14 Mar 2019 12:07

:54
Approved AGI Educational Alliance Partner Satellite-CubeSat: Orbit Lifetime

entricity Inclination (deg) of Apogee (km) Height of Pount	erigee (km) Sidereal	RAAN (deg) Period (sec) On	Height cbit Co
1 Jan 2021 18:00:15.965	6783.448697	6783.450000	0
.00043820 51.578172	13.831574	34.419711	
408.285508	402.340492	5560.155313	
\sim			
2 Jan 2021 09:24:59.606 .00047812 51.578237 408.486600	6783.378760	6783.380311	0
.00047812 51.578237	10.768541	31.201206	
408.486600	402.000023	5560.069631	
10			
3 Jan 2021 00:49:42.811	6783.308519	6783.310340	0
.00051812 51.578332	8.376682	27.982654	
408.687894	401.658786	5559.983602	
20			
3 Jan 2021 16:14:25.145	6783.237961	6783,240074	0
.00055809 51.578443	6.517041	24.764072	•
.00055809 51.578443 408.888699	401 . 317449	5559.897211	
4 .Tan 2021 07:39:06 607	6783 166948	6783 169373	٥
00050788 51 578552	5 083016	21 545470	·
400 087883	400 976963	5559 910296	
4 Jan 2021 07:39:06.607 .00059788 51.578553 409.087883	400.970003	3339.810280	
4 Jan 2021 23:03:47.189			
00063750 51 570641	0703.095510	10 336044	U
.00063750 51.578641			
409.285514	400.637018	5559.722863	
50	CEO2 00240E	6803 006605	•
5 Jan 2021 14:28:26.886	6783.023497	6783.026605	0
.00067688 51.578691	3.183227	15.108183	
409.480904	400.298305	5559.634758	
60 6 Jan 2021 05:53:05.692 .00071600 51.578692			_
6 Jan 2021 05:53:05.692	6782.950858	6782.954336	0
.00071600 51.578692	2.603512	11.889466	
409.673943	399.960729	5559.545906	
70			
	6782.877672		0
.00075492 51.578643		8.670668	
409.865047	399.624027	5559.456404	
80			
7 Jan 2021 12:42:20.599	6782.803784	6782.808055	0
.00079358 51.578552			
410.053768	399.288343	5559.366063	

Page 2			
Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)			
of Apogee (km) Height of Pe	erigee (km) Sidereal :	Period (sec) Oı	bit Co
unt			
90			
8 Jan 2021 04:06:56.684	6782 729169	6782 733864	٥
0.0002201 01.00.30.001	1 007071	2 222741	U
.00083201 51.578437	1.09/0/1	2.232/41	
410.240158	396.933570	5559.2/4649	
100 8 Jan 2021 19:31:31.846 .00087025 51.578320 410.424704 110	5000 5000	6000 60000	
8 Jan 2021 19:31:31.846	6782.653940	6782.659077	0
.00087025 51.578320	1.921758	359.013590	
410.424704	398.619450	5559.182904	
110			
9 Jan 2021 10:56:06.077 .00090828 51.578223	6782.577965	6782.583561	0
.00090828 51.578223	2.045291	355.794320	
410.607073	398.286049	5559.090062	
120			
10 Jan 2021 02:20:39.367	6782.501252	6782.507323	0
.00094612 51.578160	2.254295	352.574948	
.00094612 51.578160 410.787374	397.953272	5558.996335	
10 Tan 2021 17:45:11.710	6782 423933	6782.430497	0
0000220 51 579139	2 530436	349 355499	·
410 066050	2.339430	549.333499	
10 Jan 2021 17:45:11.710 .00098380 51.578138 410.966058	397.020937	3330.901004	
140			
11 Jan 2021 09:09:43.097			U
.00102131 51.578155			
411.142882	397.289106	5558.806601	
150			
12 Jan 2021 00:34:13.520 .00105866 51.578199	6782.267242	6782.274843	0
.00105866 51.578199	3.298028	342.916467	
411.317971	396.957715	5558.710523	
I 6 ()			
12 Jan 2021 15:58:42.973	6782.188052	6782.196197	0
.00109588 51.578253			
411.491679	396.626716	5558.613837	
170			
13 Jan 2021 07:23:11.449	6782.108311	6782.117017	0
.00113296 51.578298			•
411.663874		5558.516494	
180	330.230133	3330.310434	
13 Jan 2021 22:47:38.942	6702 020127	6782 027410	0
			U
.00116992 51.578317		333.257771	
411.834832	395.965987	5558.418628	
190			_
14 Jan 2021 14:12:05.448			0
.00120675 51.578300		330.038152	
412.004516	395.636276	5558.320262	
200			
15 Jan 2021 05:36:30.961			0
.00124346 51.578241	6.017296	326.818477	

Page 3		
Time (UTCG) Ser	ni-parameter (km) Sem	i-major Axis (km) Ecc
entricity Inclination (deg)		
of Apogee (km) Height of Pe	erigee (km) Sidereal	Period (sec) Orbit Co
unt		
412.173083	395.307038	5558.221500
15 Jan 2021 21:00:55.478 .00128008 51.578141	6781.785352	6781.796465 0
.00128008 51.578141	6.666694	323.598726
412 340678	304 079252	5559 122420
.00128008 51.578141 412.340678	394.970232	3330.122420
16 Jan 2021 12:25:18.997	6781.703941	6781.715697 0
.00131659 51.578009	7.342967	320.378878
412.507424	394.649970	5558.023128
230		
17 Jan 2021 03:49:41.515	6781,622433	6781.634847 0
00135301 51 577857	8 043745	317 158918
.00135301 51.577857 412.673493	204 222222	517.130910
412.0/3493	394.322202	5557.923737
240		
17 Jan 2021 19:14:03.032	6781.540828	6781.553918 0
.00138935 51.577700	8.768638	313.938837
17 Jan 2021 19:14:03.032 .00138935 51.577700 412.838884	393.994952	5557.824248
250		
18 Jan 2021 10:38:23.548	6781 459287	6781 473069 0
.00142562 51.577554	0 F14166	210 719621
413.003892	393.668246	5557.724859
260		
19 Jan 2021 02:02:43.064	6781.377898	6781.392390 0
.00146184 51.577430	10.278835	307.498305
413.168685	393.342095	5557.625679
270		
19 Jan 2021 17:27:01.583 .00149798 51.577340	6781 206504	6791 211911 0
00140000 51 500040	0701.230334	204 20000
.00149/98 51.5//340	11.062924	304.27/867
413.333093	393.016529	5557.526622
280		
20 Jan 2021 08:51:19.106		6781.231541 0
.00153409 51.577289	11.863710	301.057330
		5557.427947
290		
21 Jan 2021 00:15:35.639	6701 12/021	6781.151640 0
21 Uaii 2021 UU:15:35.039	0/01.134921	0/01.131040
.00157016 51.577276	12.680353	
413.662142	392.367138	5557.329725
300		
21 Jan 2021 15:39:51.186	6781.054494	6781.071987 0
.00160617 51.577297	13.513361	294.616028
413.826574	392.043401	
310		
	6000 004501	6700 000000
22 Jan 2021 07:04:05.751		
.00164217 51.577342		
413.991328	391.720287	5557.134475
320		
22 Jan 2021 22:28:19.338	6780.894829	6780.913924 0

