

Antares Orb-1 - Event Sequencing

MISSION NOMINAL TIMELINE

Event	Time from Launch (sec)		
	Window Open	Window Middle	Window Close
Stage 1 Motor Ignition	0	0	0
Lift Off	2.1	2.1	2.1
Stage 1 Main Engine Cut Off	233.9	233.9	233.9
Stage 1 Separation	238.9	238.9	238.9
Fairing Separation	336.6	336.8	336.5
Stage 1/2 Interstage Separation	341.6	341.8	341.5
Stage 2 Ignition	345.6	345.8	345.5
Stage 2 Burn Out	474.2	474.2	473.7
Payload Separation (Orbit Insertion)	594.2	594.2	593.7

MISSION TIMELINE - OPEN TRAJECTORY

Event	Window Open				
	Time (sec)	Altitude (km)	Lat (deg N)	Long (deg E)	Velocity (m/s)
STAGE 1 IGNITION	0	-0.011	37.834	-75.488	0
STAGE 1 THROTTLE DOWN	206.19	78.863	36.968	-74.065	3244.372
STAGE 1 SHUTDOWN	233.94	106.003	36.387	-73.161	4524.283
STAGE SEPARATION	238.94	111.155	36.264	-72.973	4527.128
ENABLE RCS	240.44	112.671	36.227	-72.917	4524.204
ENABLE PEG STEERING	254.94	126.625	35.869	-72.378	4495.003
DISABLE RCS FOR FAIRING SEP	336.31	181.471	33.832	-69.491	4379.632
FAIRING SEPARATION	336.59	181.591	33.824	-69.481	4379.378
RE-ENABLE RCS AFTER FAIRING SEP	338.59	182.437	33.774	-69.413	4377.631
FAIRING SEP DETECTION	339.09	182.645	33.761	-69.396	4377.193
DISABLE RCS FOR INTERSTAGE SEP	341.51	183.629	33.7	-69.313	4375.113
STAGE 1/2 INTERSTAGE SEPARATION	341.59	183.661	33.697	-69.311	4375.046
STAGE 2 TVC ENABLE	345.09	185.021	33.608	-69.191	4372.237
STAGE 2 IGNITION	345.59	185.21	33.596	-69.174	4371.839
STAGE 2 TAIL-OFF	471.7	228.745	29.148	-63.93	7481.712
STAGE 2 COAST	474.18	228.722	29.029	-63.805	7491.572
ORIENT FOR PAYLOAD SEP	484.18	228.618	28.55	-63.302	7493.333
DISABLE RCS FOR PAYLOAD SEP	594.1	227.715	23.145	-58.074	7498.365
PAYLOAD SEPARATION	594.18	227.714	23.141	-58.07	7498.366
RE-ENABLE RCS AFTER PAYLOAD SEP	596.18	227.704	23.041	-57.98	7497.942
ORIENT FOR CCAM	597.18	227.699	22.991	-57.934	7498.004
CONTAMINATION/COLLISION AVOIDANCE MANUEVER	894.18	228.951	7.584	-45.691	7497.19
RCS TANK DEPLETION	1014.18	231.108	1.207	-41.129	7493.755
POST RCS BLOWDOWN COAST	1104.18	233.332	-3.581	-37.733	7491.014
END OF MISSION	1114.18	233.61	-4.113	-37.354	7490.673

