp. 5 (Split-WAVECAL)
Exp. 5
Occultation
Exp. 5 (Split-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 05, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M visit for J152122.42+092650.9, a background quasar at z=0.749 probing the CGM of a foreground quasar at z=0.3199. At this redshift, all key features except for HI Lya are in the G130M coverage.

This visit represents 3/4 of the G130M orbits.

Diagnostics

(Visit 05) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

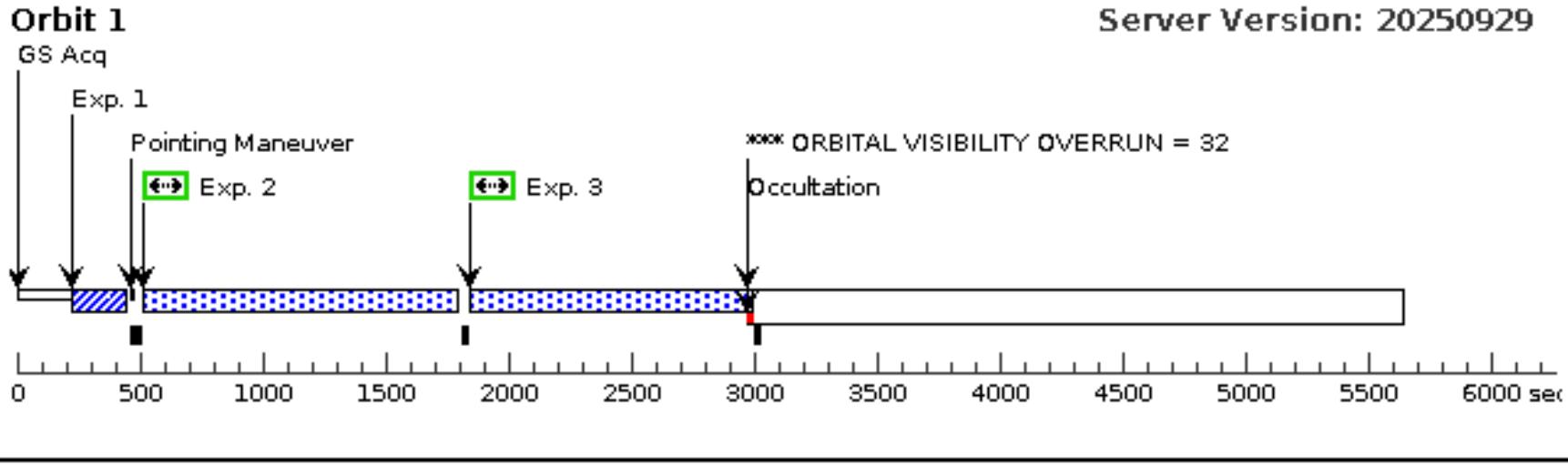
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	J152122.42+092650.8	RA: 15 21 22.4160 (230.3434000d) Dec: +09 26 50.79 (9.44744d) Equinox: J2000		V=18.5 NUV=18.7	Reference Frame: ICRS

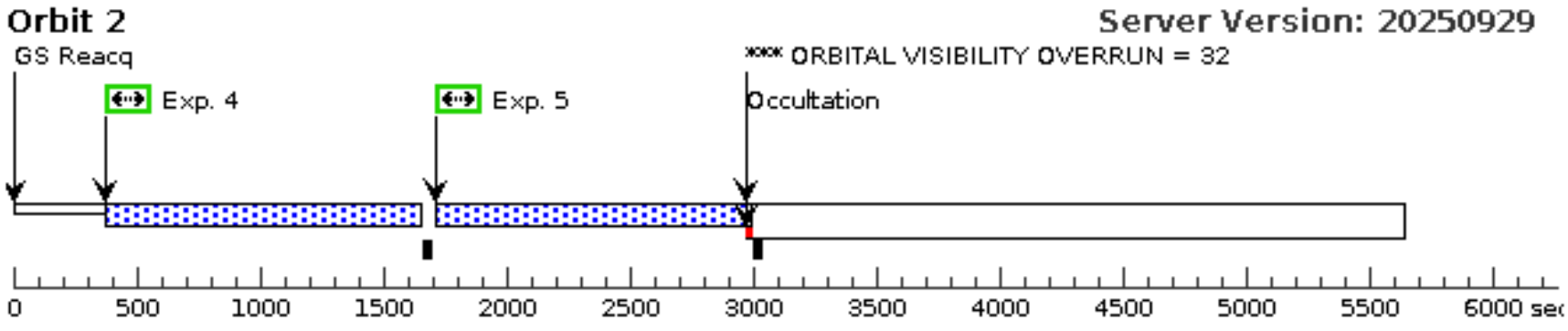
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

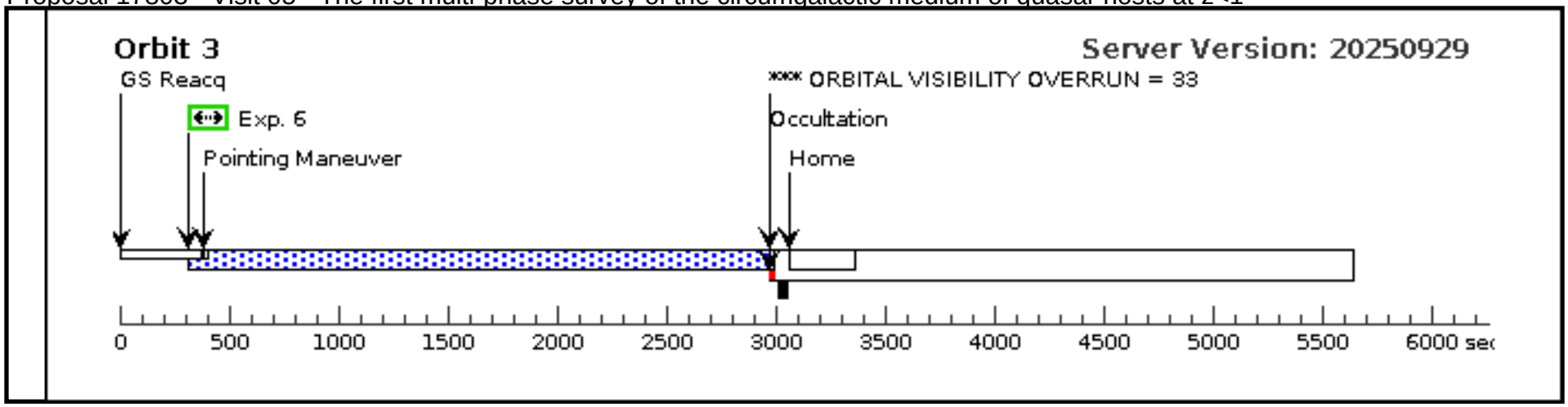
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1927833)	(3) J152122.42+092650.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5 Secs (5 Secs) *[==>]*	*[1]*
2	(COS.sp.1927835)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=10265; FP-POS=1			1000 Secs (1094 Secs) *[==>1094.0 Secs]*	*[1]*
3	(COS.sp.1927835)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=10265; FP-POS=2			1000 Secs (1094 Secs) *[==>1094.0 Secs]*	*[1]*
4	(COS.sp.1927835)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=10265; FP-POS=3			1000 Secs (1225 Secs) *[==>1225.0 Secs]*	*[2]*
5	(COS.sp.1927835)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=10265; FP-POS=4			1000 Secs (1225 Secs) *[==>1225.0 Secs]*	*[2]*
6	(COS.sp.1927835)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=10265; FP-POS=3			2000 Secs (2535 Secs) *[==>2535.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
GS Reacq
**** ORBITAL VISIBILITY OVERRUN = 33
Exp. 6
Occultation
Pointing Maneuver
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 06, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M and G160M visit for J152122.42+092650.9, a background quasar at z=0.749 probing the CGM of a foreground quasar at z=0.3199. At this redshift, key features in the G130M spectral coverage covers all desired features except for Lya.

Because the S/N requirement for Lya is low (SNR=3 per resolution element) given that the goal is only to detect broad wings if they are present, we only observe one G160M cenwave with one FP-POS setting.

This visit completes G130M with one orbit and contains both G160M orbits for this target.

Diagnostics

(Visit 06) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

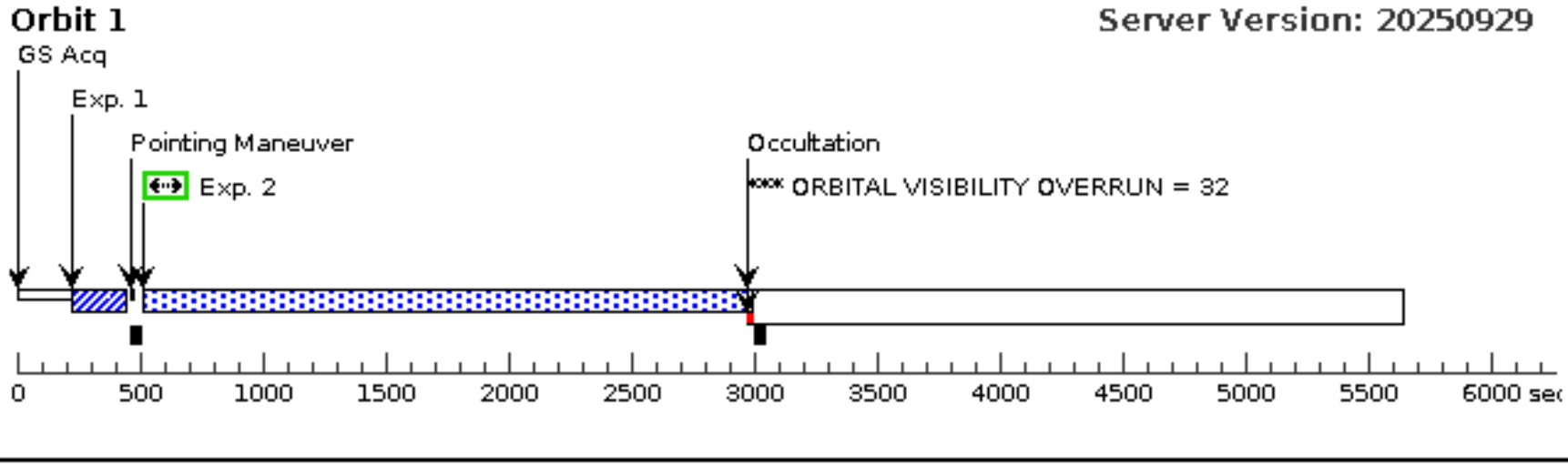
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	J152122.42+092650.8	RA: 15 21 22.4160 (230.3434000d) Dec: +09 26 50.79 (9.44744d) Equinox: J2000		V=18.5 NUV=18.7	Reference Frame: ICRS

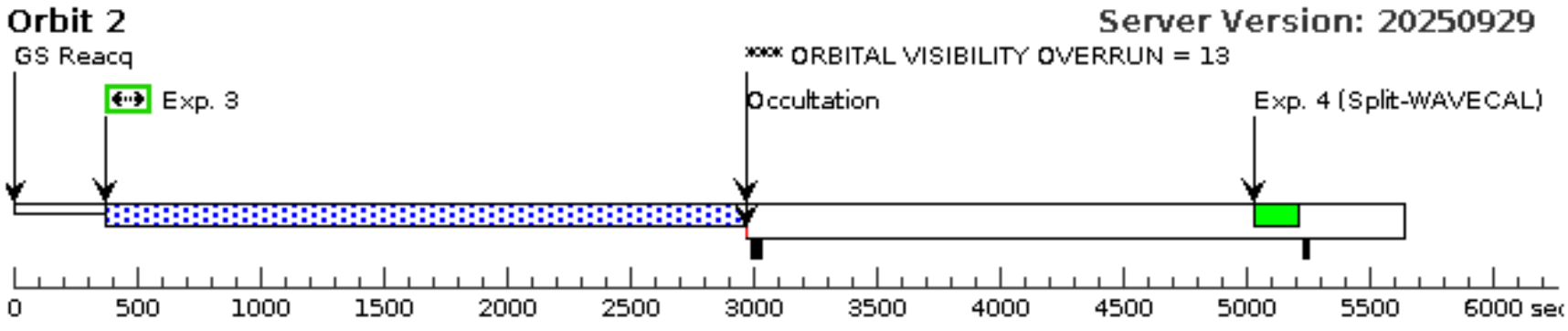
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

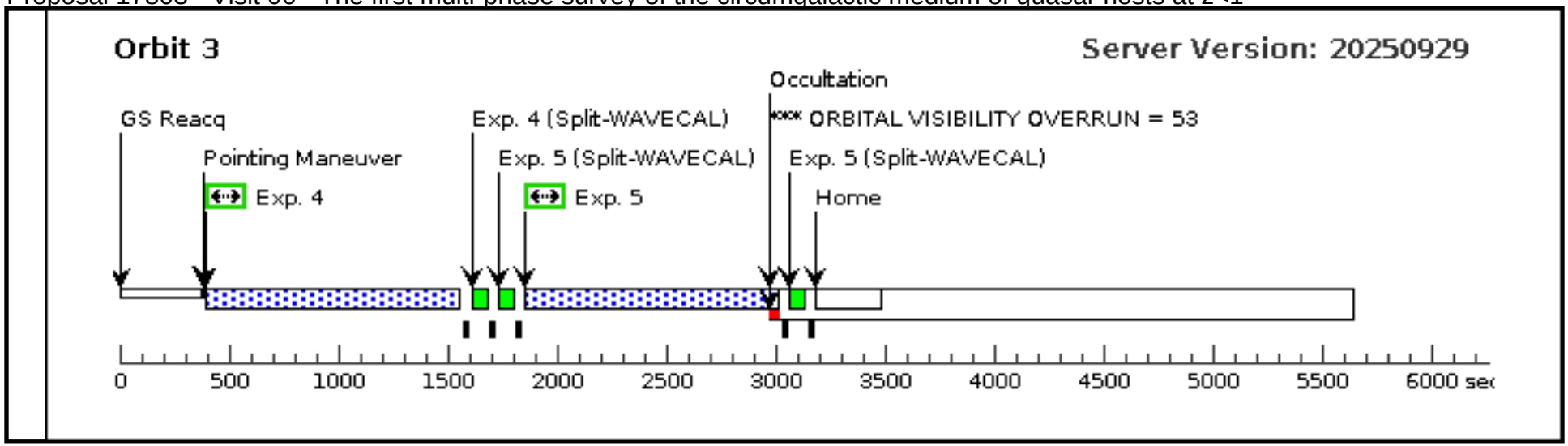
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1927833)	(3) J152122.42+092650.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5 Secs (5 Secs) *[==>]*	*[1]*
2	(COS.sp.1927835)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=10265; FP-POS=3			2000 Secs (2307 Secs) *[==>2307.0 Secs]*	*[1]*
3	(COS.sp.1927840)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=11393; FP-POS=4			2000 Secs (2546 Secs) *[==>2546.0 Secs]*	*[2]*
4	(COS.sp.1927840)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11393; FP-POS=1			1000 Secs (1114 Secs) *[==>1114.0 Secs]*	*[3]*
5	(COS.sp.1927840)	(3) J152122.42+092650.8	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11393; FP-POS=4			1000 Secs (1114 Secs) *[==>1114.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
GS Reacq
Exp. 4 (Split-WAVECAL)
*** ORBITAL VISIBILITY OVERRUN = 53
Pointing Maneuver
Exp. 5 (Split-WAVECAL)
Exp. 5 (Split-WAVECAL)
Exp. 4
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
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4500
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5500
6000 sec

Visit

Proposal 17803, Visit 07, failed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M visit for background quasar J015101.85+005631.7 which is at z=0.9849 and probes the CGM of a foreground quasar at z=0.492. At the redshift of the foreground quasar, all absorption lines of interest fall in the coverage of G160M with the Lyman limit at 1360 Ang and OVI at 1548 Ang. Cenwaves 1533 and 1577 fully cover the desired features.

This visit includes half of the G160M exposures for this target.