Page	4
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entricity Incli	nation (deg)	Arg of Pe	rigee (deg)	i-major Axis (km) RAAN (deg)	Heig
of Apogee (km)	Height of Pe	erigee (km)	Sidereal 1	Period (sec) O	rbit
unt					
					-
.00167810	51 577308		15 222900	288 174520	
414.155947	31.377390	391.397900	13.222900	5557.037505	
220					
330 23 Jan 2021 13:52: .00171401 414.320956	31.955	6780.81	5649	6780.835570	
.00171401	51.577451		16.098275	284.953716	
414.320956		391.076183		5556.941188	
310					
24 Jan 2021 05:16:	43.606	6780.73	6997	6780.757761	
.00174989	51.577485		16.986334	281.732883	
414.486367		390.755155		5556.845541	
350					
24 Jan 2021 20:40:	54.297	6780.65	8655	6780.680277	
.00178571	51.577485	200 424076	17.887850	278.512015	
260				5556.750294	
25 Jan 2021 12:05: .00182149	04 035	6790 59	0836	6780 603333	
00182149	51 577443	0700.30	18 801221	275 291103	
.00182149 414.817114	31.377443	390.115551	10.001221	5556.655710	
370		330.113331		3330.0337.10	
26 Jan 2021 03:29:	12.825	6780.50	3517	6780.526905	
.00185723	51.577355		19.726145	272.070130	
414.982906		389.796904		5556.561763	
380					
26 Jan 2021 18:53:	20.672	6780.42	6462	6780.450756	
.00189287	51.577221		20.663319	268.849080	
415.148259		389.479253		5556.468158	
390					
27 Jan 2021 10:17: .00192845	27.580	6780.34	9840	6780.375056	
.00192845	51.577052	200 160450	21.611392		
415.313661 400		389.162450		5556.375106	
28 Jan 2021 01:41:	22 556	6780 27	3500	6780 200750	
.00196396					
415.478984				5556.282539	
410		3001010310		3330120233	
28 Jan 2021 17:05:	38.603	6780.19	7505	6780.224607	
.00199933	51.576680		23.540158	259.185268	
415.643498		388.531717		5556.190173	
420					
29 Jan 2021 08:29:	42.723	6780.12	1674	6780.149741	
.00203460	51.576522		24.520364	255.963735	
415.807641		388.217840		5556.098147	
430					
29 Jan 2021 23:53:					
.00206972	51.576413		25.510913	252.742068	
415.970647		387.904916		5556.006007	

Page 5			
Time (UTCG) Ser	mi-parameter (km)	Semi-major Axis (km)	Ecc
entricity Inclination (deg)	Arg of Perigee	(deg) RAAN (deg)	Height
of Apogee (km) Height of P	erigee (km) Sid	ereal Period (sec) On	rbit Co
unt			
30 Jan 2021 15:17:48.189	6779.970076	6780.000110	0
.00210470 51.576370	26.	511747 249.520276	
416.133007	387.593214	5555.914222	
450			
450 31 Jan 2021 06:41:49.539 .00213955 51.576400 416.294493	6779.894451	6779.925487	0
.00213955 51.576400	27.	522368 246.298381	
416.294493	387.282481	5555.822497	
460 31 Jan 2021 22:05:49.969 .00217419 51.576498			
31 Jan 2021 22:05:49.969	6779.818689	6779.850738	0
.00217419 51.576498	28.	543322 243.076406	
416.454414	386.973063	5555.730618	
470			
1 Feb 2021 13:29:49.477	6779.742803	6779.775876	0
.00220866 51.576647	29.	573930 239.854377	
416.613085	386.664667	5555.638600	
480			
2 Feb 2021 04:53:48.061	6779.666702	6779.700809	0
.00224294 51.576817	30.	614198 236.632315	
2 Feb 2021 04:53:48.061 .00224294 51.576817 416.770289	386.357329	5555.546330	
490			
2 Feb 2021 20:17:45.718	6779.590267	6779.625416	0
.00227696 51.576976	31.	664555 233.410234	
416.925367	386.051466	5555.453661	
500	6880 513450	6880 540650	•
3 Feb 2021 11:41:42.446	6//9.513459	6//9.549659	U
.00231075 51.577091	32.	/2445/ 230.188133	
417.078535	385./46/83	5555.360544	
510	6770 436104	6770 472452	0
4 Feb 2021 03:05:38.238 .00234430 51.577137	6//9.436194	703960 226 066003	U
417.229556	33.	5555.266875	
520	365.443349	5555.266675	
4 Feb 2021 18:29:33.089	6770 250/17	6770 206720	0
.00237751 51.577103		873051 223.743824	U
		5555.172583	
530	363.141636	5555.172565	
5 Feb 2021 09:53:26.992	6779 280051	6770 210440	0
.00241043 51.576996	35	961631 220.521572	U
417.523548		5555.077574	
540	304.041333	3333.077374	
6 Feb 2021 01:17:19.941	6779 201035	6779 241496	0
.00244304 51.576836		059661 217.299224	Ū
417.666467	384.542526	5554.981772	
550	JJ 1 • J 12 J 2 U	3331.301,72	
6 Feb 2021 16:41:11.926	6779.121367	6779.162902	n
.00247526 51.576655			·
417.806085		5554.885170	
		2222300270	

Time (UTCG) Ser entricity Inclination (deg) of Apogee (km) Height of Pe	Arg of Perigee (deg)	RAAN (deg) 1 Period (sec) Ori	Height bit Co
560			
7 Feb 2021 08:05:02.940	6779.040959	6779.083570	0
.00250712 51.576488 417.942535	39.284670	210.854175	
417.942535 570	383.950604	5554.787663	
7 Feb 2021 23:28:52.973	6778.959724	6779.003410	0
.00253856 51.576367	40.411605	207.631468	•
418.075347	383.657473	5554.689139	
EON			
8 Feb 2021 14:52:42.017	6778.877811	6778.922571	0
.00256960 51.576314	41.548551	204.408651	
8 Feb 2021 14:52:42.017 .00256960 51.576314 418.204675	383.366467	5554.589780	
590 9 Feb 2021 06:16:30.063			
.00260021 51.576339	42.695575	201.185742	U
418.330353	383.077497	5554.489431	
600			
9 Feb 2021 21:40:17.103	6778.711628	6778.758529	0
.00263034 51.576438	43.852800	197.962760	
418.451987	382.791070	5554.388159	
610 10 Feb 2021 13:04:03.126 .00266001 51.576597 418.569697		6000 600001	
10 Feb 2021 13:04:03.126	6778.627368	6778.675331	0
.00266001 51.5/659/	45.020535	194./39/22	
620	302.300903	3334.203904	
11 Feb 2021 04:27:48.125	6778.542335	6778.591357	0
11 Feb 2021 04:27:48.125 .00268920 51.576792	46.199060	191.516641	
418.683348	382.225366	5554.182694	
630			
11 Feb 2021 19:51:32.091	6778.456599	6778.506670	0
.00271784 51.576997	47.388363	188.293523	
418.792559 640	381.946780	5554.078610	
12 Feb 2021 11:15:15.015	6778.370164	6778,421274	0
.00274594 51.577186	48.588952	185.070366	•
418.897443	381.671105	5553.973655	
650			
13 Feb 2021 02:38:56.889			0
.00277349 51.577338		181.847164	
418.997861	381.398585	5553.867895	
660 13 Feb 2021 18:02:37.705	6779 195405	6778.248562	0
.00280041 51.577437		178.623905	U
419.093422		5553.761385	
670			
14 Feb 2021 09:26:17.458	6778.107191	6778.161350	0
.00282671 51.577477	52.260433	175.400575	