MISSION TIMELINE - MIDDLE TRAJECTORY

Event	Window Middle				
	Time (sec)	Altitude (km)	Lat (deg N)	Long (deg E)	Velocity (m/s)
STAGE 1 IGNITION	0	-0.011	37.834	-75.488	0
STAGE 1 THROTTLE DOWN	206.19	78.931	36.926	-74.109	3243.492
STAGE 1 SHUTDOWN	233.94	106.109	36.318	-73.234	4523.298
STAGE SEPARATION	238.94	111.269	36.189	-73.052	4526.126
ENABLE RCS	240.44	112.787	36.151	-72.998	4523.198
ENABLE PEG STEERING	254.94	126.76	35.776	-72.477	4493.952
DISABLE RCS FOR FAIRING SEP	336.5	181.741	33.647	-69.683	4378.278
FAIRING SEPARATION	336.78	181.861	33.64	-69.674	4378.024
RE-ENABLE RCS AFTER FAIRING SEP	338.78	182.704	33.587	-69.608	4376.281
FAIRING SEP DETECTION	339.28	182.912	33.574	-69.591	4375.843
DISABLE RCS FOR INTERSTAGE SEP	341.7	183.893	33.51	-69.512	4373.769
STAGE 1/2 INTERSTAGE SEPARATION	341.78	183.925	33.508	-69.509	4373.702
STAGE 2 TVC ENABLE	345.28	185.282	33.415	-69.394	4370.9
STAGE 2 IGNITION	345.78	185.47	33.402	-69.378	4370.503
STAGE 2 TAIL-OFF	471.92	229.393	28.875	-64.236	7481.568
STAGE 2 COAST	474.2	229.372	28.766	-64.122	7490.952
ORIENT FOR PAYLOAD SEP	484.2	229.269	28.285	-63.622	7492.752
DISABLE RCS FOR PAYLOAD SEP	594.12	228.369	22.871	-58.42	7497.795
PAYLOAD SEPARATION	594.2	228.369	22.867	-58.416	7497.797
RE-ENABLE RCS AFTER PAYLOAD SEP	596.2	228.359	22.766	-58.326	7497.371
ORIENT FOR CCAM	597.2	228.354	22.716	-58.281	7497.434
CONTAMINATION/COLLISION AVOIDANCE MANUEVER	894.2	229.616	7.297	-46.076	7496.616
RCS TANK DEPLETION	1014.2	231.774	0.92	-41.519	7493.175
POST RCS BLOWDOWN COAST	1104.2	233.993	-3.868	-38.122	7490.439
END OF MISSION	1114.2	234.27	-4.399	-37.743	7490.099

MISSION TIMELINE - CLOSE TRAJECTORY

Event	Window Close				
	Time (sec)	Altitude (km)	Lat (deg N)	Long (deg E)	Velocity (m/s)
STAGE 1 IGNITION	0	-0.011	37.834	-75.488	0
STAGE 1 THROTTLE DOWN	206.19	78.912	36.884	-74.155	3243.182
STAGE 1 SHUTDOWN	233.94	106.062	36.249	-73.31	4523.051
STAGE SEPARATION	238.94	111.214	36.115	-73.135	4525.893
ENABLE RCS	240.44	112.73	36.075	-73.083	4522.969
ENABLE PEG STEERING	254.94	126.681	35.685	-72.581	4493.769
DISABLE RCS FOR FAIRING SEP	336.21	181.363	33.478	-69.899	4378.722
FAIRING SEPARATION	336.49	181.483	33.47	-69.89	4378.469
RE-ENABLE RCS AFTER FAIRING SEP	338.49	182.325	33.415	-69.827	4376.731
FAIRING SEP DETECTION	338.99	182.531	33.401	-69.811	4376.294
DISABLE RCS FOR INTERSTAGE SEP	341.41	183.511	33.335	-69.734	4374.225
STAGE 1/2 INTERSTAGE SEPARATION	341.49	183.543	33.333	-69.732	4374.158
STAGE 2 TVC ENABLE	344.99	184.895	33.237	-69.621	4371.364
STAGE 2 IGNITION	345.49	185.083	33.223	-69.606	4370.968
STAGE 2 TAIL-OFF	471.57	228.414	28.622	-64.57	7481.475
STAGE 2 COAST	473.69	228.395	28.52	-64.464	7491.569
ORIENT FOR PAYLOAD SEP	483.69	228.292	28.038	-63.967	7493.438
DISABLE RCS FOR PAYLOAD SEP	593.61	227.399	22.612	-58.787	7498.499
PAYLOAD SEPARATION	593.69	227.398	22.608	-58.784	7498.501
RE-ENABLE RCS AFTER PAYLOAD SEP	595.69	227.388	22.508	-58.694	7498.075
ORIENT FOR CCAM	596.69	227.383	22.457	-58.649	7498.137
CONTAMINATION/COLLISION AVOIDANCE MANUEVER	893.69	228.68	7.021	-46.475	7497.279
RCS TANK DEPLETION	1013.69	230.857	0.641	-41.919	7493.814
POST RCS BLOWDOWN COAST	1103.69	233.092	-4.147	-38.521	7491.057
END OF MISSION	1113.69	233.371	-4.678	-38.141	7490.715