Diagnostics

(Visit 07) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

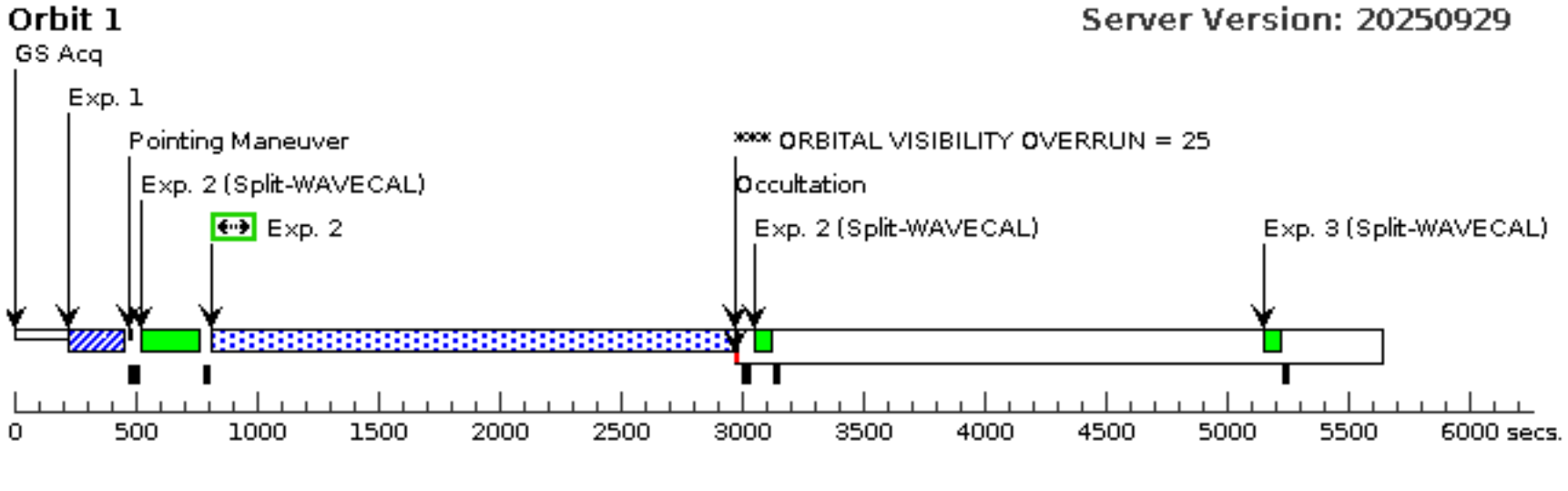
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	J015101.85+005631.7	RA: 01 51 1.8460 (27.7576917d) Dec: +00 56 31.66 (.94213d) Equinox: J2000		V=18.5 NUV=19.0	Reference Frame: ICRS

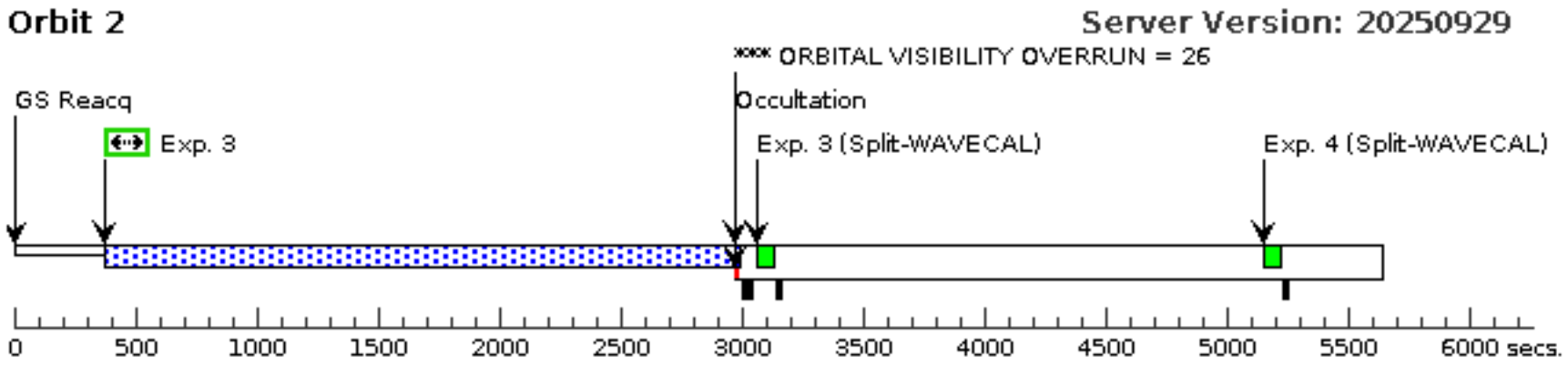
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

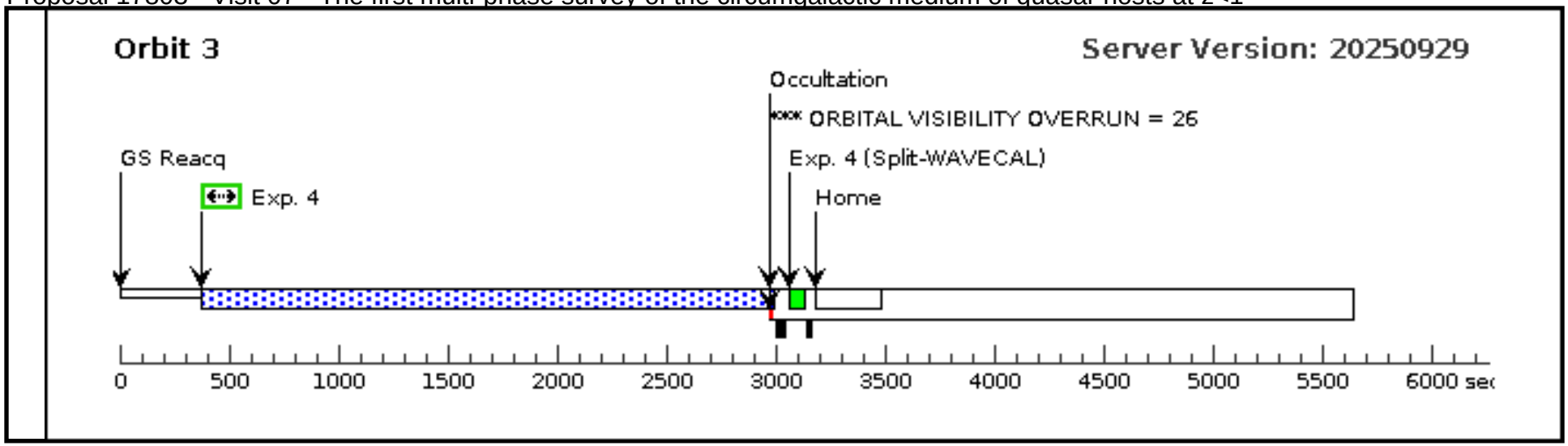
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929398)	(4) J015101.85+005631.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				9 Secs (9 Secs) *[==>]*	*[1]*
2	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11124; FP-POS=1			2100 Secs (2121 Secs) *[==>2121.0 Secs]*	*[1]*
3	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11124; FP-POS=2			2100 Secs (2565 Secs) *[==>2565.0 Secs]*	*[2]*
4	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11124; FP-POS=3			2100 Secs (2565 Secs) *[==>2565.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
*** ORBITAL VISIBILITY OVERRUN = 26
GS Reacq
Exp. 4
Exp. 4 (Split-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Repeat of second and third orbits of visit 07 (57), implementation Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M visit for background quasar J015101.85+005631.7 which is at z=0.9849 and probes the CGM of a foreground quasar at z=0.492. At the redshift of the foreground quasar, all absorption lines of interest fall in the coverage of G160M with the Lyman limit at 1360 Ang and OVI at 1548 Ang. Cenwaves 1533 and 1577 fully cover the desired features.

This visit includes half of the G160M exposures for this target.

Diagnostics

(Repeat of second and third orbits of visit 07 (57)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Repeat of second and third orbits of visit 07 (57)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Repeat of second and third orbits of visit 07 (57)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

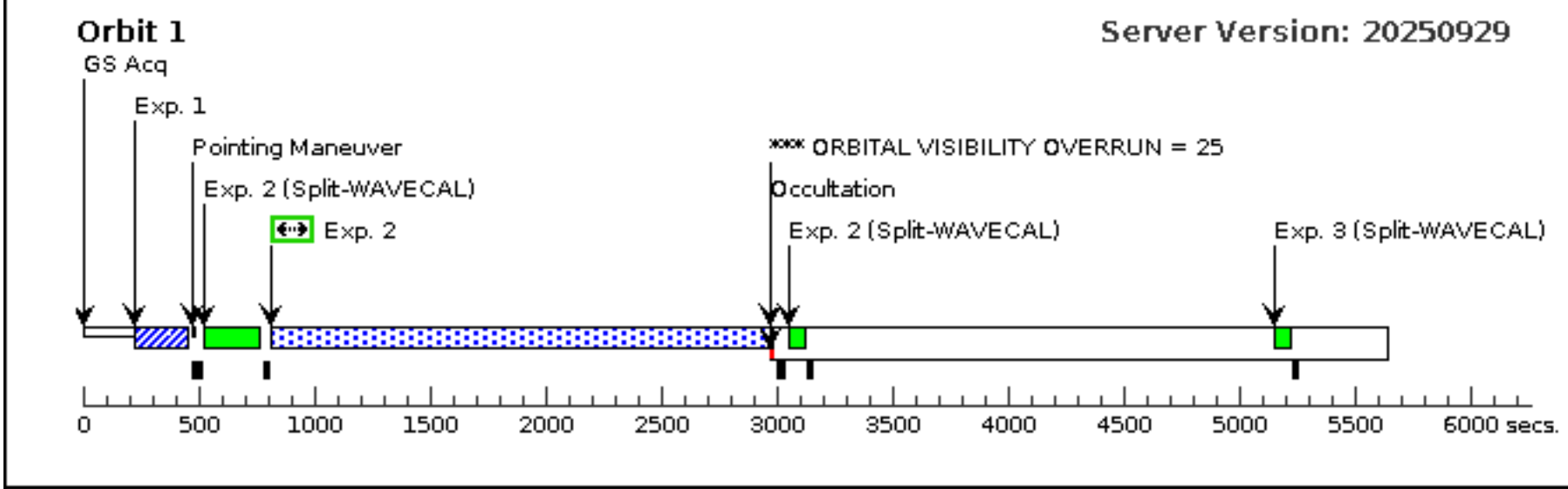
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	J015101.85+005631.7	RA: 01 51 1.8460 (27.7576917d) Dec: +00 56 31.66 (.94213d) Equinox: J2000		V=18.5 NUV=19.0	Reference Frame: ICRS

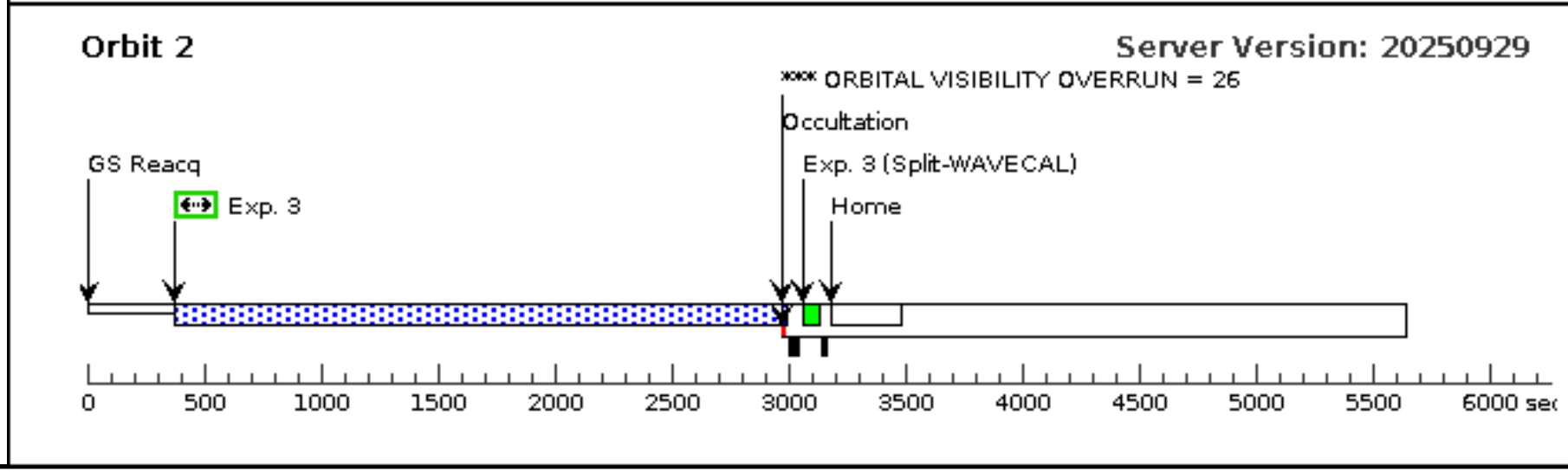
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929398)	(4) J015101.85+005631.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				9 Secs (9 Secs) *[==>]*	*[1]*
2	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11124; FP-POS=2			2100 Secs (2121 Secs) *[==>2121.0 Secs]*	*[1]*
3	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11124; FP-POS=3			2100 Secs (2565 Secs) *[==>2565.0 Secs]*	*[2]*

Orbit Structure





Visit

Proposal 17803, Visit 17, failed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M visit for background quasar J015101.85+005631.7 which is at z=0.9849 and probes the CGM of a foreground quasar at z=0.492. At the redshift of the foreground quasar, all absorption lines of interest fall in the coverage of G160M with the Lyman limit at 1360 Ang and OVI at 1548 Ang.

This visit includes half of the G160M exposures for this target.

Diagnostics

(Visit 17) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 17) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 17) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 17) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

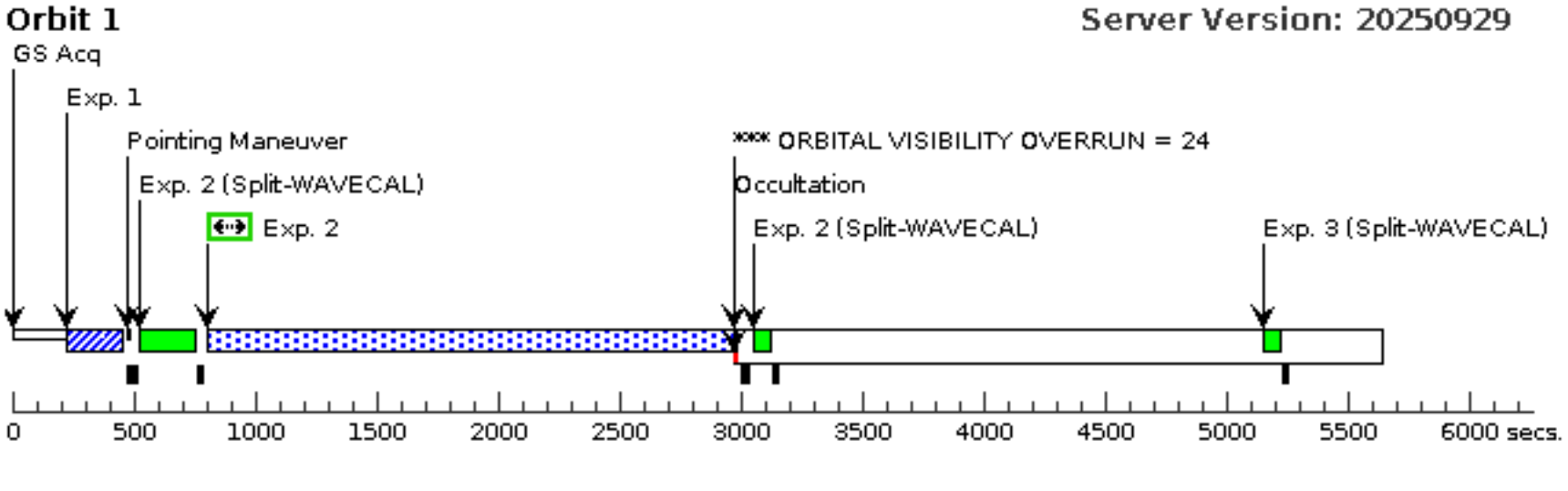
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	J015101.85+005631.7	RA: 01 51 1.8460 (27.7576917d) Dec: +00 56 31.66 (.94213d) Equinox: J2000		V=18.5 NUV=19.0	Reference Frame: ICRS