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Time (UTCG) Ser	ni-parameter (km) Sem	i-major Axis (km)	€CC
entricity Inclination (deg)			
of Apogee (km) Height of Pe	erigee (km) Sidereal	Period (sec) Orbit	Co
unt			
419.184233	380.864467	5553.654200	
680	300,0001107	33331031200	
15 Feb 2021 00:49:56.140	6778 018509	6778 073655	0
00295236 51 577459	53.508607	172 177150	U
.00285236 51.577458	390 603163	1/2.1//139	
419.270148 690	360.603162	5555.546422	
690 15 Feb 2021 16:13:33.747 .00287730 51.577389 419.350769	CEEE 0003C3	6888 005488	_
15 Feb 2021 16:13:33.747	6777.929363	6777.985477	U
.00287730 51.577389	54.768876	168.953646	
419.350769	380.346185	5553.438050	
16 Feb 2021 07:37:10.273	6777.839920	6777.896983	0
.00290153 51.577282	56.042208	165.730024	
419.426262	380.093704	5553.329291	
710			
16 Feb 2021 23:00:45.714 .00292500 51.577156 419.496238	6777.750158	6777.808146	0
.00292500 51.577156	57.328130	162.506291	
419.496238	379.846054	5553.220112	
720			
17 Feb 2021 14.24.20 068	6777 660221	6777 719113	0
00294770 51 577028	58 627730	150 282445	Ū
410 E60922	270 602404	EEE2 110601	
17 Feb 2021 14:24:20.068 .00294770 51.577028 419.560822	3/9.003404	3333.110691	
730			
18 Feb 2021 05:47:53.333	6///.5/0180	6///.629949	U
.00296961 51.576918	59.941403	156.058491	
419.619884	379.366015	5553.001112	
740			
18 Feb 2021 21:11:25.508	6777.479961	6777.540581	0
.00299068 51.576840	61.268491	152.834439	
419.673057	379.134105	5552.891281	
750			
19 Feb 2021 12:34:56.592			0
.00301091 51.576806	62.610326	149.610301	
419.720469		5552.781419	
760			
20 Feb 2021 03:58:26.585	6777.299580	6777.361813	0
.00303026 51.576820			
		5552.671583	
770	3,0,00,002	33321072303	
20 Feb 2021 19:21:55.487	6777 209345	6777 27237	0
.00304871 51.576882	65.338677		·
419.797280		5552.561623	
780	J/U• I/JJJI	JJJ2 • JULUZJ	
780 21 Feb 2021 10:45:23.300	6777 110227	6777 10004E	^
			0
.00306624 51.576983			
419.826435	378.265455	3332.451/66	
790	4888 A444	4888 AAA	_
22 Feb 2021 02:08:50.024	6777.029247	6777.093656	0

Page 8		
		i-major Axis (km) Ecc
entricity Inclination (deg)		
of Apogee (km) Height of Po	erigee (km) Sidereal	Period (sec) Orbit Co
unt		
.00308284 51.577111	68.129586	136.713131
419.849318	378.063994	5552.342036
800		
22 Feb 2021 17:32:15.660	6776.939246	6777.004308 0
.00309846 51.577247	69.548695	133.488725
419.865590	377.869027	5552.232235
910		
23 Feb 2021 08:55:40.210 .00311310 51.577371	6776 849390	6776 915069 0
00211210 E1 E77271	70 004004	120 264271
.00311310 51.5//3/1	70.984984	130.2642/1
419.875299	377.680836	5552.122567
820		
24 Feb 2021 00:19:03.675	6776.759812	6776.826065 0
.00312672 51.577465	72.438605	127.039759
419.878334	377.499795	5552.013191
830		
24 Feb 2021 15:42:26.057	6776.670040	6776.736828 0
00212022	72 000206	122 015171
410 074040	75.303200	123.0131/1
830 24 Feb 2021 15:42:26.057 .00313933 51.577509 419.874240	3//.325415	5551.903529
010		
25 Feb 2021 07:05:47.353	6776.580341	6776.647620 0
.00315088 51.577496	75.398291	120.590486
419.863037	377.158202	5551.793902
850		
25 Feb 2021 22:29:07.565	6776.490541	6776.558267 0
.00316136 51.577422		
419.844414	376 998120	5551 684099
117.01111	370.330120	3331:004033
860 26 Feb 2021 13:52:26.689 .00317074 51.577295	CDDC 400D13	6776 460041
26 Feb 2021 13:52:26.689	6//6.400/13	6//6.468841 0
.00317074 51.577295	78.430793	114.140738
419.818264	78.430793 376.845418	5551.574206
870		
27 Feb 2021 05:15:44.726		
.00317900 51.577132	79.976431	110.915644
		5551.464132
880	0.00.00=0=	
27 Feb 2021 20:39:01.673	6776 220612	6776.289401 0
.00318611 51.576959	81.540749	
	376.562371	5551.353700
890		
28 Feb 2021 12:02:17.526	6776.130192	6776.199236 0
.00319207 51.576803	83.125550	104.465000
419.692324	376.432149	5551.242902
900		
1 Mar 2021 03:25:32.282	6776 - 039426	6776.108676 0
.00319684 51.576691		
419.633812	376.309540	
	3/0.309340	2221.121010
910		

Page 9			
Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg)	Height
of Apogee (km) Height of Pe	erigee (km) Sidereal :	Period (sec) Or	bit Co
unt	• , ,	, ,	
1 Mar 2021 18:48:45.935 .00320043 51.576641	6775.948228	6776.017633	0
.00320043 51.576641	86.356665	98.013857	
419.566782	376.194483	5551.019741	
2 Mar 2021 10:11:58.480 .00320281 51.576664	C77E 0ECE10	6775 026017	^
2 Mar 2021 10:11:58.480	6//5.856510	6//5.92601/	U
.00320281 51.576664	88.003764	94.788167	
419.491008	376.087025	5550.907162	
930			
3 Mar 2021 01:35:09.910	6775.764168	6775.833725	0
.00320398 51.576753	89.672948	91.562438	
419.406329	275 007122	51.302130 EEEO 7037E3	
	3/3.98/122	5550.795755	
940			_
3 Mar 2021 16:58:20.216 .00320393 51.576890 419.312770	6775.671191	6775.740745	0
.00320393 51.576890	91.363319	88.336687	
419.312770	375.894720	5550.679499	
950			
4 Mar 2021 08:21:29.390	6775 577416	6775 646914	٥
.00320267 51.577050	0773.377410	0F 110022	· ·
.00320207 51.577050	93.070047	65.110925	
419.210058	375.809770	5550.564200	
960			
4 Mar 2021 23:44:37.423	6775.483084	6775.552473	0
.00320017 51.577204	94.813172	81.885138	
419.098370	375.732577	5550.448152	
970			
5 Mar 2021 15:07:44.303 .00319645 51.577325 418.977205	6775 387504	6775 456920	^
00010645 F1 FFF205	0773.307334	0775.450020	U
.00319645 51.577325	96.5/3594	/8.659310	
418.977205	375.662436	5550.330616	
980			
6 Mar 2021 06:30:50.017 .00319148 51.577397	6775.291063	6775.360074	0
.00319148 51.577397	98.359226	75.433412	
418.846510	375.599638	5550.211737	
990	3731333030	33331222737	
	CDDE 103C1E	CDDE 0003EC	^
6 Mar 2021 21:53:54.552			0
.00318528 51.577415			
418.706448	375.544264	5550.091666	1
000			
7 Mar 2021 13:16:57.894	6775.095010	6775.163429	0
.00317781 51.577384		68.981287	
418.556609	375.496249	5549.970109	1
	373.490249	3349.970109	
010	/		
8 Mar 2021 04:40:00.028			0
.00316907 51.577322	103.871108	65.755017	
418.396859	375.455621	5549.847003	1
020			
8 Mar 2021 20:03:00.939	6774.894373	6774.961985	0
.00315905 51.577246		62.528597	J
418.227441		5549.722587	1
410.22/441	3/3.444349	5545./4458/	Т

entricity Inclination (deg) of Apogee (km) Height of Pount	erigee (km) Sidereal	RAAN (deg) Heig Period (sec) Orbit	ht
030			
0 Mam 2021 11.26.00 614	6774 . 792288	6774.859415	0
.00314774 51.577179 418.047919	107.683414	59.302030	Ü
418.047919	375.396912	5549.596557	1
040			
10 Mar 2021 02:48:59.035	6774.688930	6774.755519	0
.00313512 51.577138			
417.858216	375.378823	5549.468899	1
050	6774 594549	6774 650546	0
10 Mar 2021 10:11:50.100	111 613981	52 848512	U
10 Mar 2021 18:11:56.188 .00312121 51.577132 417.658682	375.368410	5549.339918	1
060	0.0000120		_
11 Mar 2021 09:34:52.058	6774.478914	6774.544269	0
.00310599 51.577167	113.625473	49.621600	
417.448917	375.365621	5549.209336	1
070			
12 Mar 2021 00:57:46.629			0
.00308944 51.577240 417.228929	115.009209	46.394610 5549 077192	1
000			_
12 Mar 2021 16:20:39.888	6774.264260	6774.328173	0
.00307160 51.577340	117.745255	43.167556	
.00307160 51.577340 416.999176	375.383171	5548.943824	1
090			
13 Mar 2021 07:43:31.820 .00305244 51.577456	6774.155336	6774.218454	0
416.759317	119.855422	39.940446	
100	3/5.403591	5546.809015	1
13 Mar 2021 23:06:22.413	6774.045563	6774.107837	0
.00303199 51.577573	121.999869	36.713281	•
416.509865	375.431808		1
110			
14 Mar 2021 14:29:11.653	6773.934805	6773.996187	0
.00301024 51.577678 416.250523	124.180642		_
	375.467851	5548.535927	1
120 15 Mar 2021 05:51:59.530	6773 823154	6773 883500	0
.00298718 51.577760			U
415.981429			1
130			
15 Mar 2021 21:14:46.032			0
.00296287 51.577811			
	375.563476	5548.258404	1
140 16 Mar 2021 12:37:31.149	6773.597754	6772 656105	0
.00293728 51.577827	130.951473	23.803886	U
52,57,627	2001301173		

entricity Inclination (deg) of Apogee (km) Height of Pount	erigee (km) Sidereal	RAAN (deg) Period (sec) Or	Height bit Co
415.415353	375.623037	5548.118204	1
150	CEE2 402001	6002 541266	•
17 Mar 2021 04:00:14.871 .00291043 51.577811	6//3.483991	6//3.541366	U
415 118252	375 690480	20.376261 5547 077125	1
415.118252 160	373.090400	3347.977123	
17 Mar 2021 19:22:57.189	6773.369736	6773.426010	0
.00288236 51.577767	135.669585	17.348543	
414.812443	375.765577	5547.835399	1
170			
170 18 Mar 2021 10:45:38.097 .00285305 51.577704 414.497719	6773.254990	6773.310124	0
.00285305 51.577704	138.094439	14.120662	
414.497719	375.848529	5547.693024	1
19 Mar 2021 02:08:17.587	6773.139850	6773.193809	0
.00282252 51.577633	140.565541	10.892632	
414.174298	375.939321	5547.550122	1
190			
19 Mar 2021 17:30:55.654	6773.024430	6773.077184	0
.00279085 51.577566	143.084176	7.664452	
413.842841	376.037527	5547.406841	1
200	6882 000882	CEEO 0C0001	•
20 Mar 2021 08:53:32.294	6772.908772	6772.960291	0
.002/5801 51.5//511 // 12 50217/	145.652659	4.43012/	1
200 20 Mar 2021 08:53:32.294 .00275801 51.577511 413.503174 210	370.143400	5547.265252	
21 Mar 2021 00:16:07.502	6772.792796	6772.843053	0
.00272404 51.577478	148.273070	1.207666	·
413.155543	376.256564	5547.119201	1
220			
21 Mar 2021 15:38:41.276	6772.676855	6772.725827	0
.00268901 51.577471		357.979082	
412.800731		5546.975184	1
230			
22 Mar 2021 07:01:13.613			0
.00265290 51.577488			
412.438580	376.504449	5546.831064	1
240			
22 Mar 2021 22:23:44.512			0
.00261585 51.577524			_
	376.638327	5546.686855	1
250 23 Mar 2021 13:46:13.972	6772 220710	6770 27270	0
		6772.373722 348.292733	U
411.694676		5546.542620	1
260	3.3.770700	JJ 10 • J 12 0 2 0	_
24 Mar 2021 05:08:41.990	6772.212654	6772.256308	0
			•

Page 12			
Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg)	Height
of Apogee (km) Height of Po			
	erigee (Am) braerear	refrod (Bec)	LDIC CO
unt			
.00253888 51.577611	162 221125	245 062707	
.00253888 51.57/611	162.221125	345.063/8/	_
411.313228	376.925388	5546.398378	1
270			
24 Mar 2021 20:31:08.566 .00249918 51.577632 410.926618	6772.096559	6772.138857	0
.00249918 51.577632	165.195790	341.834763	
410 026619	277 077006	511.051703 FF46 2F4003	1
410.920010	377.077096	5546.254093	
280			
25 Mar 2021 11:53:33.698	6771.980448	6772.021386	0
.00245871 51.577621	168.237631	338.605653	
410.534810	377 233963	5546 109784	1
290	377.233903	3340.103704	
290			
26 Mar 2021 03:15:57.384 .00241756 51.577566	6771.864288	6771.903867	0
.00241756 51.577566	171.348988	335.376441	
410.138372	377.395362	5545.965417	1
300			_
	6881 840000	6881 806050	•
26 Mar 2021 18:38:19.622	6771.748032	6771.786259	0
.00237594 51.577466	174.531884	332.147104	
409.738594	377.559924	5545.820942	1
310			
27 Mar 2021 10:00:40.408	6771 621620	6771 669522	0
			U
.00233385 51.577325	177.788791	328.917620	
409.335555	377.727489	5545.676310	1
320			
28 Mar 2021 01:22:59.741	6771.515038	6771.550593	0
.00229142 51.577158	181.121831	22E 697966	•
	101.121031	323.007900	-
408.930034	377.897151	5545.531442	1
28 Mar 2021 16:45:17.615	6771.398210	6771.432456	0
28 Mar 2021 16:45:17.615 .00224889 51.576986	184 532515	322.458127	
400 522620	270 067275	522:13012; FF4F 306333	
408.523638	378.067275	5545.386322	1
340			
29 Mar 2021 08:07:34.027	6771.281043	6771.314004	0
.00220631 51.576832		319.228100	
		5545.240815	1
	370.237400	3343.240013	
350			
29 Mar 2021 23:29:48.972	6771.163696	6771.195402	0
.00216393 51.576719	191.593840	315.997893	
407.710769	378.406036	5545.095126	1
360	3,0020000	33131033110	_
		6884 68664	•
30 Mar 2021 14:52:02.444			0
.00212186 51.576662			
407.306458	378.571950		1
370		-	_
31 Mar 2021 06:14:14.436	6770 027164	6770 056465	•
			0
.00208027 51.576665			
406.904864	378.734066	5544.801621	1
380			