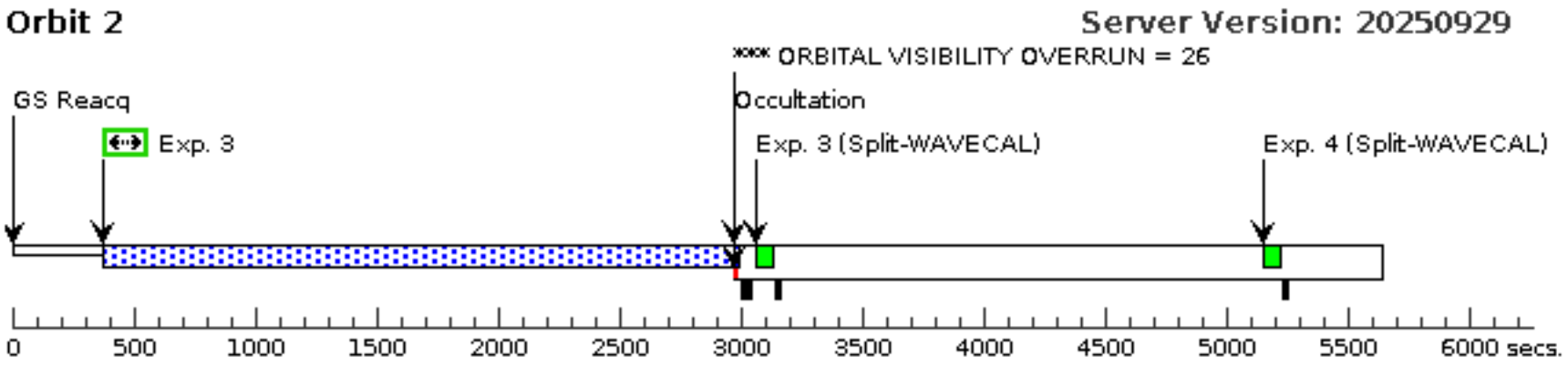
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

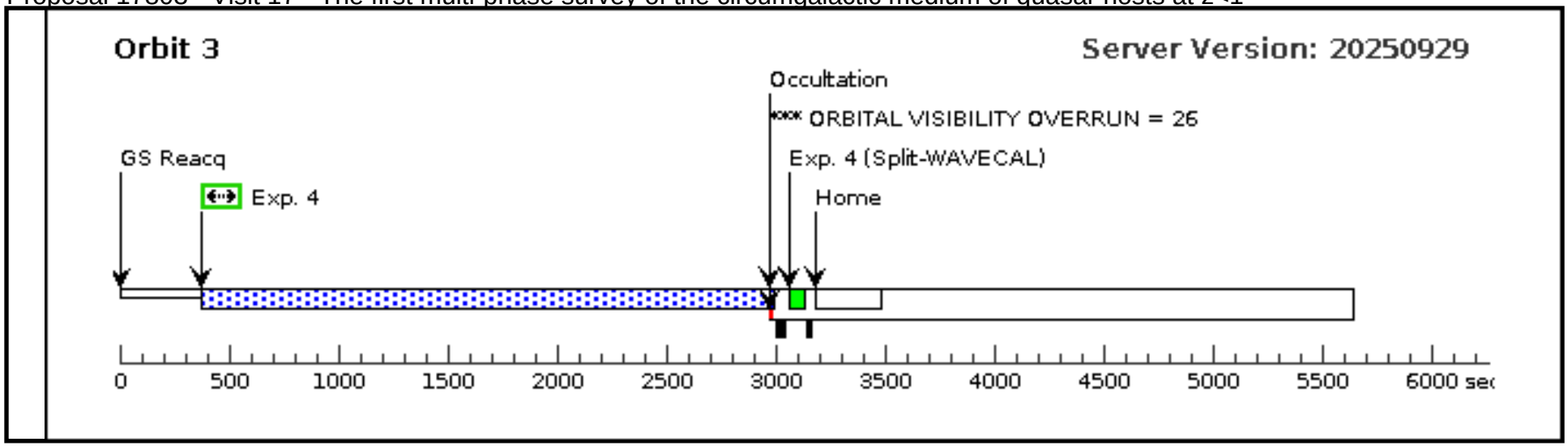
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929398)	(4) J015101.85+005631.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				9 Secs (9 Secs) *[==>]*	*[1]*
2	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11124; FP-POS=1			2100 Secs (2132 Secs) *[==>2132.0 Secs]*	*[1]*
3	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11124; FP-POS=2			2100 Secs (2565 Secs) *[==>2565.0 Secs]*	*[2]*
4	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11124; FP-POS=3			2100 Secs (2565 Secs) *[==>2565.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
*** ORBITAL VISIBILITY OVERRUN = 26
GS Reacq
Exp. 4
Exp. 4 (Split-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Repeat of visit 17 (67), implementation Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M visit for background quasar J015101.85+005631.7 which is at z=0.9849 and probes the CGM of a foreground quasar at z=0.492. At the redshift of the foreground quasar, all absorption lines of interest fall in the coverage of G160M with the Lyman limit at 1360 Ang and OVI at 1548 Ang.

This visit includes half of the G160M exposures for this target.

Diagnostics

(Repeat of visit 17 (67)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Repeat of visit 17 (67)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Repeat of visit 17 (67)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Repeat of visit 17 (67)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

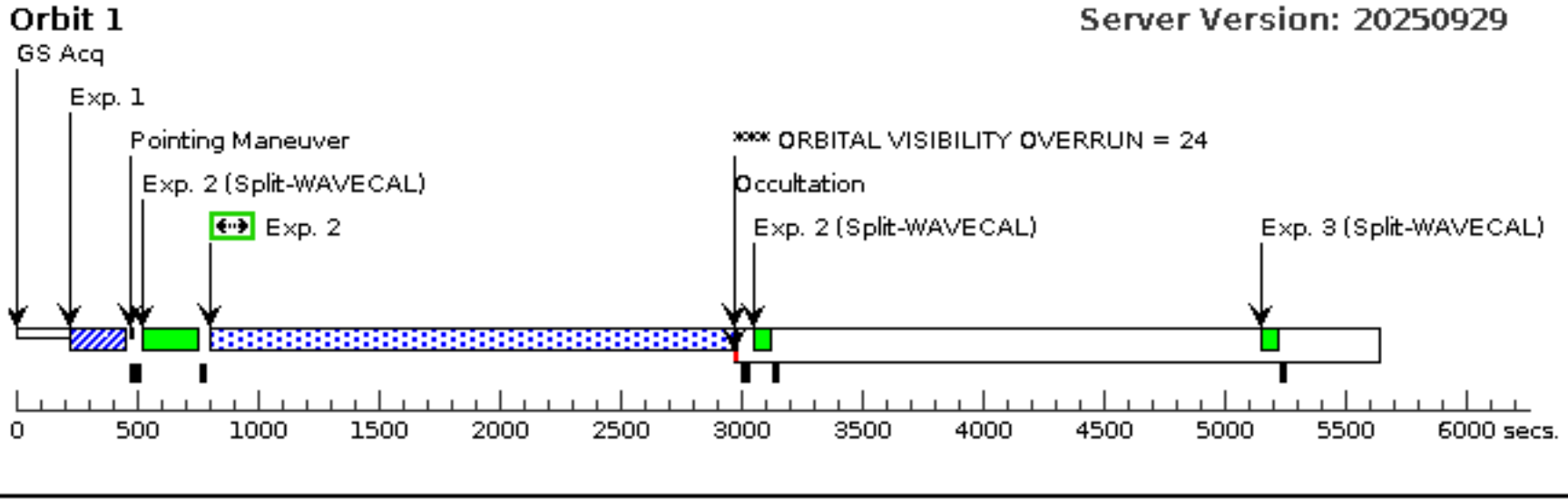
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	J015101.85+005631.7	RA: 01 51 1.8460 (27.7576917d) Dec: +00 56 31.66 (.94213d) Equinox: J2000		V=18.5 NUV=19.0	Reference Frame: ICRS

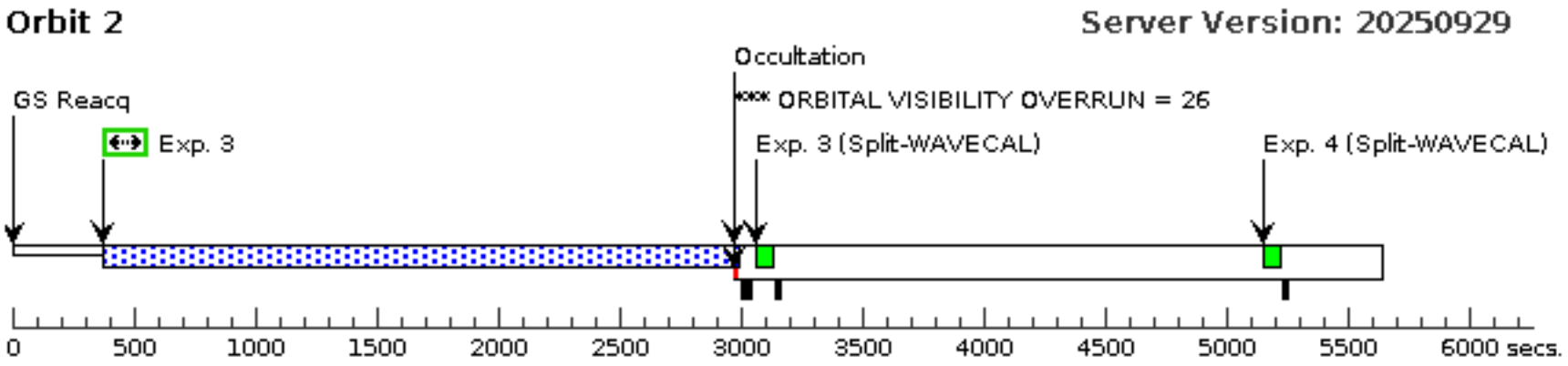
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

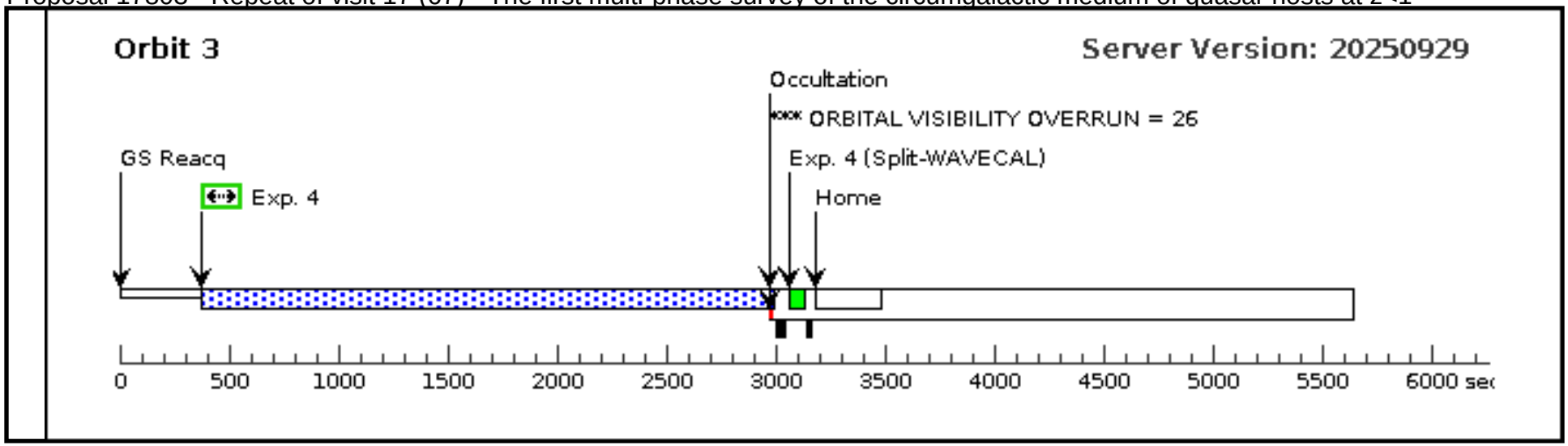
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929398)	(4) J015101.85+005631.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				9 Secs (9 Secs) *[==>]*	*[1]*
2	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11124; FP-POS=1			2100 Secs (2132 Secs) *[==>2132.0 Secs]*	*[1]*
3	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11124; FP-POS=2			2100 Secs (2565 Secs) *[==>2565.0 Secs]*	*[2]*
4	(COS.sp.1929400)	(4) J015101.85+005631.7	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11124; FP-POS=3			2100 Secs (2565 Secs) *[==>2565.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
*** ORBITAL VISIBILITY OVERRUN = 26
GS Reacq
Exp. 4
Exp. 4 (Split-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 08, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: Visit for J131939.28+521849.2, at z=1.2681 quasar probing the CGM of a foreground quasar at z=0.354. At this redshift, key features of interest fall in both the G130M spectral coverage except for Lya which is in G160M. The Lya observations are only intended to detect damping wings and so require only low S/N of ~3. per resolution element We will therefore conduct with G160M observations with only one cenwave and FP-POS setting.

Diagnostics

(Visit 08) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

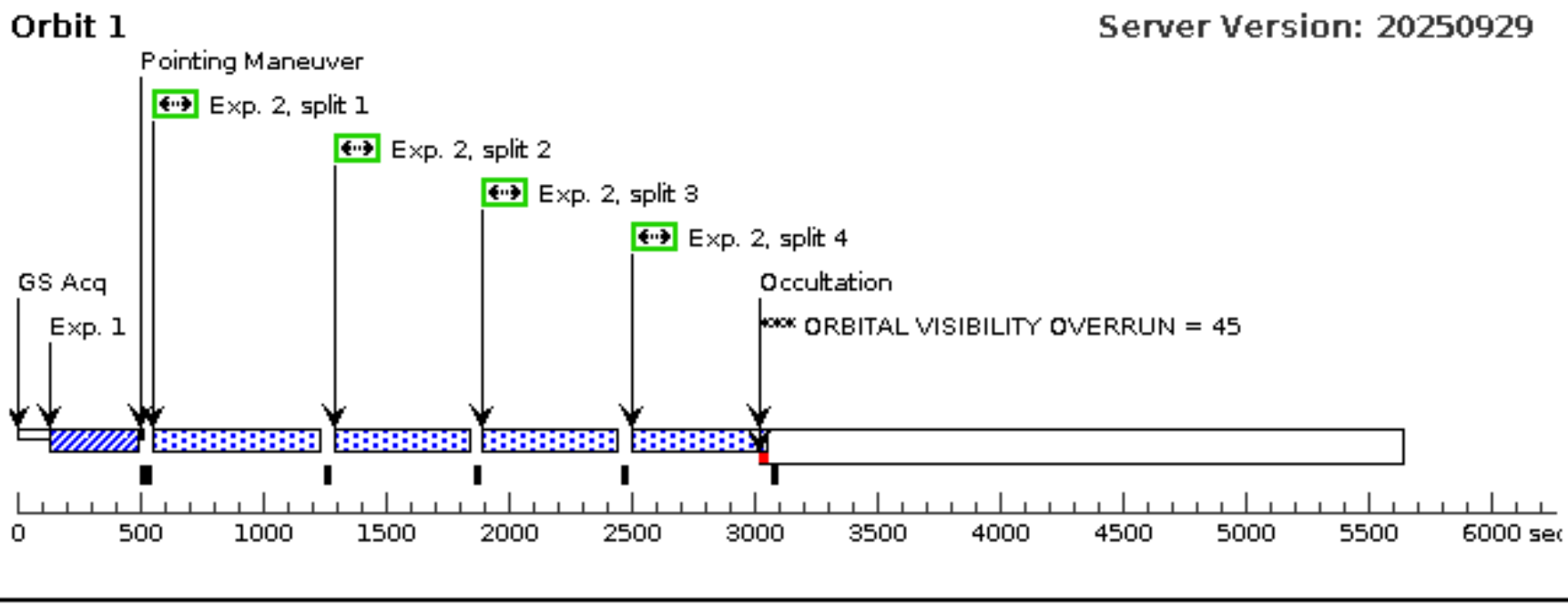
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	J131939.28+521849.2	RA: 13 19 39.2830 (199.9136792d) Dec: +52 18 49.24 (52.31368d) Equinox: J2000		V=18.5 NUV=17.7	Reference Frame: ICRS