Page 13		
	Semi-parameter (km) Se	
entricity Inclination (de	eg) Arg of Perigee (deg) RAAN (deg) Height
of Apogee (km) Height of	f Perigee (km) Sidereal	Period (sec) Orbit Co
unt		
31 Mar 2021 21:36:24.940 .00203946 51.576 406.508099	6770 808106	6770 836269 0
00203046 51 576	721 202 79662	5 306 306451
406 500000	202.79002	5 500.500451
390	3/0.090439	5544.6559//
1 Apr 2021 12:58:33.948 .00199953 51.576	6770.688314	6770.715384 0
.00199953 51.576	812 206.69249	7 303.075798
406.116638	379.040130	5544.505488 1
400		
400 2 Apr 2021 04:20:41.450 .00196070 51.5769 405.731854	6770.567701	6770.593729 0
.00196070 51.576	911 210.66651	0 299.845098
405.731854	379.181604	5544.356055 1
2 Apr 2021 19:42:47.438	6770.446423	6770.471468 0
.00192329 51.576	992 214.71414	0 296.614354
405.356059	379.312876	5544.205878 1
420		
3 Apr 2021 11:04:51.900 .00188742 51.577 404.989812	6770.324192	6770.348311 0
00188742 51 577	07,70,321232	3 293 383560
404 000012	270.03102	5544.054603
430	3/9.432010	3344.034603
4.3 2001 00:06:54 004	CHHO. 200220	6550 004104
4 Apr 2021 02:26:54.824 .00185332 51.577	6//0.200939	6770.224194 0
.00185332 51.577	021 223.01362	4 290.152695
404.634576	379.539812	5543.902149 1
440		
4 Apr 2021 17:48:56.200	6770.076895	6770.099353 0
.00182130 51.576	954 227.25066	5 286.921732
404.292708	379.631997	5543.748808 1
450		
5 Apr 2021 09:10:56.014	6769.951740	6769.973467 0
5 Apr 2021 09:10:56.014 .00179148 51.576	841 231.53543	8 283.690643
403.964736	379.708198	5543.594185 1
460		
6 Apr 2021 00:32:54.254	6769.825314	6769.846382 0
.00176409 51.576	699 235.85787	6 280.459404
		5543.438090 1
470	0.20.00.00	
6 Apr 2021 15:54:50.907	6769 698164	6769.718646 0
	549 240.20417	
		5543.281197 1
480	379.800339	5545.201197
	C7C0 FC00F7	6760 500024
7 Apr 2021 07:16:45.962	0/09.50905/	
.00171744 51.576		
	379.826444	5543.122973 1
490		
7 Apr 2021 22:38:39.407		
.00169851 51.576		
402.821234	379.825277	5542.963832 1

Page 14					
Time (UTCG)	Sem	ni-parameter	(km) Sem:	i-major Axis (km)	Ecc
entricity Inclinat	ion (deg)	Arg of Pe	rigee (deg)	RAAN (deg)	Height
of Apogee (km) He	ight of Pe	erigee (km)	Sidereal 1	Period (sec) C	rbit Co
unt					
500					
8 Apr 2021 14:00:31.	233	6769.31	0487	6769.329653	0
.00168262 402.582862	51.576260		253.261212	267.532738	
402.582862		379.802443		5542.803423	1
510 9 Apr 2021 05:22:21. .00166987 402.364762 520					
9 Apr 2021 05:22:21.	426	6769.17	9183	6769.198059	0
.00166987	51.576260		257.572720	264.300667	
402.364762		379.757356		5542.641798	1
520					
9 Apr 2021 20:44:09.	977	6769.04	7158	6769.065820	0
.00166039	51.576311	0.0000	261.838268	261.068464	•
402.168121	321370322	379 689520		5542 479382	1
530		373.003320		3342.473302	_
10 Apr 2021 12:05:56.	277	6768 01.	4172	6769 032603	0
0016E412	51 576406	0700.91	366 UVEGEE	257 026140	
.00165413	31.376406	270 500072	200.043033	257.030140	1
401.992413		3/9.5989/3		5542.3158//	
540	44=	6860 BO			
11 Apr 2021 03:27:42.	117	6768.78	0299	6768.798752	0
.00165109	51.576529		270.182696	254.603734	_
11 Apr 2021 03:27:4200165109 401.837669		379.485835		5542.151374	1
220					
11 Apr 2021 18:49:25.	687	6768.64	5864	6768.664320	0
.00165129	51.576664		274.235776	251.371232	
401.704346		379.350294		5541.986270	1
560					
12 Apr 2021 10:11:0700165460	583	6768.51	0708	6768.529238	0
.00165460	51.576792		278.196866	248.138648	
401.591413		379.193063		5541.820369	1
5/0					
13 Apr 2021 01:32:47.	797	6768.37	4944	6768.393616	0
.00166092					
401.498344		379.014887		5541.653806	1
580					
13 Apr 2021 16:54:26.	324	6768.23	8850	6768,257731	. 0
.00167019				241.673232	
401.425018		378.816443		5541.486922	1
590		370.010113		3341.400322	_
14 Apr 2021 08:16:03.	160	6760 10	2272	6768.121526	0
.00168223				238.440384	-
401.370077		378.598974		5541.319647	1
600	200	4865 45	5050	ABAB AASA	_
14 Apr 2021 23:37:38.					. 0
.00169693				235.207424	-
401.333166		378.363516		5541.152398	1
610					
15 Apr 2021 14:59:11.					0
.00171411	51.576853		296.397108	231.974338	

Page 15			
Time (UTCG) Ser	ni-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg)	Height
of Apogee (km) Height of Pe			
	singee (Am) biderear	reriod (Bec) Or	D10 00
unt			
401.312803	250 111154	5540 004033	-
401.312803	3/8.111154	5540.984933	
620			
16 Apr 2021 06:20:43.525	6767.692336	6767.712675	0
.00173358 51.576724	299.697668	228.741110	
401 308016	377 843333	5540 817542	1
620 16 Apr 2021 06:20:43.525 .00173358 51.576724 401.308016 630	377.043333	3340.017342	_
16 Apr 2021 21:42:13.597	6767.555721	6767.576571	0
.00175523 51.576567	302.885515	225.507726	
401.318241	377.560901	5540.650398	1
640		00 101100100	_
15 - 0001 10 00 41 000	CTCT 41000T	6868 440840	_
17 Apr 2021 13:03:41.982	6767.419327	6767.440742	0
.00177885 51.576400 401.341978	305.963984	222.274176	
401.341978	377.265506	5540.483592	1
650			
18 Apr 2021 04:25:08.685 .00180425 51.576244 401.378190	6767 202264	6767 205204	0
16 Apr 2021 04:25:06.665	0/0/.203204	6/6/.305294	U
.00180425 51.576244	308.936529	219.040454	
401.378190	376.958397	5540.317257	1
660			
18 Apr 2021 19:46:33.710	6767 147570	6767 170266	0
.00183135 51.576116	0707.147370	0707.170200	U
401.426295	376.640237	5540.151439	1
670			
19 Apr 2021 11:07:57.063	6767.012362	6767.035771	0
.00185991 51.576036	314.580368	212 572500	
401 404020			-
401.484838	3/6.312/04	5539.9862//	1
680			
20 Apr 2021 02:29:18.754	6766.877704	6766.901870	0
20 Apr 2021 02:29:18.754 .00188978 51.576014	317.261342	209.338285	
401.552832	375.976909	5539.821847	1
690	3,3,3,70303	3333.021017	_
			_
20 Apr 2021 17:50:38.788	6766.743544	6766.768512	0
.00192090 51.576053	319.855062	206.103928	
		5539.658084	1
700			
	6766 60000F	6766 635805	•
21 Apr 2021 09:11:57.175	6/66.609995	6766.635805	0
.00195304 51.576149			
401.714312	375.283299	5539.495123	1
710			
22 Apr 2021 00:33:13.920	6766 476840	6766 503531	0
.00198610 51.576284	0700.170010	100 634055	U
401.805496	374.927567	5539.332695	1
720			
22 Apr 2021 15:54:29.033	6766.344406	6766 - 372015	0
.00201999 51.576436			J
			_
	374.566986	5539.1/1199	1
730			
23 Apr 2021 07:15:42.521	6766.212538	6766.241099	0
•			