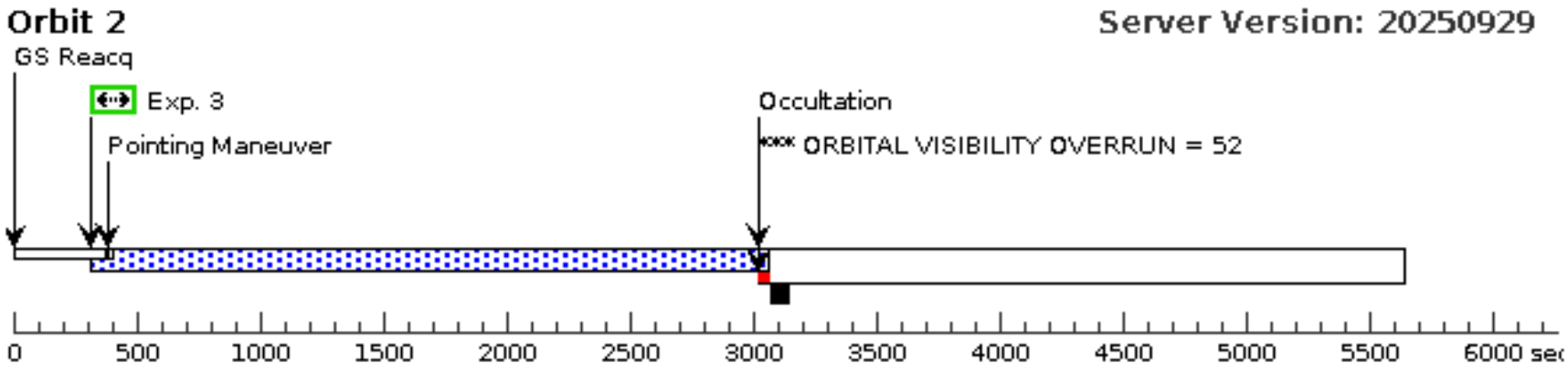
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

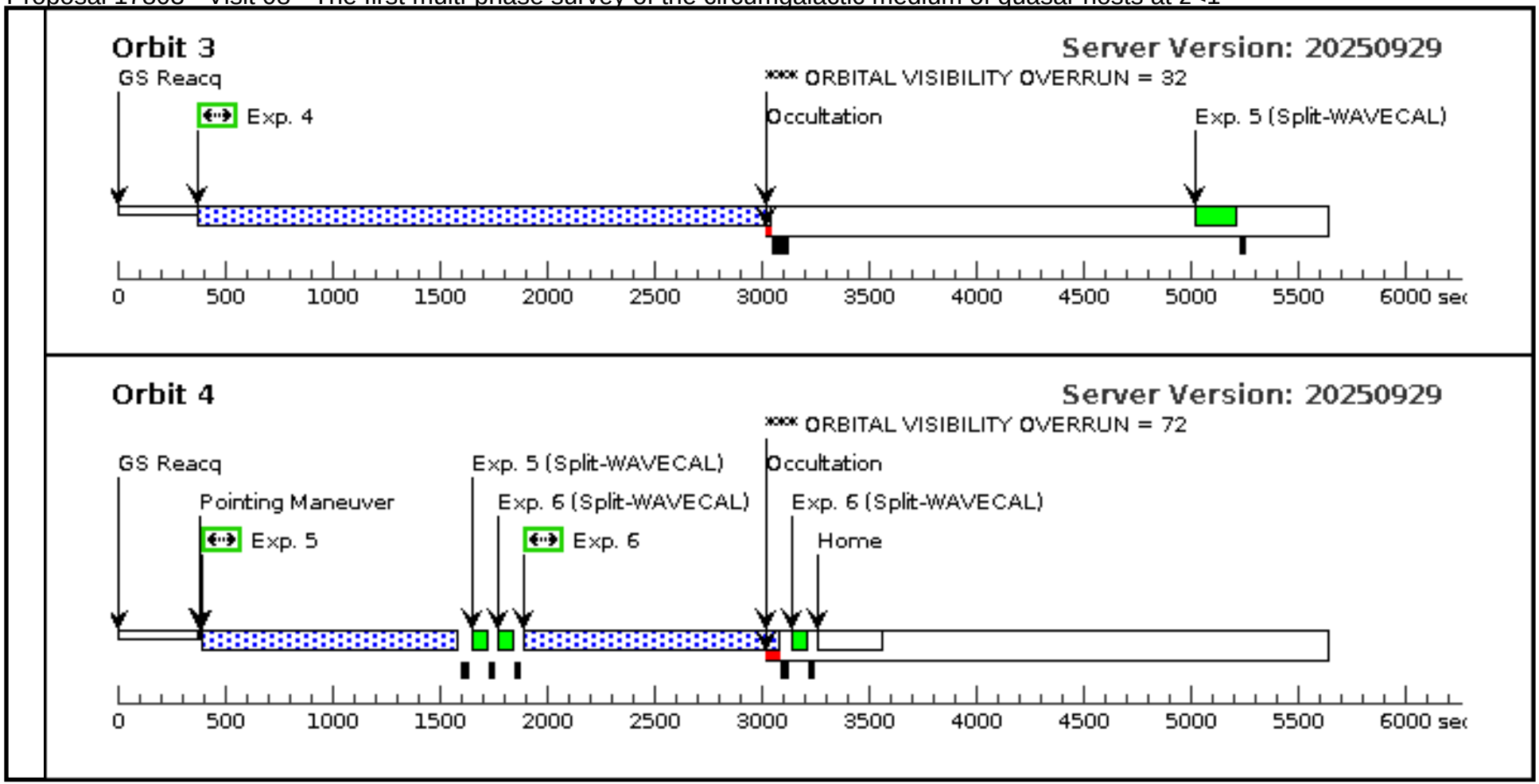
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929411)	(5) J131939.28+521849.2	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				25 Secs (25 Secs) *[==>]*	***[1]***
2	(COS.sp.1929426)	(5) J131939.28+521849.2	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=7595; FP-POS=ALL			500 Secs (2000 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
3	(COS.sp.1929426)	(5) J131939.28+521849.2	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4108; FP-POS=3			1500 Secs (2603 Secs) *[==>2603.0 Secs]*	***[2]***
4	(COS.sp.1929426)	(5) J131939.28+521849.2	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4108; FP-POS=4			1500 Secs (2614 Secs) *[==>2614.0 Secs]*	***[3]***
5	(COS.sp.1929427)	(5) J131939.28+521849.2	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=8982; FP-POS=1			1100 Secs (1143 Secs) *[==>1143.0 Secs]*	***[4]***
6	(COS.sp.1929427)	(5) J131939.28+521849.2	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=8982; FP-POS=4			1100 Secs (1143 Secs) *[==>1143.0 Secs]*	***[4]***

Orbit Structure






Orbit 3
Server Version: 20250929
GS Reacq
Exp. 4
**** ORBITAL VISIBILITY OVERRUN = 32
Occultation
Exp. 5 (Split-WAVECAL)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec
Orbit 4
Server Version: 20250929
**** ORBITAL VISIBILITY OVERRUN = 72
GS Reacq
Pointing Maneuver
Exp. 5
Exp. 5 (Split-WAVECAL)
Exp. 6 (Split-WAVECAL)
Exp. 6
Occultation
Exp. 6 (Split-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Proposal 17803 - Visit 09 - The first multi-phase survey of the circumgalactic medium of quasar hosts at z<1

Visit

Proposal 17803, Visit 09, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M observations of J101642.56+081835.9, at z=0.587 quasar that probes the CGM of a foreground quasar at z=0.292. At this redshift, the absorption features of interest in G130M include the Lyman limit (1177 Ang), C III (1262 Ang), OVI (1340 Ang)

Diagnostics

(Visit 09) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 09) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 09) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

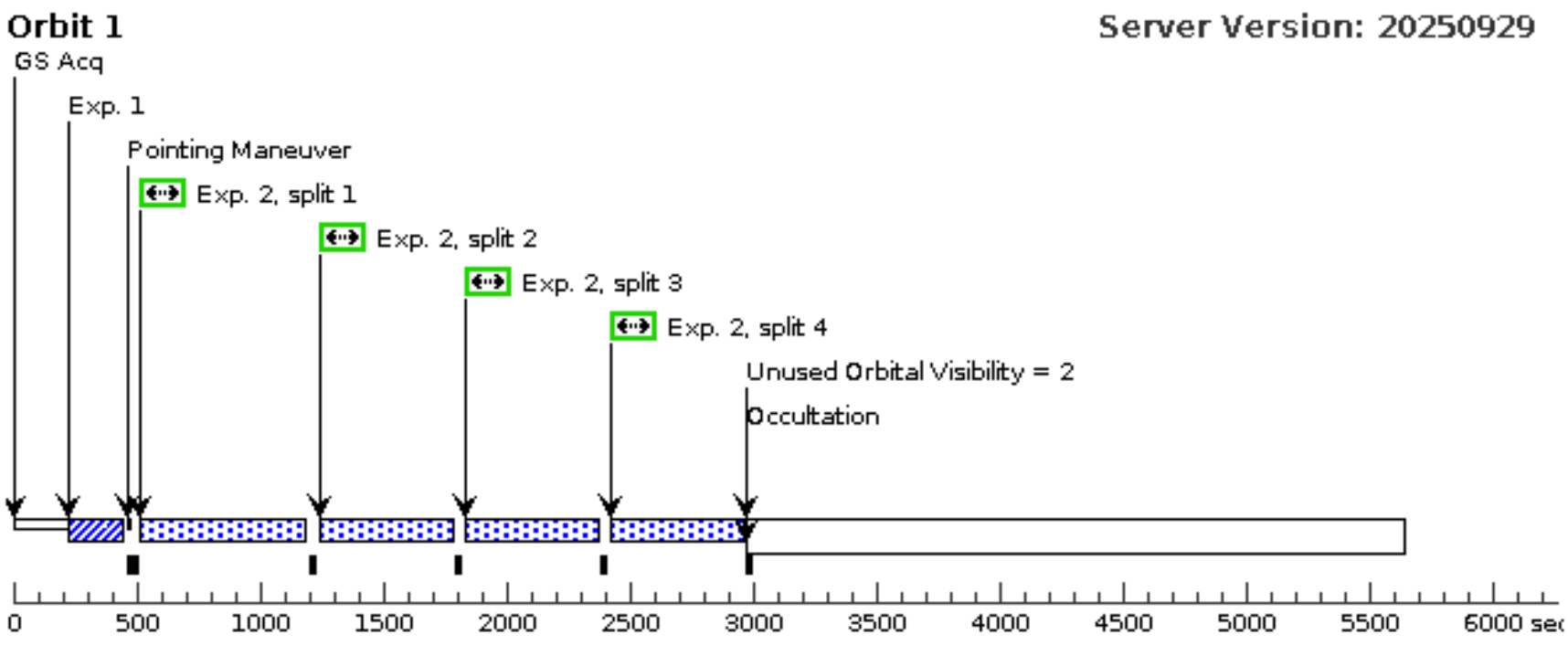
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	J101642.56+081835.9	RA: 10 16 42.5570 (154.1773208d) Dec: +08 18 35.95 (8.30999d) Equinox: J2000		V=18.3 NUV=18.8	Reference Frame: ICRS

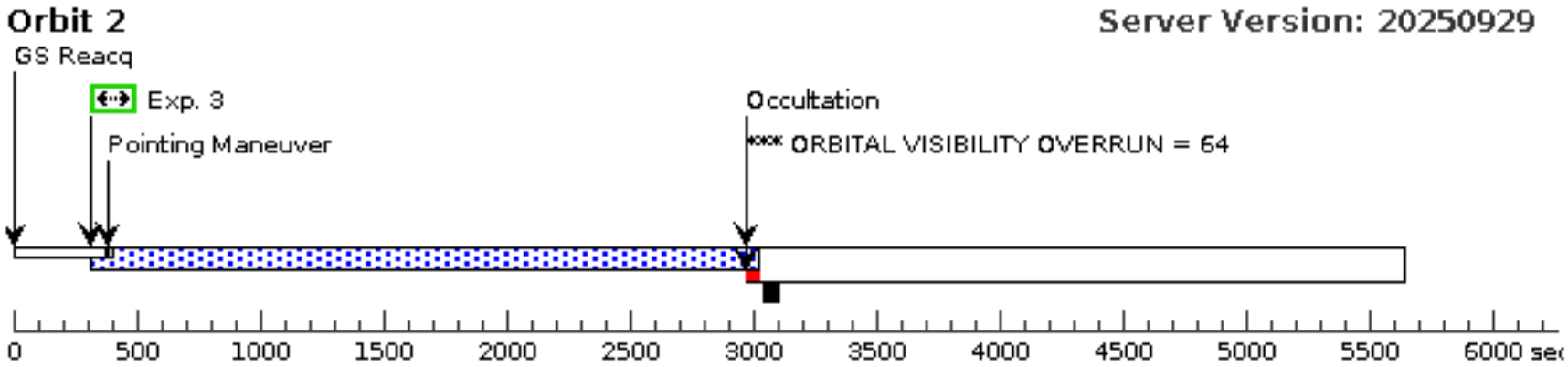
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

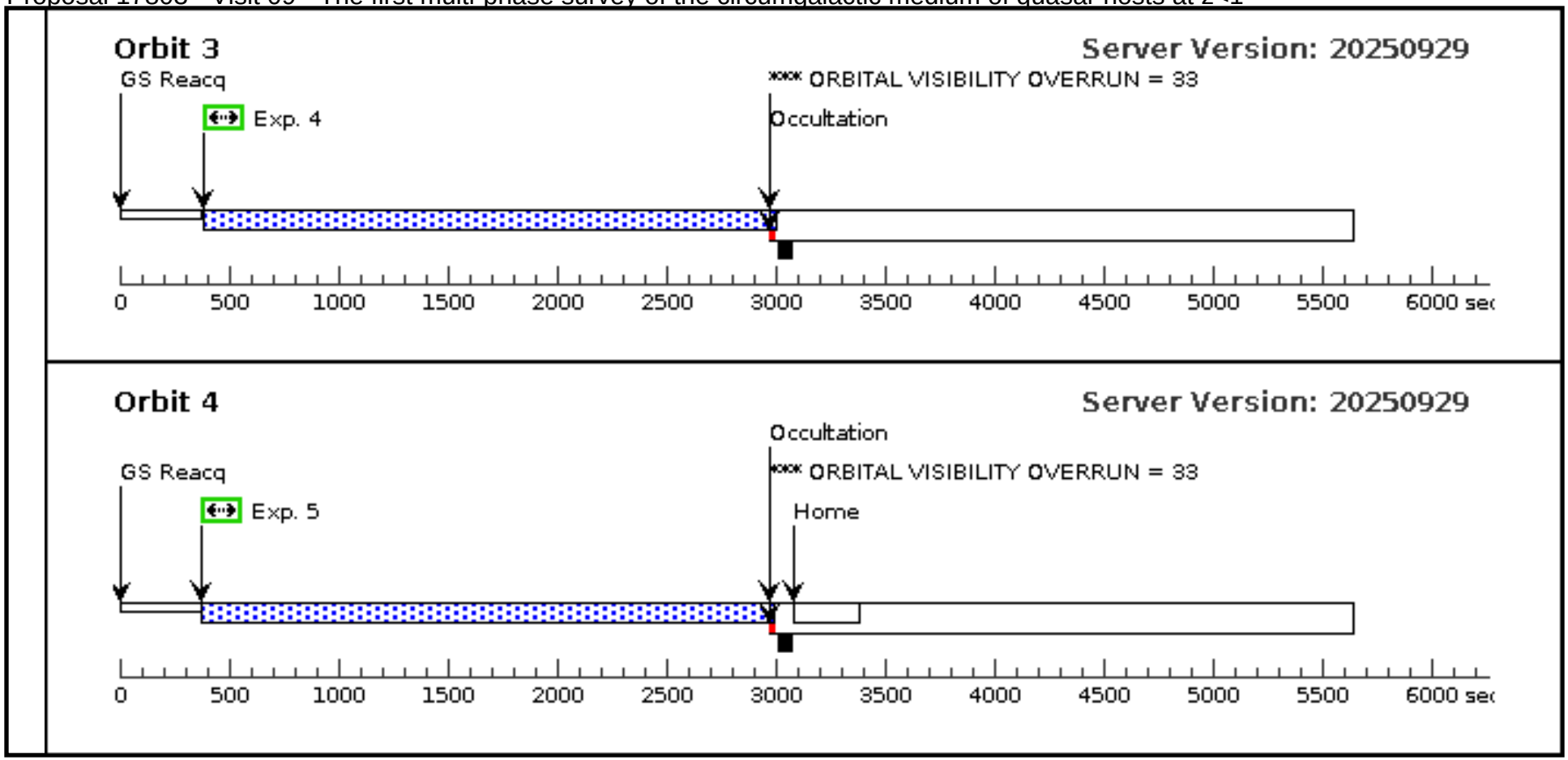
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929432)	(9) J101642.56+081835.9	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5 Secs (5 Secs) *[==>]*	*[1]*
2	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=10245; FP-POS=ALL			450 Secs (1944 Secs) *[==>486.0 Secs (Split 1)]* *[==>486.0 Secs (Split 2)]* *[==>486.0 Secs (Split 3)]* *[==>486.0 Secs (Split 4)]*	*[1]*
3	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4879; FP-POS=3			2000 Secs (2566 Secs) *[==>2566.0 Secs]*	*[2]*
4	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4879; FP-POS=3			2000 Secs (2566 Secs) *[==>2566.0 Secs]*	*[3]*
5	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4879; FP-POS=4			2000 Secs (2566 Secs) *[==>2566.0 Secs]*	*[4]*

Orbit Structure






Orbit 3
Server Version: 20250929
GS Reacq
Exp. 4
**** ORBITAL VISIBILITY OVERRUN = 33
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec
Orbit 4
Server Version: 20250929
Occultation
GS Reacq
**** ORBITAL VISIBILITY OVERRUN = 33
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 10, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M and G170M observations of J101642.56+081835.9, at z=0.587 quasar that probes the CGM of a foreground quasar at z=0.292. At this redshift, the absorption features of interest in G130M include the Lyman limit (1177 Ang), C III (1262 Ang), OVI (1340 Ang) while HI Lya falls within the coverage of G160M (1570 Ang). No features of interest fall in the G160M 1577 cenwave segment gap.

Diagnostics

(Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

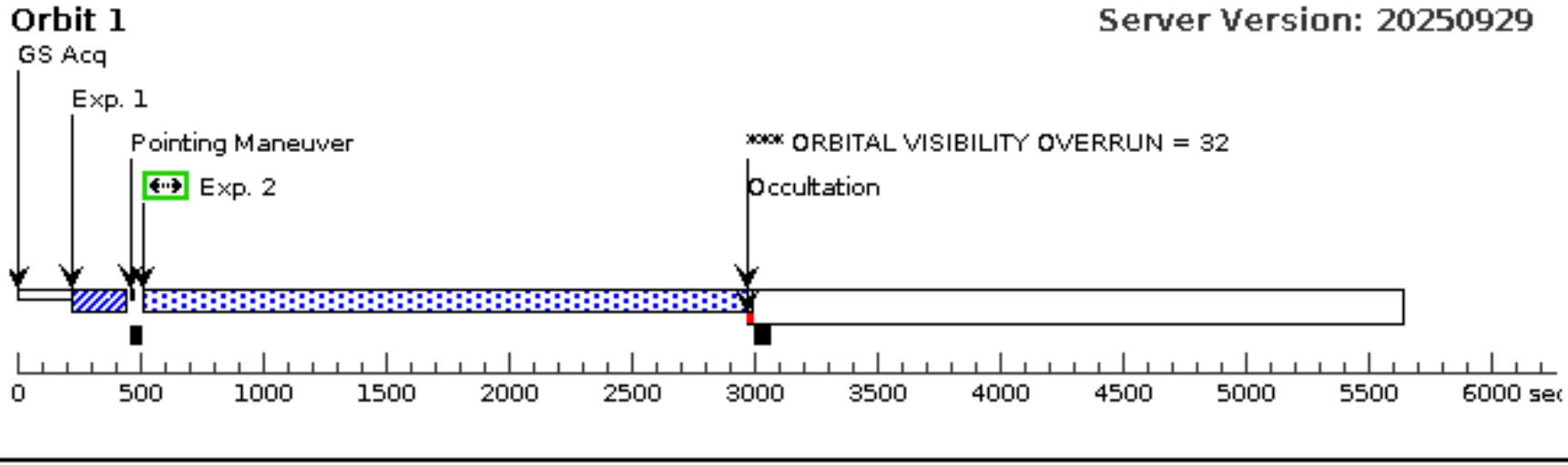
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	J101642.56+081835.9	RA: 10 16 42.5570 (154.1773208d) Dec: +08 18 35.95 (8.30999d) Equinox: J2000		V=18.3 NUV=18.8	Reference Frame: ICRS

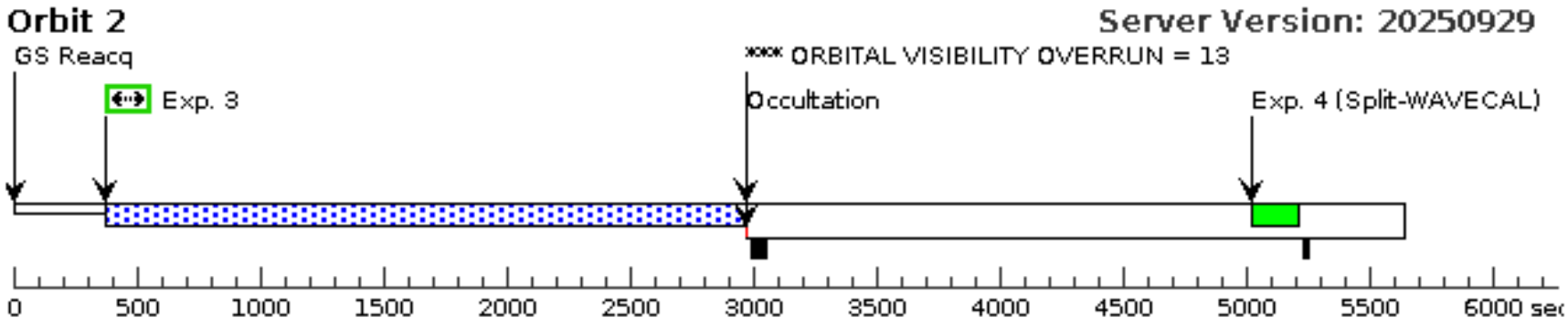
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

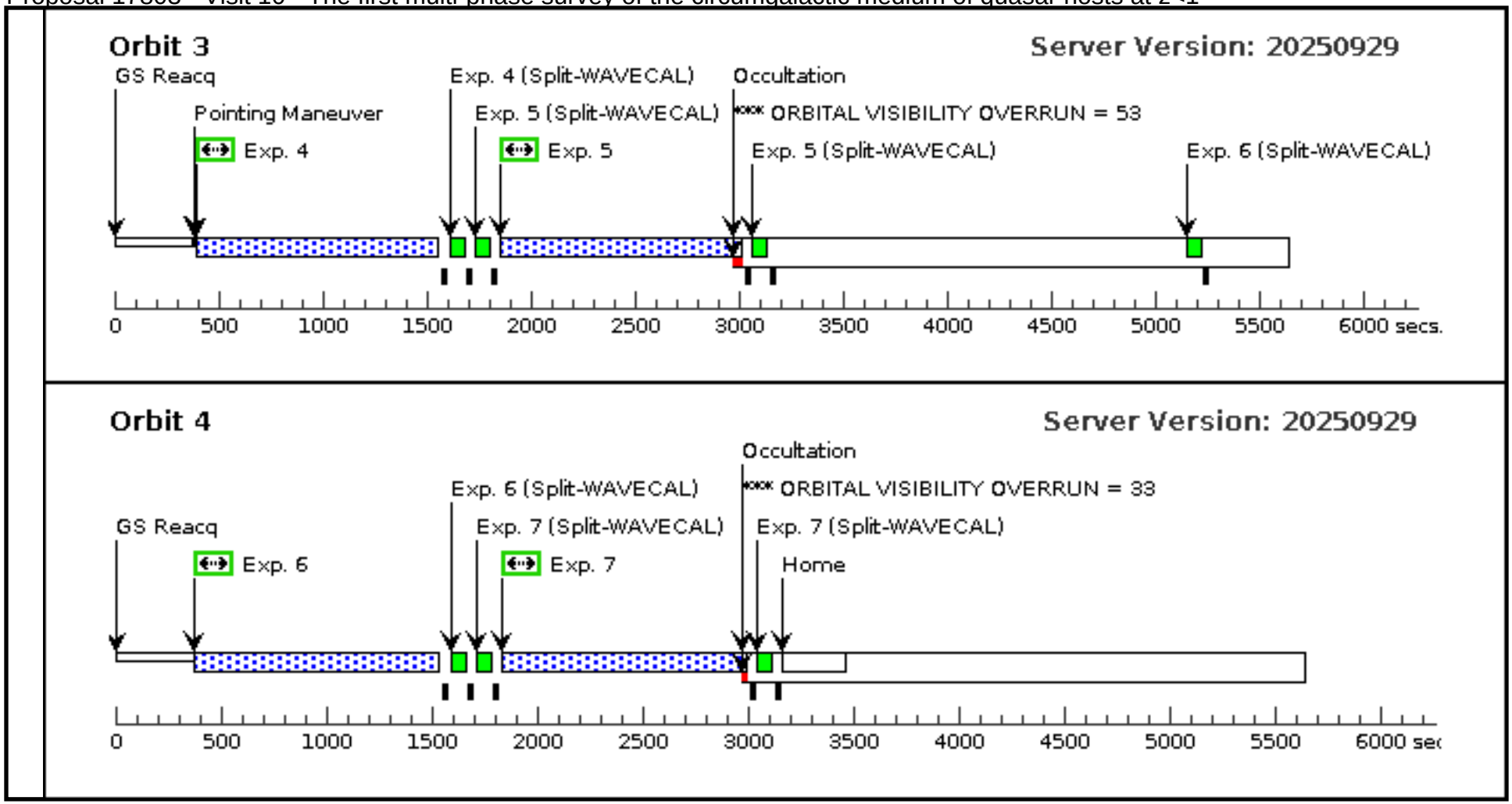
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929432)	(9) J101642.56+081835.9	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5 Secs (5 Secs) *[==>]*	***[1]***
2	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4879; FP-POS=3			2000 Secs (2307 Secs) *[==>2307.0 Secs]*	***[1]***
3	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4879; FP-POS=4			2000 Secs (2546 Secs) *[==>2546.0 Secs]*	***[2]***
4	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11366; FP-POS=1			1000 Secs (1114 Secs) *[==>1114.0 Secs]*	***[3]***
5	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11366; FP-POS=2			1000 Secs (1114 Secs) *[==>1114.0 Secs]*	***[3]***
6	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11366; FP-POS=3			1000 Secs (1114 Secs) *[==>1114.0 Secs]*	***[4]***
7	(COS.sp.1929433)	(9) J101642.56+081835.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11366; FP-POS=4			1000 Secs (1114 Secs) *[==>1114.0 Secs]*	***[4]***

Orbit Structure






Orbit 3
Server Version: 20250929
GS Reacq
Pointing Maneuver
Exp. 4
Exp. 4 (Split-WAVECAL)
Exp. 5 (Split-WAVECAL)
Exp. 5
Occultation
**** ORBITAL VISIBILITY OVERRUN = 53
Exp. 5 (Split-WAVECAL)
Exp. 6 (Split-WAVECAL)
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 secs.
Orbit 4
Server Version: 20250929
Occultation
Exp. 6 (Split-WAVECAL)
**** ORBITAL VISIBILITY OVERRUN = 33
GS Reacq
Exp. 7 (Split-WAVECAL)
Exp. 7 (Split-WAVECAL)
Exp. 6
Exp. 7
Home
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec

Visit

Proposal 17803, Visit 11, failed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M observations of J010506.03-295556.4, a z=0.8358 QSO probing the CGM of a foreground quasar at z=0.398. Features of interest at this redshift in G130M coverage include the Lyman limit (1274 Ang) and CIII (1365). The Lyman series edge is covered by the 1222 cenwave while CIII and all other features are covered by 1291.

Diagnostics

(Visit 11) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 11) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

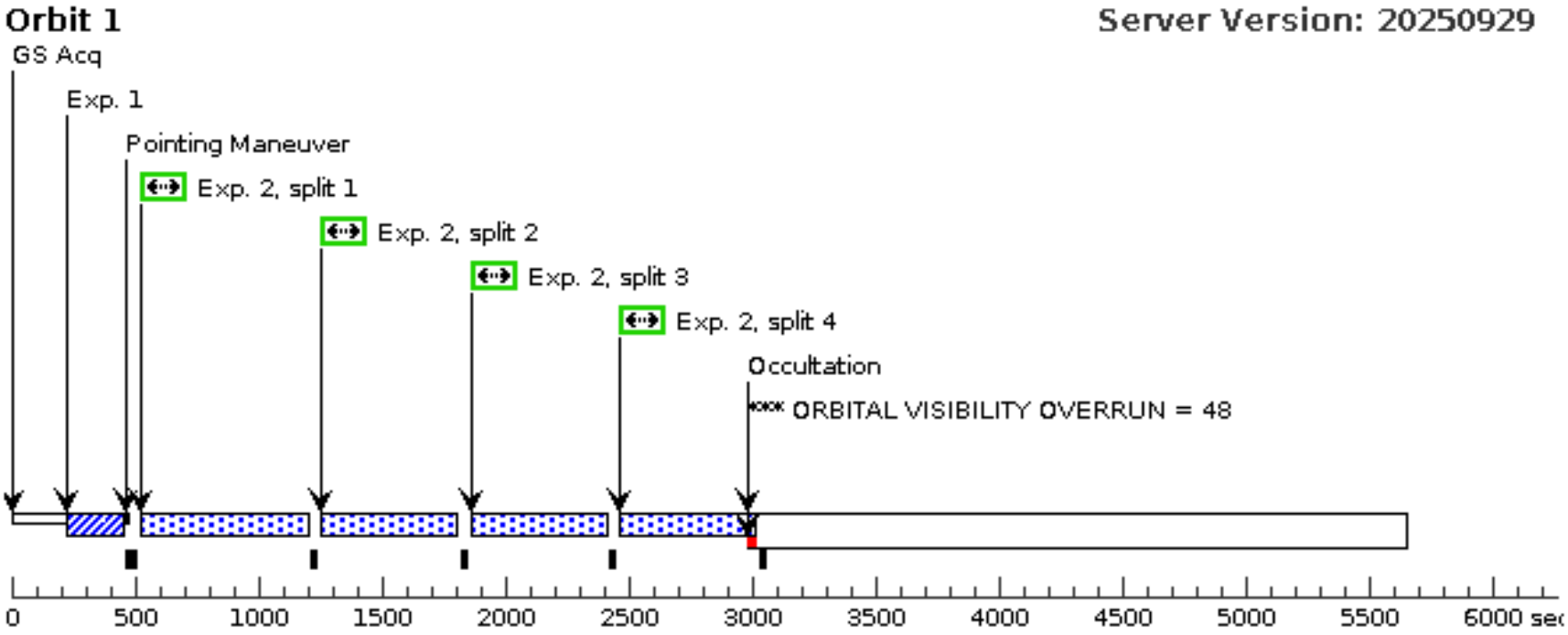
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	J010506.03-295556.4	RA: 01 05 6.0310 (16.2751292d) Dec: -29 55 56.44 (-29.93234d) Equinox: J2000		V=18.0 NUV=18.8	Reference Frame: ICRS

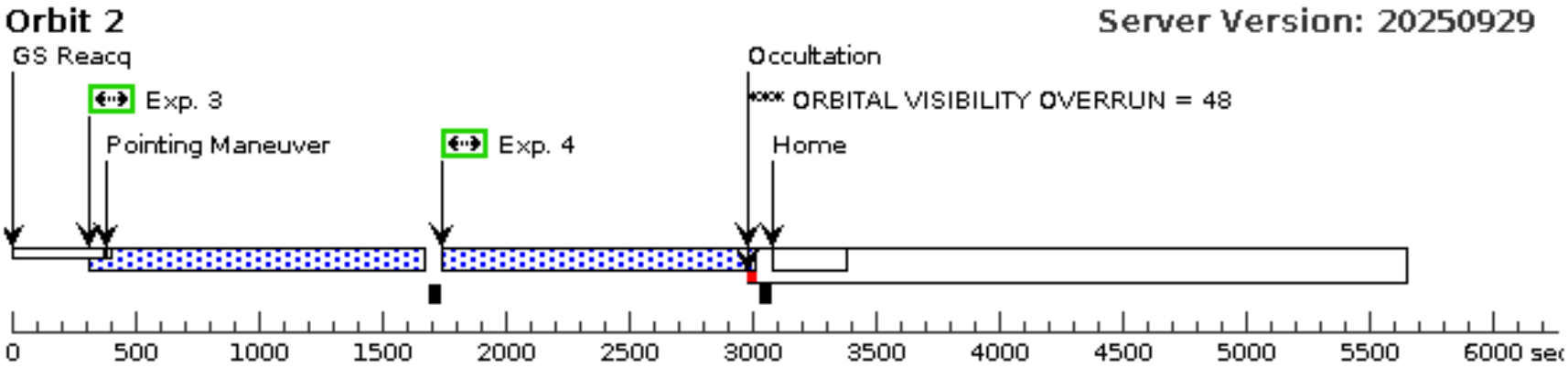
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929466)	(6) J010506.03-295556.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	 ***[1]***
2	(COS.sp.1929471)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=10360; FP-POS=ALL			400 Secs (1996 Secs) *[==>499.0 Secs (Split 1)]* *[==>499.0 Secs (Split 2)]* *[==>499.0 Secs (Split 3)]* *[==>499.0 Secs (Split 4)]*	 ***[1]***
3	(COS.sp.1929472)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4906; FP-POS=3			1000 Secs (1216 Secs) *[==>1216.0 Secs]*	 ***[2]***
4	(COS.sp.1929472)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4906; FP-POS=4			1000 Secs (1216 Secs) *[==>1216.0 Secs]*	 ***[2]***

Orbit Structure





Visit

Proposal 17803, Repeat of second orbit of visit 11 (61), completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M observations of J010506.03-295556.4, a z=0.8358 QSO probing the CGM of a foreground quasar at z=0.398. Features of interest at this redshift in G130M coverage include the Lyman limit (1274 Ang) and CIII (1365). The Lyman series edge is covered by the 1222 cenwave while CIII and all other features are covered by 1291.