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Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km) Ec	C
entricity Inclination (deg)			
of Apogee (km) Height of Po	erigee (km) Sidereal	Period (sec) Orbit C	:0
unt			
			· –
.00205454 51.576576	320 459574	102 165277	
.00205454 51.576576	329.4305/4	193.1033//	-
402.005611	374.202586	5539.010441	Т
740			
23 Apr 2021 22:36:54.392 .00208973 51.576674	6766.081096	6766.110644	0
.00208973 51.576674	331.690961	189.930492	
402.112990	373.834298	5538.850252	1
750			
24 Apr 2021 13:58:04.651 .00212537 51.576706	6765 950100	6765 980663	0
00212537 51 576706	222 964917	186 605407	٠
.00212537 51.576706	333.00401/	100.095497	_
402.223885	373.463442	5538.690646	1
760			
25 Apr 2021 05:19:13.304	6765.819453	6765.851060	0
.00216137 51.576658	335.984227	183.460375	
402.337585	373.090534	5538.531505	1
770			
	6765 689018	6765 721697	0
25 Apr 2021 20:40:20.355 .00219775 51.576531 402.454087	330 053501	190 225105	٠
.00219775 51.576531	330.053501	160.225105	_
402.454087	372.715308	5538.372661	1
780			
26 Apr 2021 12:01:25.806	6765.558714	6765.592489	0
.00223434 51.576339	340.075869	176.989672	
402.572099	372.338879	5538.214009	1
790			
27 Apr 2021 03:22:29.659	6765.428397	6765 463291	0
.00227105 51.576112	342 054776	172 754061	•
.0022/105 51.5/0112	372.034770	1/3:/34001	1
402.690996	3/1.901386	5536.055370	_
800			
27 Apr 2021 18:43:31.912 .00230793 51.575887	6765.297980	6765.334016	0
.00230793 51.575887	343.993975	170.518273	
402.810962	371.583069	5537.896638	1
810			
28 Apr 2021 10:04:32.565	6765.167267	6765.204464	0
.00234482 51.575700			•
402.930661	371.204267		1
	3/1.20426/	5537.737566	1
820			
29 Apr 2021 01:25:31.614			0
.00238165 51.575581	347.764089	164.046204	
403.049519	370.825410	5537.577950	1
830			
29 Apr 2021 16:46:29.053	6764.904444	6764.944013	0
.00241848 51.575547			•
403.167885			1
	370.446141	5537.417778	1
840			_
30 Apr 2021 08:07:24.876			0
.00245514 51.575598			
403.284350	370.067240	5537.256667	1
850			

Page 17			
Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg)	Height
of Apogee (km) Height of Pe	erigee (km) Sidereal 1	Period (sec) Or	rbit Co
unt			
20 Apr 2021 22.29.10 074	6764 639949	6764 690947	٥
30 Apr 2021 23:28:19.074 .00249168 51.575719	0704.030343	154 227105	U
.00249168 51.5/5/19	353.191912	154.33/185	_
403.399380	369.688515	5537.094785	1
860 1 May 2021 14:49:11.638 .00252797 51.575884			
1 May 2021 14:49:11.638	6764.504716	6764.547946	0
.00252797 51.575884	354.950068	151.100674	
403.511533	369.310360	5536.931487	1
870			
2 May 2021 06:10:02.554	6764.369227	6764.413696	0
.00256396 51.576060	356 686019	147 864084	•
403.620352	368 033040	5536 766658	1
880	300.933040	3330.700038	
	6864 020650	6864 080384	•
2 May 2021 21:30:51.807	6/64.232658	6/64.2/83/4	0
.00259970 51.576218	358.402067	144.627404	
403.726480	368.556269	5536.600514	1
890			
3 May 2021 12:51:39.382 .00263507 51.576333 403.828486	6764.094561	6764.141529	0
.00263507 51.576333	0.099422	141.390619	
403.828486	368.180571	5536.432502	1
900			
4 May 2021 04:12:25.260	6763 954805	6764 003025	0
.00267002 51.576389	1 770605	120 152705	Ū
.00207002 51.570309	1.779005	130.133703	-
403.926017	367.806033	5536.262456	1
910			
4 May 2021 19:33:09.422	6763.813678	6763.863156	0
.00270463 51.576384	3.444514	134.916643	
404.019874	367.432438	5536.090734	1
920			
5 May 2021 10:53:51.850	6763.670697	6763.721431	0
.00273876 51.576322	5.094988	131.679413	
404.108660			1
930			
6 May 2021 02:14:32.519	6763 525782	6763 577768	0
.00277240 51.576219			U
	366.689419	5535.740362	1
940			
6 May 2021 17:35:11.409			0
.00280562 51.576093		125.204410	
404.271145	366.319965	5535.562085	1
950			
7 May 2021 08:55:48.498	6763.230826	6763.285310	0
.00283828 51.575965	9.972337	121.966633	
		5535.381316	1
960		 	_
8 May 2021 00:16:23.761	6763 080122	6763 135844	0
.00287040 51.575853		118.728680	0
404.411733			1
404.411/33	303.303330	5535.197823	1

Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km) E	CC
entricity Inclination (deg)			
of Apogee (km) Height of P	erigee (km) Sidereal	Period (sec) Orbit	Co
unt			
970			
8 May 2021 15:36:57.176	6762.927997	6762.984952	0
.00290201 51.575773	13.172620	115.490561	
404.474192	365.221712	5535.012580	1
980			
9 May 2021 06:57:28.722	6762.773858	6762.832036	0
.00293302 51.575736	14.759721	112.252293	
404.530567	364.859506	5534.824856	1
990			
9 May 2021 22:17:58.378	6762.618181	6762.677574	0
9 May 2021 22:17:58.378 .00296351 51.575747	16.339745	109.013888	·
404.581824	364 499323	5534 635234	2
000	304.499323	3334.033234	_
10 May 2021 13:38:26.123	6762 460599	6762 521193	0
.00299337 51.575802			U
			2
404.626933 010			
11 May 2021 04:58:51.936	6762 201206	6762 363097	0
11 May 2021 04:50:51.950	10 470476	102 526724	U
.00302260 51.575896	19.479476	102.536/24	_
404.665933	363.786042	5534.249048	2
020 11 May 2021 20:19:15.797	CECO 1404E1	6860 003400	_
11 May 2021 20:19:15.797	6762.140471	6762.203429	0
.00305127 51.576017	21.041176	99.297980	_
404.699728	363.433129	5534.053178	2
030			
12 May 2021 11:39:37.688	6761.978146	6762.042264	0
.00307929 51.576150	22.597687	96.059131	
404.727521	363.083007	5533.855338	2
040			
13 May 2021 02:59:57.592 .00310665 51.576281	6761.814383	6761.879644	0
404.749438	362.735850	5533.655714	2
050			
13 May 2021 18:20:15.494			0
.00313341 51.576395	25.697849	89.581092	
404.766243	362.391734	5533.454821	2
060			
14 May 2021 09:40:31.381	6761.483685	6761.551182	0
.00315952 51.576479	27.242312	86.341877	
404.777413	362.050952	5533.252519	2
070			
15 May 2021 01:00:45.240	6761.316828	6761.385415	0
.00318496 51.576525	28.783148	83.102510	
404.783141	361.713689	5533.049039	2
080			
15 May 2021 16:20:57.062	6761.149348	6761.219007	0
.00320977 51.576531		79.862973	