Diagnostics

(Repeat of second orbit of visit 11 (61)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

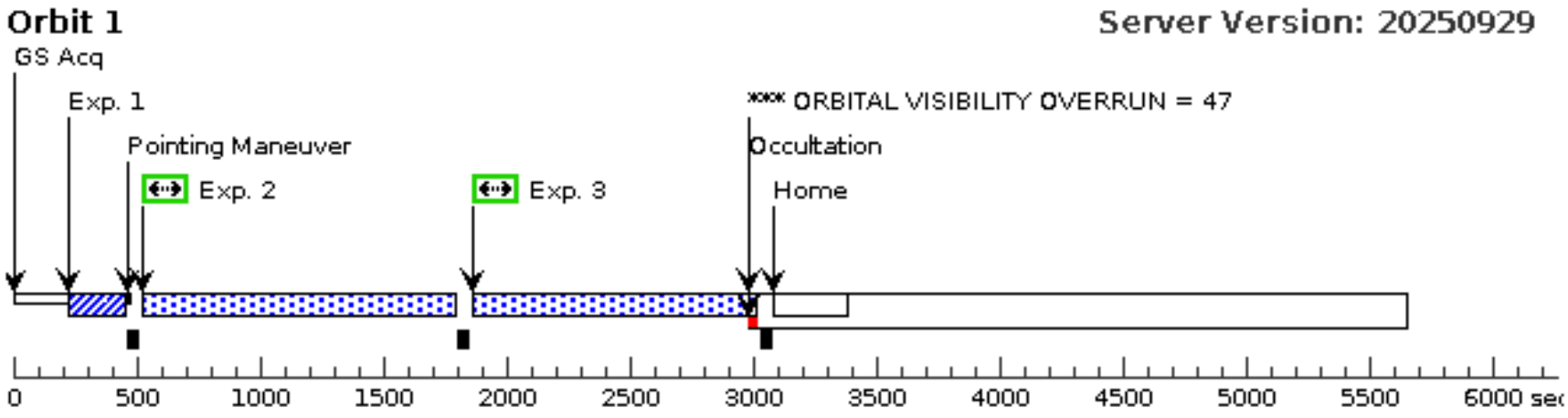
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	J010506.03-295556.4	RA: 01 05 6.0310 (16.2751292d) Dec: -29 55 56.44 (-29.93234d) Equinox: J2000		V=18.0 NUV=18.8	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929466)	(6) J010506.03-295556.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	*[1]*
2	(COS.sp.1929472)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4906; FP-POS=3			1000 Secs (1100 Secs) *[==>1100.0 Secs]*	*[1]*
3	(COS.sp.1929472)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4906; FP-POS=4			1000 Secs (1100 Secs) *[==>1100.0 Secs]*	*[1]*

Orbit Structure



Proposal 17803 - Visit 12 - The first multi-phase survey of the circumgalactic medium of quasar hosts at z<1

Visit

Proposal 17803, Visit 12, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G130M observations of J010506.03-295556.4, a z=0.8358 QSO probing the CGM of a foreground quasar at z=0.398. Features of interest at this redshift in G130M coverage include the Lyman limit (1274 Ang), C III (1365 Ang), and OVI (1442 Ang)

Diagnostics

(Visit 12) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 12) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 12) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 12) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

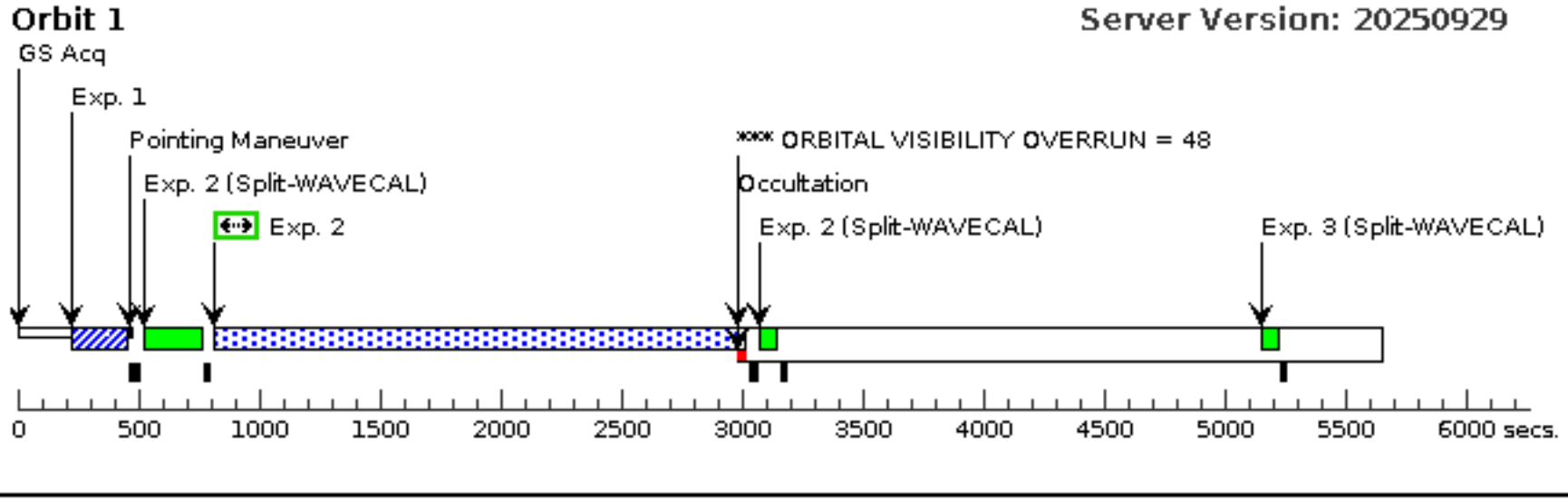
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	J010506.03-295556.4	RA: 01 05 6.0310 (16.2751292d) Dec: -29 55 56.44 (-29.93234d) Equinox: J2000		V=18.0 NUV=18.8	Reference Frame: ICRS

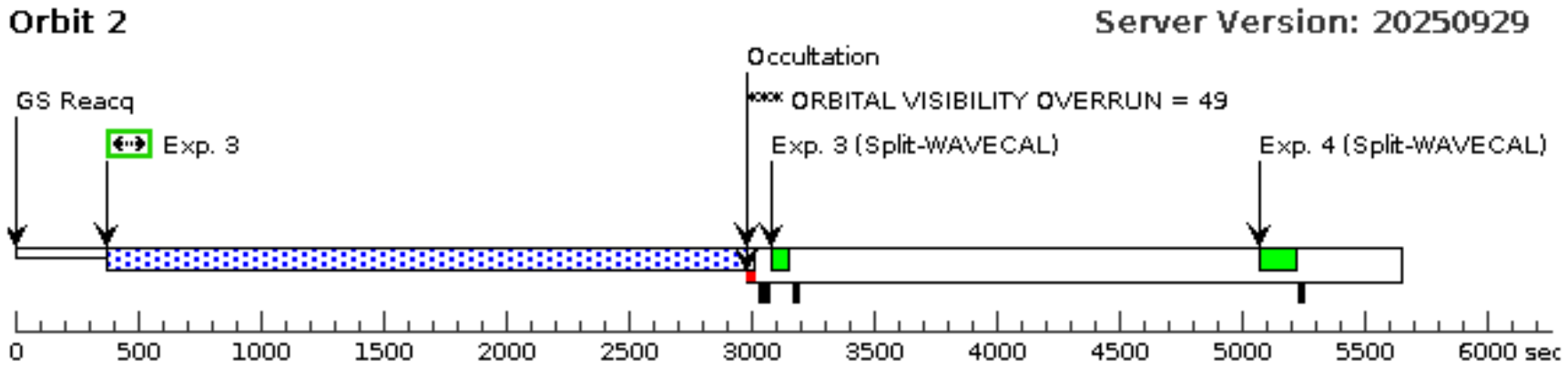
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

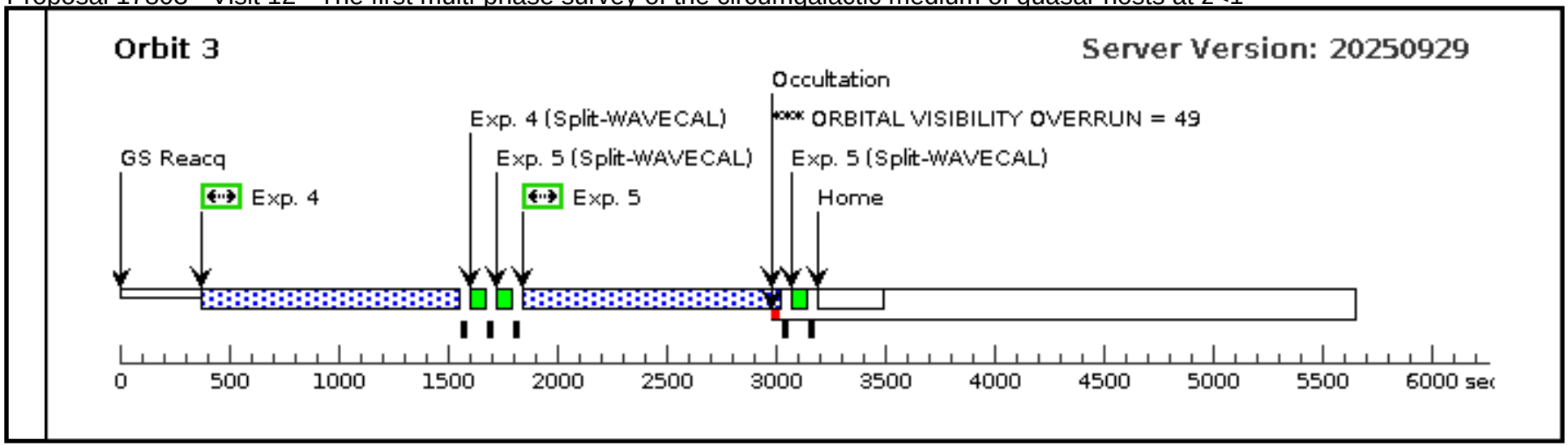
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929466)	(6) J010506.03-295556.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	*[1]*
2	(COS.sp.1929475)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11479; FP-POS=1			2100 Secs (2152 Secs) *[==>2152.0 Secs]*	*[1]*
3	(COS.sp.1929475)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11479; FP-POS=2			2100 Secs (2592 Secs) *[==>2592.0 Secs]*	*[2]*
4	(COS.sp.1929475)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11479; FP-POS=3			1000 Secs (1125 Secs) *[==>1125.0 Secs]*	*[3]*
5	(COS.sp.1929475)	(6) J010506.03-295556.4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11479; FP-POS=4			1000 Secs (1125 Secs) *[==>1125.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
Exp. 4 (Split-WAVECAL)
**** ORBITAL VISIBILITY OVERRUN = 49
GS Reacq
Exp. 5 (Split-WAVECAL)
Exp. 5 (Split-WAVECAL)
Exp. 4
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Visit 13, failed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G160M observations of background QSO J010534.73-273657.9 which probes the CGM of a foreground QSO at z=0.5200. At this redshift, all key features fall in the G160M spectral coverage.

Diagnostics

(Visit 13) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 13) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 13) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 13) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

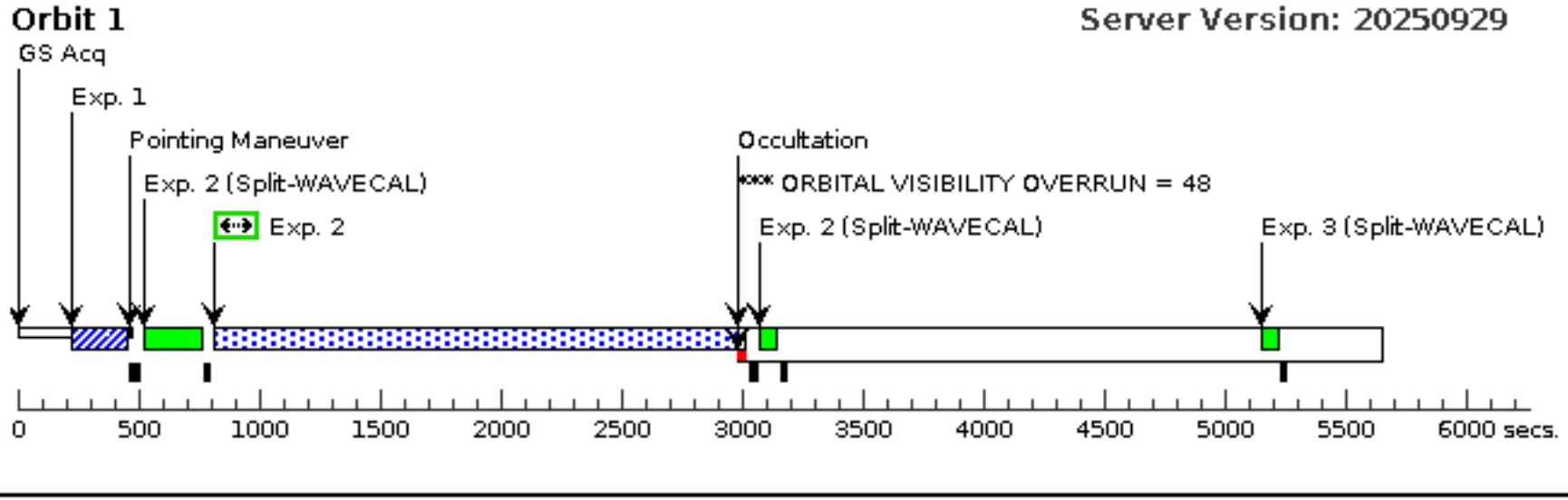
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	J010534.73-273657.9	RA: 01 05 34.7270 (16.3946958d) Dec: -27 36 57.92 (-27.61609d) Equinox: J2000		V=17.5 NUV=18.8	Reference Frame: ICRS

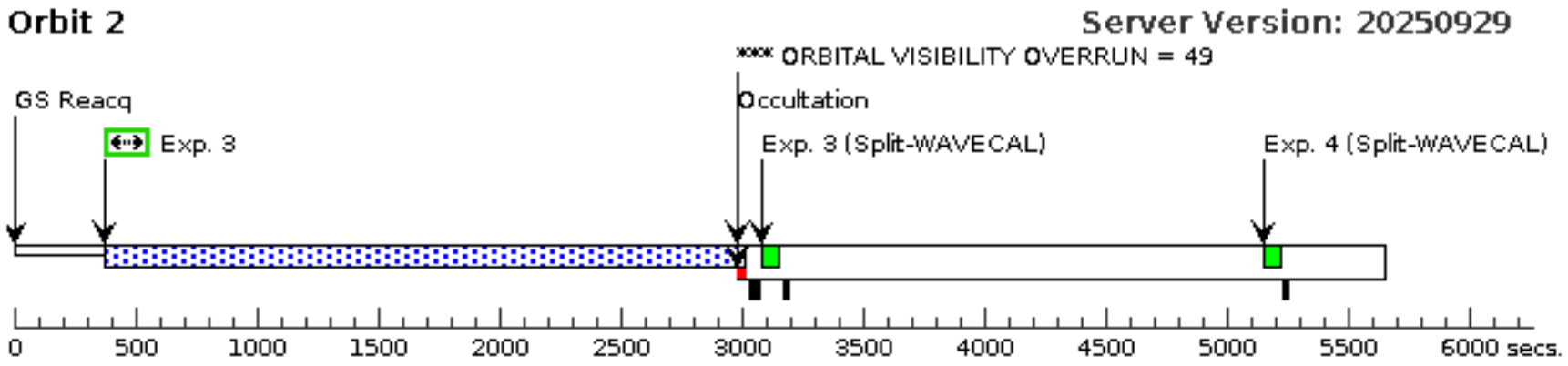
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

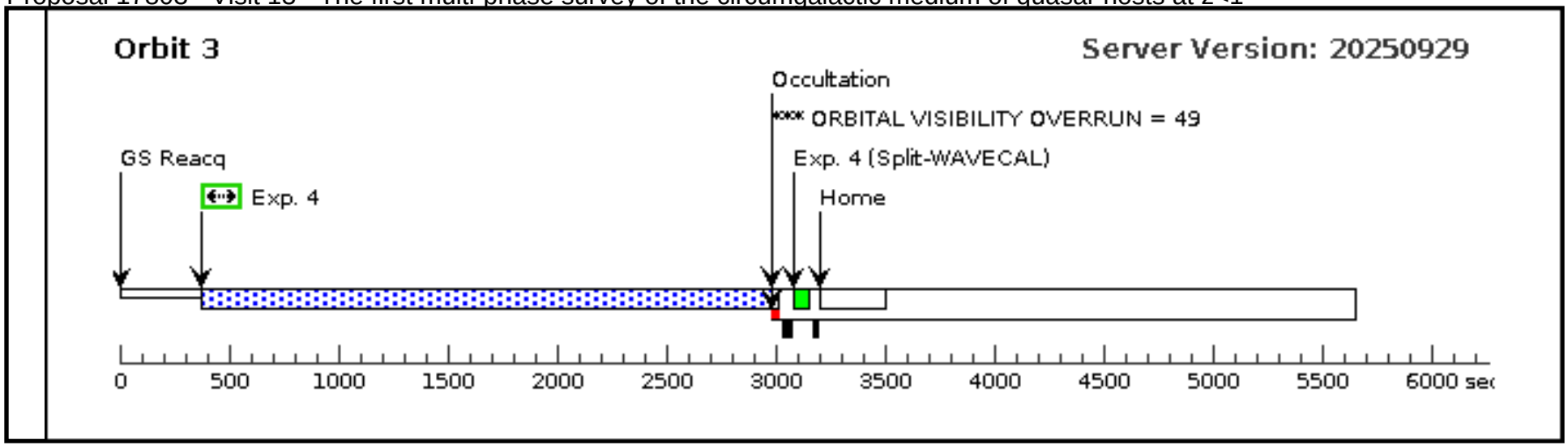
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929481)	(7) J010534.73-273657.9	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	***[1]***
2	(COS.sp.1929482)	(7) J010534.73-273657.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11482; FP-POS=1			2100 Secs (2152 Secs) *[==>2152.0 Secs]*	***[1]***
3	(COS.sp.1929482)	(7) J010534.73-273657.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11482; FP-POS=2			2100 Secs (2592 Secs) *[==>2592.0 Secs]*	***[2]***
4	(COS.sp.1929482)	(7) J010534.73-273657.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11482; FP-POS=3			2100 Secs (2592 Secs) *[==>2592.0 Secs]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
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GS Reacq
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Exp. 4 (Split-WAVECAL)
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2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17803, Repeat of first and second orbits of visit 13 (63), implementation Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G160M observations of background QSO J010534.73-273657.9 which probes the CGM of a foreground QSO at z=0.5200. At this redshift, all key features fall in the G160M spectral coverage.

Diagnostics

(Repeat of first and second orbits of visit 13 (63)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Repeat of first and second orbits of visit 13 (63)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Repeat of first and second orbits of visit 13 (63)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

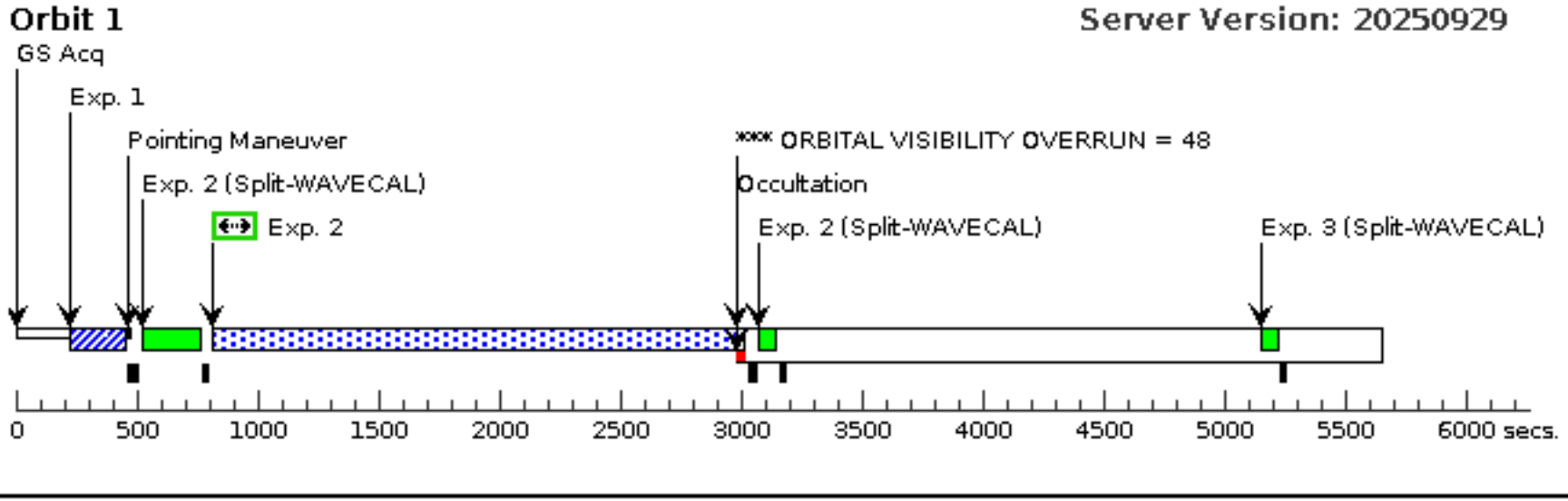
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	J010534.73-273657.9	RA: 01 05 34.7270 (16.3946958d) Dec: -27 36 57.92 (-27.61609d) Equinox: J2000		V=17.5 NUV=18.8	Reference Frame: ICRS

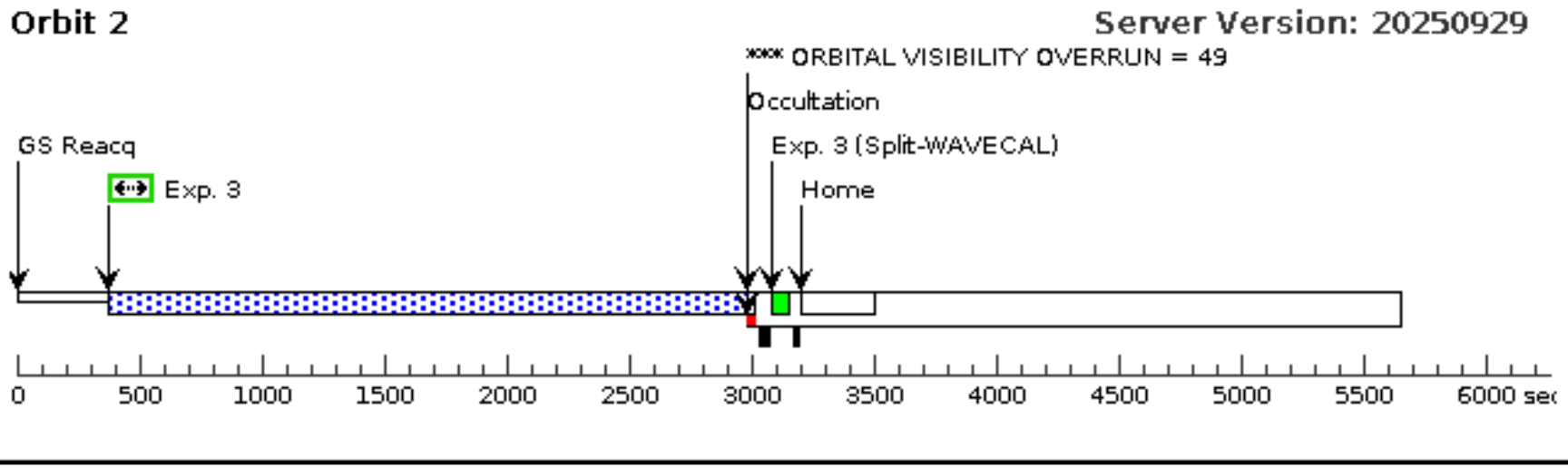
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929481)	(7) J010534.73-273657.9	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	*[1]*
2	(COS.sp.1929482)	(7) J010534.73-273657.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11482; FP-POS=1			2100 Secs (2152 Secs) *[==>2152.0 Secs]*	*[1]*
3	(COS.sp.1929482)	(7) J010534.73-273657.9	COS/FUV, TIME-TAG, PSA	G160M 1533 A	BUFFER-TIME=11482; FP-POS=2			2100 Secs (2592 Secs) *[==>2592.0 Secs]*	*[2]*

Orbit Structure





Proposal 17803 - Visit 14 - The first multi-phase survey of the circumgalactic medium of quasar hosts at z<1

Visit

Proposal 17803, Visit 14, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: G160M observations of background QSO J010534.73-273657.9 which probes the CGM of a foreground QSO at z=0.5200. At this redshift, all key features fall in the G160M spectral coverage including the Lyman LImit (1386 Ang(, C III (1485 Ang), and OVI (1568 Ang).

Diagnostics

(Visit 14) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 14) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 14) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

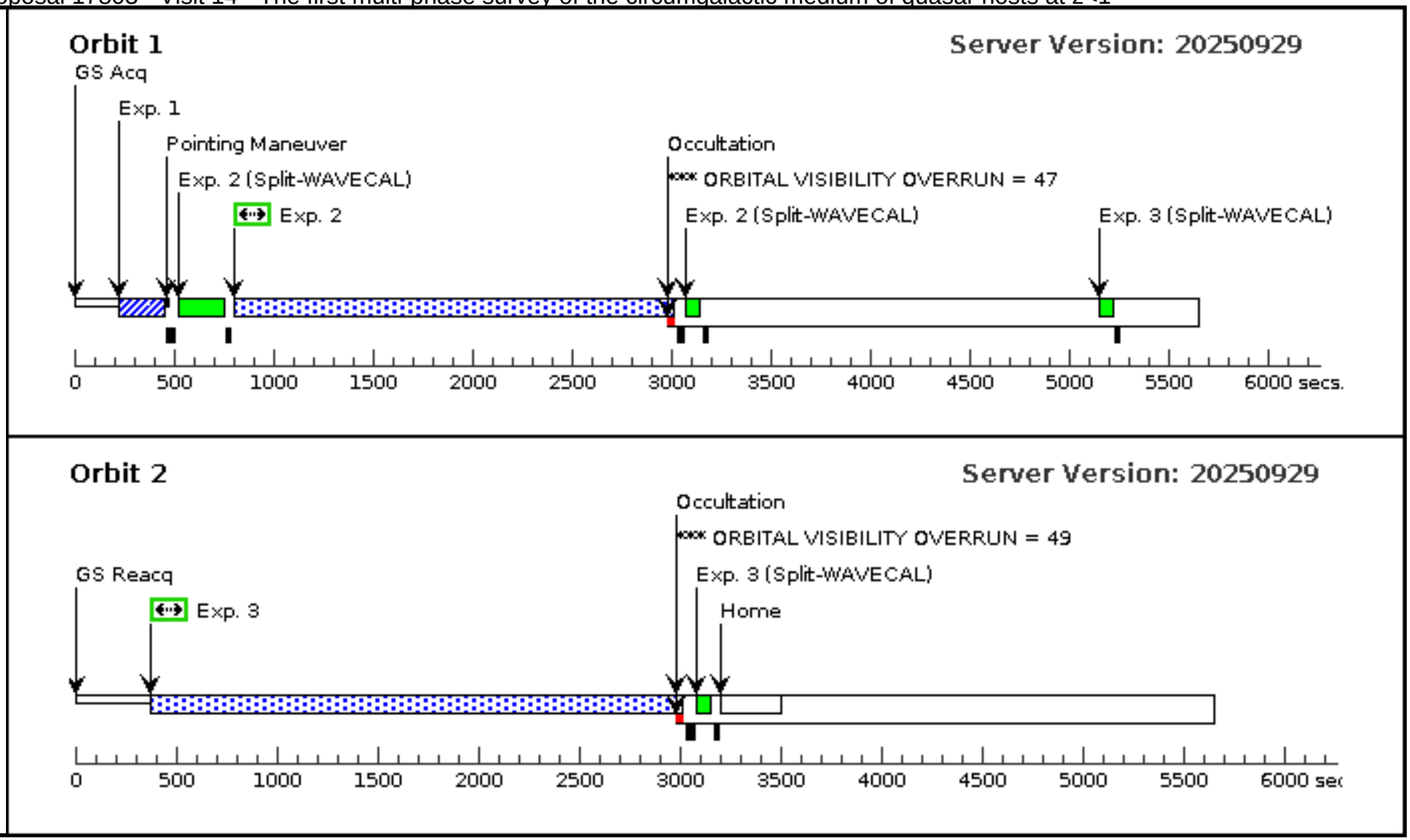
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	J010534.73-273657.9	RA: 01 05 34.7270 (16.3946958d) Dec: -27 36 57.92 (-27.61609d) Equinox: J2000		V=17.5 NUV=18.8	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929481)	(7) J010534.73-273657.9	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	*[1]*
2	(COS.sp.1929482)	(7) J010534.73-273657.9	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11482; FP-POS=1			2100 Secs (2163 Secs) *[==>2163.0 Secs]*	*[1]*
3	(COS.sp.1929482)	(7) J010534.73-273657.9	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=11482; FP-POS=2			2100 Secs (2592 Secs) *[==>2592.0 Secs]*	*[2]*

Orbit Structure



Visit

Proposal 17803, Visit 15, failed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: This visit will observe obtain G130M spectra of J145420.00+192629.4, a background quasar probing the CGM of a foreground quasar at z=0.4451. At this redshift the Lyman series below HI 972 falls in the G130M spectral coverage, but no features call in the segment gap for the 1291 cenwave setting.