entricity Inclination (deg) of Apogee (km) Height of Pe	Arg of Perigee (deg) erigee (km) Sidereal	Period (sec) Orbit Co
	261 200004	5520 044555
404.783990 090	361.380024	5532.844775 2
16 May 2021 07.41.06 839	6760 981276	6761 051985 0
16 May 2021 07:41:06.839 .00323393 51.576499	31.857151	76.623248
404.779731	361.050239	5532.639760 2
100		
16 May 2021 23:01:14.566	6760.812851	6760.884590 0
.00325744 51.576438	33.390883	73.383321
.00325744 51.576438 404.770775	360.724405	5532.434290 2
110		
17 May 2021 14:21:20.240 .00328030 51.576361 404.757083	6760.644186	6760.716934 0
.00328030 51.576361	34.921922	70.143185
404.757083	360.402784	5532.228501 2
120		
18 May 2021 05:41:23.859	6760.475478	6760.549211 0
.00330250 51.576284		
404.738899 130	360.085524	5532.022634 2
18 May 2021 21:01:25.424	6760 306828	6760.381525 0
.00332405 51.576224	37 977925	63 662288
404.716380	359.772670	5531.816814 2
19 May 2021 12:21:24.936 .00334496 51.576196 404.689748	6760.138457	6760.214095 0
.00334496 51.576196	39.503300	60.421550
404.689748	359.464442	5531.611311 2
150		
20 May 2021 03:41:22.400	6759.970530	6760.047086 0
.00336523 51.576211	41.026766	57.180644
404.659222	359.160950	5531.406327 2
160		
20 May 2021 19:01:17.823		
.00338486 51.576269		53.939595
404.624679 170	358.862234	5531.201811 2
21 May 2021 10:21:11.211	6759 636176	6759.714495 0
.00340385 51.576367	44.072092	50.698425
404.586517	358.568472	5530.998118 2
180		
22 May 2021 01:41:02.574	6759.470151	6759.549316 0
.00342220 51.576491	45.593114	47.457153
404.544863	358.279769	5530.795387 2
190		
22 May 2021 17:00:51.920		
.00343989 51.576619		44.215786
404.499288	357.996208	5530.593410 2
200	C750 140220	6750 201107
23 May 2021 08:20:39.261	6759.140332	6759.221107 0

entricity Inclination (deg) of Apogee (km) Height of Pount	erigee (km) Sidereal	RAAN (deg) Period (sec) Or	Height bit Co
.00345693 51.576731	48.636872	40.974322	
.00345693 51.576731 404.450257 210	357.717957	5530.392572	2
23 May 2021 23:40:24.605	6758.976489	6759.058028	0
.00347327 51.576807	50.160135	37.732748	
404.397092 220	357.444964	5530.192426	2
24 May 2021 15:00:07.963	6758.813797	6758.896071	0
.00348893 51.576832	51.684124	34.491039	_
404.340389 230	357.177753	5529.993660	2
25 May 2021 06:19:49.348 .00350389 51.576806	6758.652140	6758.735119	0
.00350389 51.576806	53.208879	31.249170	
404.279965 240			2
25 May 2021 21:39:28.772	6758.491215	6758.574864	0
.00351807 51.576733 404.215015			2
250			
26 May 2021 12:59:06.245	6758.331285	6758.415573	0
.00353151 51.576632 404.146000	56.265040	24.764858	2
260			
27 May 2021 04:18:41.778 .00354419 51.576523	6758.172301	6758.257194	0
.00354419 51.576523	57.795240	21.522392	
404.072739 270	356.167648	5529.209604	2
27 May 2021 19:38:15.382	6758.013936	6758.099395	0
.00355603 51.576426	59.328800	18.279723	
403.994377 280		5529.015952	2
28 May 2021 10:57:47.064	6757.856386	6757.942374	0
.00356706 51.576359		15.036869	_
403.911384	355.699364	5528.823258	2
290 29 May 2021 02:17:16.835	6757.699558	6757.786037	0
.00357729 51.576329		11.793851	Ū
403.823565 300	355.474509	5528.631405	2
29 May 2021 17:36:44.702	6757.543140	6757.630069	0
.00358661 51.576335		8.550694	
403.730086 310		5528.440007	2
30 May 2021 08:56:10.670	6757.387250	6757.474589	0
.00359510 51.576369	65.489095	5.307417	
403.631371	355.043807	5528.249210	2
320			

Page 21			
Time (UTCG) Se	emi-parameter (km) Se	mi-major Axis (km)	Ecc
entricity Inclination (deg)) RAAN (deg)	Height
of Apogee (km) Height of 1	Perigee (km) Sidereal	Period (sec) On	rbit Co
unt			
31 May 2021 00:15:34.745 .00360272 51.576418	6757.231743	6757.319450	0
.00360272 51.576418	67.03766	9 2.064034	
403.527170	354.837731	5528.058834	2
330	3313331732	332333333	_
330 31 May 2021 15:34:56.930 .00360939 51.576463 403.416717	6757,076418	6757.164448	0
00360939 51 57646	68 59166	7 358 820549	·
402 416717	354 639170	5527 969629	2
403.416717 340	334.030179	3327.808028	2
			0
1 Jun 2021 06:54:17.227 .00361517 51.576492	0/30.921291	0/5/.009602	U
.0036151/ 51.5/649/	2 70.15020	355.5/695/	•
403.300317	354.444886	5527.678615	2
350			
1 Jun 2021 22:13:35.638	6756.766149	6756.854691	0
.00361995 51.576493	71.71528	6 352.333247	
403.177182	354.258200	5527.488525	2
260			
2 Jun 2021 13:32:52.161	6756.611002	6756.699730	0
2 Jun 2021 13:32:52.161 .00362379 51.576459 403.047575	73.28605	6 349.089401	
403.047575	354.077886	5527.298376	2
370			
3 Jun 2021 04:52:06.796	6756.455749	6756.544615	0
.00362665 51.576393	74.86313	8 345.845403	
402.911223	353.904007	5527.108040	2
380			
3 Jun 2021 20:11:19.540	6756.300249	6756.389201	0
.00362845 51.57629	7 76.44841	4 342.601235	·
402.767400	353.737003	5526.917340	2
390	333.737003	3320.317310	
390 4 Jun 2021 11:30:30.389 .00362922 51.576183	6756 144485	6756 233473	0
.00362922 51.576183	79 04110	0/30.2334/3	U
402.616322	70.04113	5526.726256	2
400	333.370023	3320.720230	2
	CREE 000300	6856 088360	•
5 Jun 2021 02:49:39.340			U
.00362894 51.576063	79.64209	7 336.112344	_
	353.422971	5526.534704	2
410			
5 Jun 2021 18:08:46.387	6755.831895	6755.920795	0
.00362752 51.575950	81.25285	1 332.867610	
	353.276531	5526.342596	2
420			
6 Jun 2021 09:27:51.525			0
.00362501 51.57585		1 329.622686	
402.116482	353.137045	5526.149919	2
430			
7 Jun 2021 00:46:54.749	6755.517652	6755.606248	0
.00362138 51.57578	7 84.50302	4 326.377580	
401.933869	353.004627		2

entricity Inclination (deg) of Apogee (km) Height of Pount	erigee (km) Sidereal :	RAAN (deg) Period (sec) Or	Height bit Co
440 7 Jun 2021 16:05:56.053	6755 359871	6755 448229	0
.00361656 51.575752	86.144655	323.132305	
401.742682	352.879777	5525.762767	2
450			
8 Jun 2021 07:24:55.430	6755.201677	6755.289741	0
.00361058 51.575749	87.797577	319.886875	
401.543248	352.762233	5525.568310	2
460	6755 042071	67EE 120702	0
0.0360338 51 575775	89 463259	316 641306	U
8 Jun 2021 22:43:52.876 .00360338 51.575775 401.335082	352.652482	5525.373278	2
470	3321032102	33231373270	_
9 Jun 2021 14:02:48.386	6754.884131	6754.971433	0
.00359501 51.575823	91.141650	313.395611	
401.118596	352.550270	5525.177769	2
480			
10 Jun 2021 05:21:41.954			0
.00358545 51.575879	92.833565	310.149800	2
400.893817 490			
10 Jun 2021 20:40:33.578	6754.565470	6754.651782	0
.00357465 51.575930	94.540360	306.903879	
.00357465 51.575930 400.660299	352.369264	5524.785589	2
300			
11 Jun 2021 11:59:23.255 .00356266 51.575961	6754.405922	6754.491654	0
.00356266 51.575961	96.262366	303.657849	
400.418615 510	352.290693	5524.589132	2
12 Jun 2021 03:18:10.983	6754 246405	6754.331502	0
.00354948 51.575961	98.000564	300.411703	· ·
400.168890	352.220115	5524.392648	2
520			
12 Jun 2021 18:36:56.762		6754.171284	0
.00353506 51.575918		297.165430	
399.910658	352.157910	5524.196084	2
530 13 Jun 2021 09:55:40.592	6752 027622	C7E4 011001	0
.00351945 51.575829			U
399.644663	352.103899		2
540	332123333	33231333707	-
14 Jun 2021 01:14:22.478	6753.768779	6753.851639	0
.00350266 51.575695	103.323398	290.672430	
399.371092	352.058186	5523.803936	2
550	CRE2 C10000	CBE0	_
14 Jun 2021 16:33:02.421 .00348464 51.575524	6753.610238	6753.692246 287.425663	0
.00340404 51.5/5524	105.13/253	407.443005	