Diagnostics

(Visit 15) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 15) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

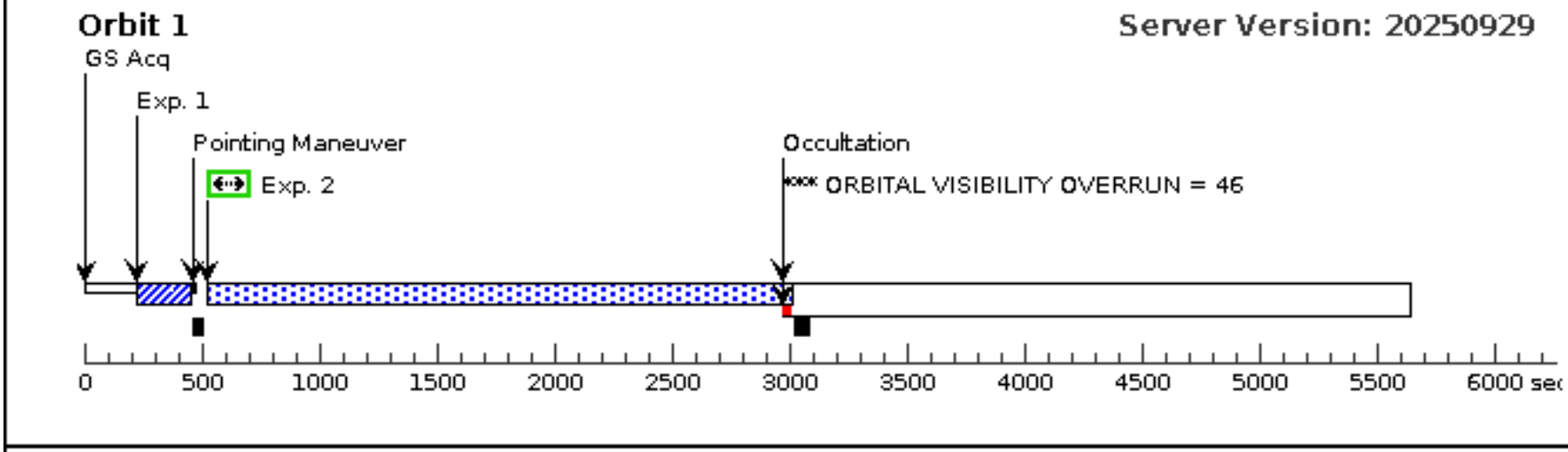
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	J145420.00+192629.4	RA: 14 54 19.9950 (223.5833125d) Dec: +19 26 29.38 (19.44149d) Equinox: J2000		V=18.5 NUV=18.5	Reference Frame: ICRS

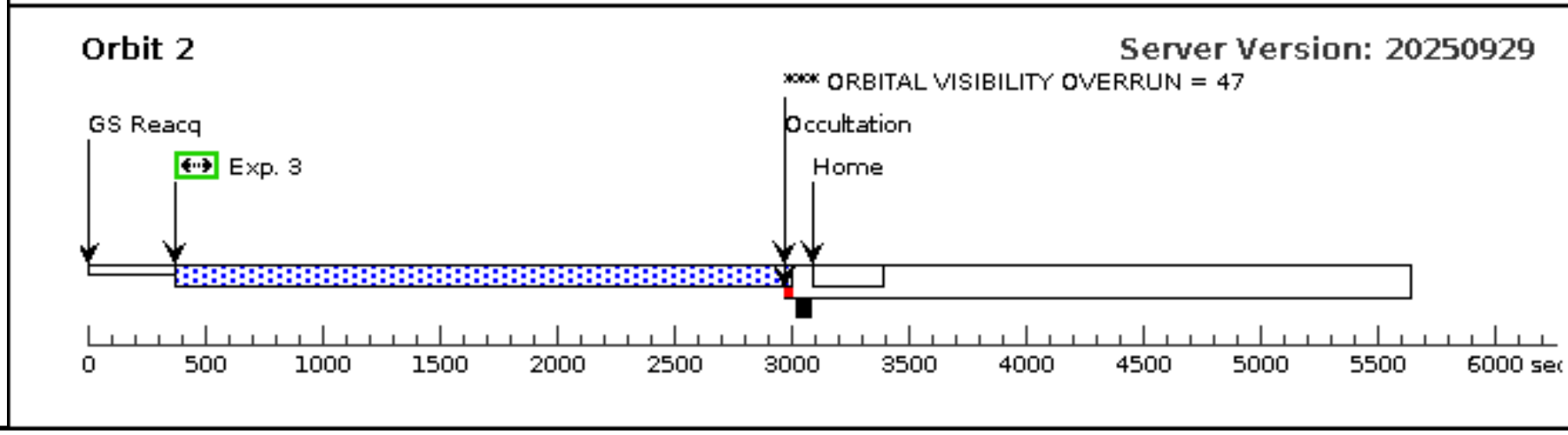
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929506)	(8) J145420.00+192629.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	***[1]***
2	(COS.sp.1929507)	(8) J145420.00+192629.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4904; FP-POS=3			1200 Secs (2316 Secs) *[==>2316.0 Secs]*	***[1]***
3	(COS.sp.1929507)	(8) J145420.00+192629.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4904; FP-POS=4			1200 Secs (2579 Secs) *[==>2579.0 Secs]*	***[2]***

Orbit Structure





Visit

Proposal 17803, Repeat of visit 15 (65) Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: This visit will observe obtain G130M spectra of J145420.00+192629.4, a background quasar probing the CGM of a foreground quasar at z=0.4451. At this redshift the Lyman series below HI 972 falls in the G130M spectral coverage, but no features call in the segment gap for the 1291 cenwave setting.

Diagnostics

(Repeat of visit 15 (65)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

Fixed Targets

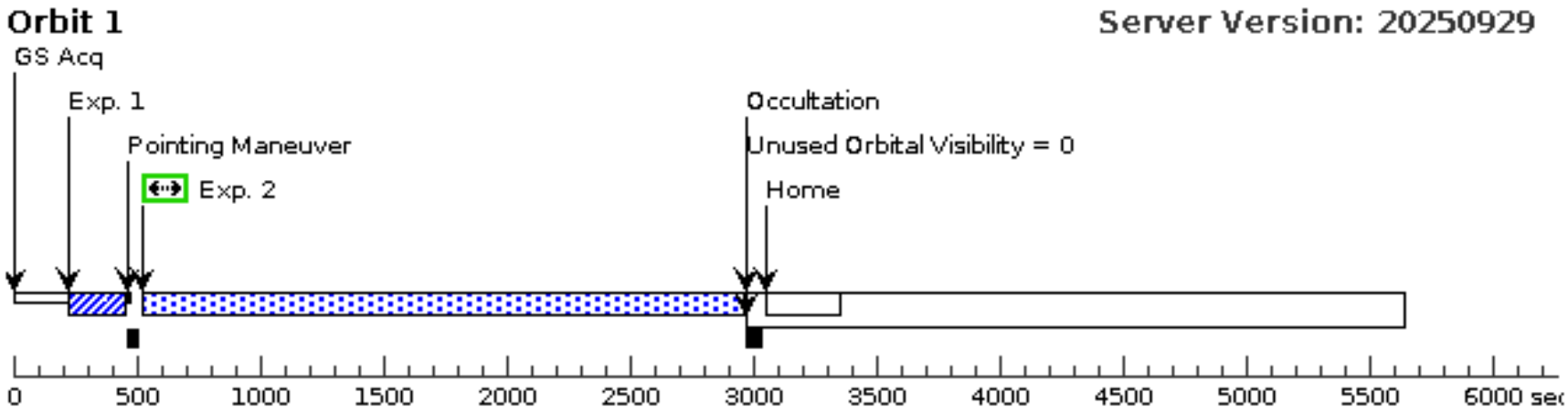
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	J145420.00+192629.4	RA: 14 54 19.9950 (223.5833125d) Dec: +19 26 29.38 (19.44149d) Equinox: J2000		V=18.5 NUV=18.5	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929506)	(8) J145420.00+192629.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	 ***[1]***
2	(COS.sp.1929507)	(8) J145420.00+192629.4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=4904; FP-POS=4			1200 Secs (2270 Secs) *[==>2270.0 Secs]*	 ***[1]***

Orbit Structure



Proposal 17803 - Visit 16 - The first multi-phase survey of the circumgalactic medium of quasar hosts at z<1

Visit

Proposal 17803, Visit 16, completed Wed Mar 25 18:00:33 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: This visit will observe obtain G130M spectra of J145420.00+192629.4, a background quasar probing the CGM of a foreground quasar at z=0.4451. At this redshift the HI 972, CIII, OVI, and Lya fall in the G160M spectral coverage. All features are covered by the 1589 and 1600 cenwave setting and none fall in the gap.

Diagnostics

(Visit 16) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(Visit 16) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 16) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Visit 16) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

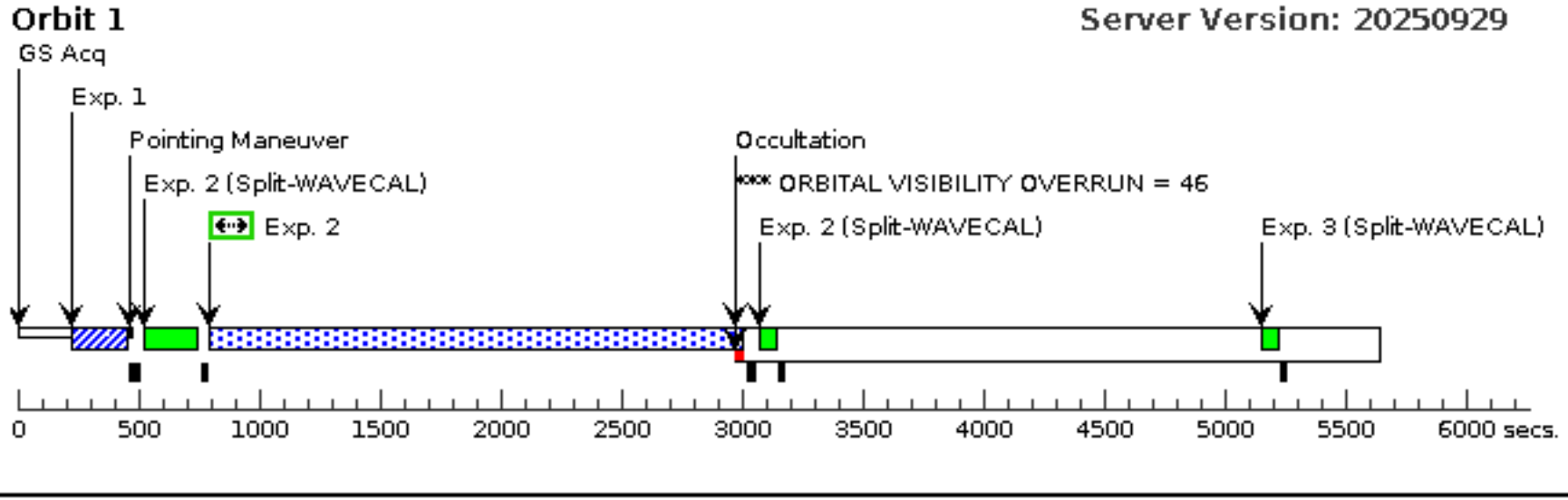
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	J145420.00+192629.4	RA: 14 54 19.9950 (223.5833125d) Dec: +19 26 29.38 (19.44149d) Equinox: J2000		V=18.5 NUV=18.5	Reference Frame: ICRS

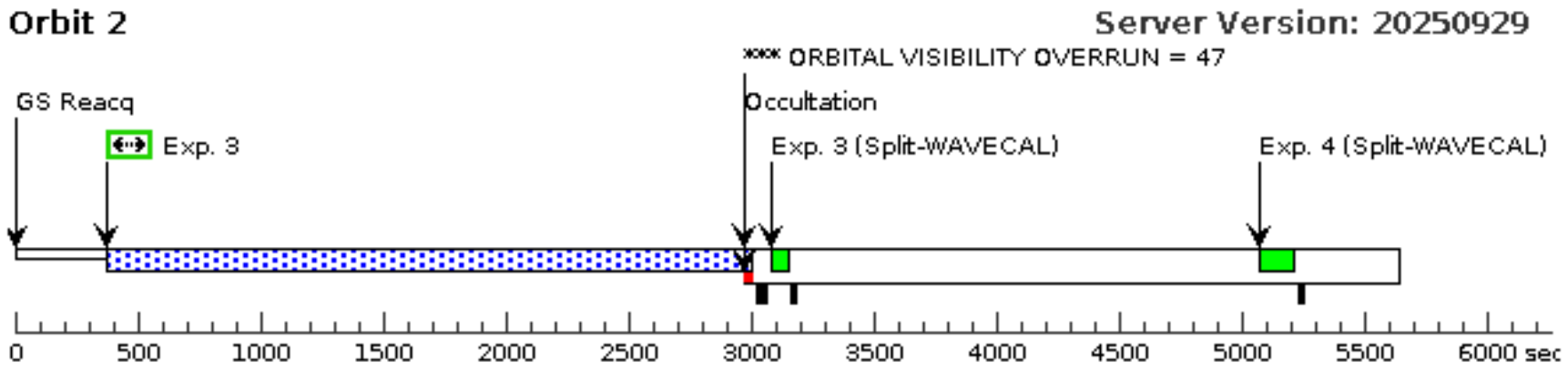
Comments:
Category=GALAXY
Description=[QSO]
Extended=NO

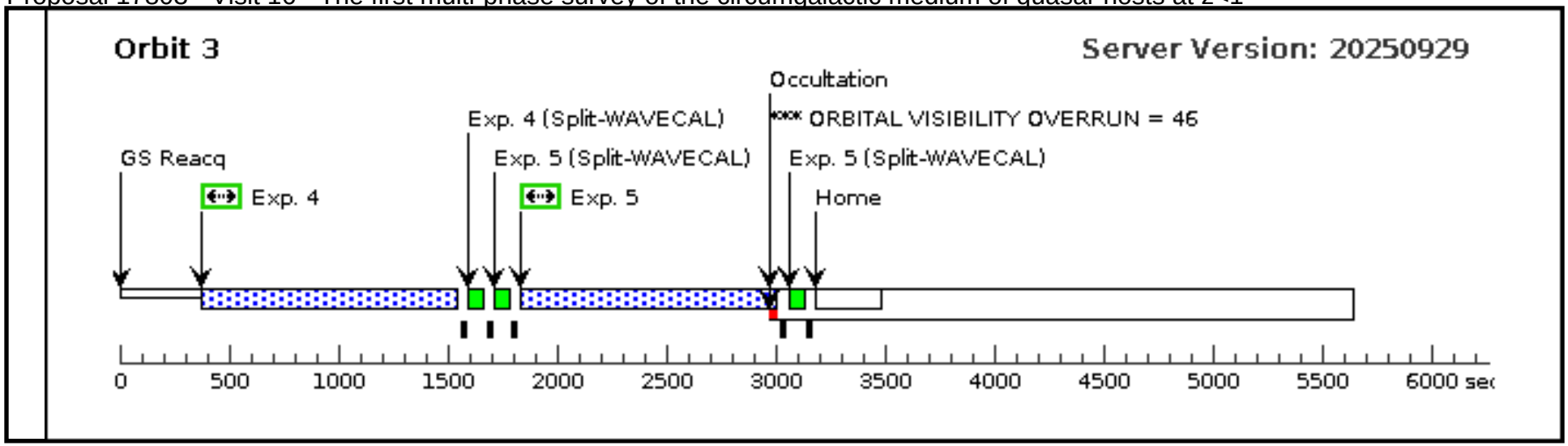
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1929506)	(8) J145420.00+192629.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				7 Secs (7 Secs) *[==>]*	*[1]*
2	(COS.sp.1929508)	(8) J145420.00+192629.4	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=11478; FP-POS=1			1200 Secs (2158 Secs) *[==>2158.0 Secs]*	*[1]*
3	(COS.sp.1929508)	(8) J145420.00+192629.4	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=11478; FP-POS=2			900 Secs (2583 Secs) *[==>2583.0 Secs]*	*[2]*
4	(COS.sp.1929508)	(8) J145420.00+192629.4	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=11478; FP-POS=3			600 Secs (1120 Secs) *[==>1120.0 Secs]*	*[3]*
5	(COS.sp.1929508)	(8) J145420.00+192629.4	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=11478; FP-POS=4			600 Secs (1120 Secs) *[==>1120.0 Secs]*	*[3]*

Orbit Structure






Orbit 3
Server Version: 20250929
Occultation
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GS Reacq
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Exp. 5 (Split-WAVECAL)
Exp. 4
Exp. 5
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