entricity Inclination (deg) of Apogee (km) Height of Pount		RAAN (deg) Period (sec) Or	Height
399.089404	352 021088	5523 608391	2
260			
15 Jun 2021 07:51:40.429 .00346545 51.575332	6753.452427	6753,533532	0
.00346545 51.575332	106.972920	284.178693	
398.800557	351.992507	5523.413683	2
570			
15 Jun 2021 23:10:16.506	6753.295061	6753.375212	0
.00344503 51.575138	108.831440	280.931506	
.00344503 51.575138 398.503787	351.972637	5523.219460	2
580			
16 Jun 2021 14:28:50.661 .00342346 51.574964 398.200072	6753.138573	6753.217721	0
.00342346 51.574964	110.714310	277.684097	2
398.200072	351.961370	5523.026256	2
590			
17 Jun 2021 05:47:22.904	6752.983104	6753.061203	0
.00340074 51.574830	112.622931	274.436470	
397.889614	351.958792	5522.834247	2
600			
17 Jun 2021 21:05:53.246	6752.828390	6752.905392	0
.00337681 51.574751	114.558206	271.188641	•
397.571672	351.965113	5522.643109	2
610	6752 674026	6750 750700	^
18 Jun 2021 12:24:21.69/	0/52.0/4920	0/34./30/00	0
207 247244	110.521900	20/.94U031	2
610 18 Jun 2021 12:24:21.697 .00335175 51.574732 397.247344 620	331.960232	3322.433433	2
620 19 Jun 2021 03:42:48.275	6752.522821	6752.597501	0
.00332558 51.574767	118.515699	264.692470	
396.916826			2
630			_
19 Jun 2021 19:01:12.991	6752.371719	6752.445174	0
.00329823 51.574837		261.444185	
396.579290		5522.078557	2
640			
20 Jun 2021 10:19:35.862	6752.222132	6752.294324	0
.00326980 51.574915	122.597200	258.195801	
396.235947	352.078701	5521.893513	2
650			
21 Jun 2021 01:37:56.905	6752.074118	6752.145012	0
.00324030 51.574970			
	352.129017	5521.710358	2
660			
21 Jun 2021 16:56:16.135			0
.00320969 51.574975		251.698774	
	352.187992	5521.528561	2
670	4884 800000	4884 4844	_
22 Jun 2021 08:14:33.569	6751.782000	6751.850195	0

entricity Inclination (deg) of Apogee (km) Height of Pount	erigee (km) Sidereal	RAAN (deg) Period (sec) Or	Height
00217907 51 574009	120 070215	249 450120	
.00317807 51.574908 395.171069	352.255321	5521.348722	2
680 22 Jun 2021 23:32:49.222			0
.00314540 51.574766	131.179435	245.201347	
394.804508	352.330831	5521.170217	2
690	6751 405304	C751 5C0771	0
23 Jun 2021 14:51:03.111 .00311179 51.574558	133.421082	241.952427	U
394.433209	352.414334	5520.993710	2
700			
24 Jun 2021 06:09:15.253 .00307727 51.574306	6751.354479	6751.418412	0
.00307727 51.574306	135.704863	238.703338	2
394.057373 710	332.303431	3320.019092	2
24 Jun 2021 21:27:25.663	6751.214650	6751.277116	0
.00304180 51.574043	138.031440	235.454059	
393.676157	352.604075	5520.645781	2
720 25 Jun 2021 12:45:34.357	6751 076257	6751 137240	0
.00300550 51.573802	140.403696	232.204585	· ·
393.290781	352.709699	5520.474213	2
			_
26 Jun 2021 04:03:41.351 .00296841 51.573612	6750.939201	6750.998687	0
392.901403	352.821971	5520.304270	2
740			
26 Jun 2021 19:21:46.656	6750.803039	6750.861013	0
.00293048 51.573491	145.291553	225.705072	
392.507248 750	352.940778	5520.135406	2
27 Jun 2021 10:39:50.286	6750.668006	6750.724460	0
.00289184 51.573448		222.455066	
392.109460	353.065461	5519.967919	2
760 28 Jun 2021 01:57:52.251	6750 533064	67E0 E0000A	0
.00285254 51.573477			U
391.708220	353.195567	5519.801644	2
770			
28 Jun 2021 17:15:52.562			0
.00281255 51.573562 391.302921	353.330956		2
780		3319.030120	2
29 Jun 2021 08:33:51.226	6750.267847	6750.319716	0
.00277201 51.573682	155.692773	212.704302	
390.894664 790	353.470769	5519.471497	2
130			

Page 25			
Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg)	Height
of Apogee (km) Height of Pe			
unt	3 . , ,		
29 Jun 2021 23:51:48.250	6750.135765	6750.186108	0
.00273093 51.573812	158.434001	209.453851	
390.483409	353.614806	5519.307628	2
800			
800 30 Jun 2021 15:09:43.638 .00268941 51.573926	6750.003942	6750.052764	0
00268941 51 573926	161 234781	206 203310	•
390.069397	252 762121	EE10 144096	2
810	353.762131	5519.144086	2
010			_
1 Jul 2021 06:27:37.393	6749.872410	6749.919723	0
.00264754 51.574006	164.097379	202.952676	
389.653383	353.912063	5518.980917	2
820			
1 Jul 2021 21:45:29.516	6749.740949	6749.786764	0
.00260532 51.574036	167.022279	199,701936	
389.235120	354 064408	5518 817849	2
020			
2 Jul 2021 13:03:20.007 .00256294 51.574013 388.815822	6840 600408	6840 653033	•
2 Jul 2021 13:03:20.007	6749.609497	6749.653833	0
.00256294 51.574013	170.011668	196.451081	
388.815822	354.217845	5518.654818	2
040			
3 Jul 2021 04:21:08.862	6749.477901	6749.520780	0
.00252050 51.573938	173.066770	193.200097	
388.395963	354.371597	5518,491637	2
850		33_00 12_00 ;	_
3 Jul 2021 19:38:56.080	6749 346043	6740 397499	0
00047000	176 107600	100 040072	U
.00247802 51.573820	176.187688	169.9469/2	•
387.975594	354.525382	5518.328167	2
4 Jul 2021 10:56:41.654 .00243567 51.573672	6749.213782	6749.253822	0
.00243567 51.573672	179.376201	186.697695	
387.555803	354.677840	5518.164238	2
870			
5 Jul 2021 02:14:25.578	6749.080987	6749.119654	0
.00239358 51.573512			ŭ
		5517.999697	2
	354.626096	5517.999697	2
880			_
5 Jul 2021 17:32:07.845		6748.984960	0
.00235179 51.573359	185.956986		
386.720127	354.975794	5517.834512	2
890			
6 Jul 2021 08:49:48.445	6748.813542	6748.849570	0
.00231050 51.573229		176.942909	
386.305802		5517.668474	2
900		JJ_,,JUU1/I	4
7 Jul 2021 00:07:27.371	6749 670045	67/0 713615	0
			U
.00226983 51.573138			_
385.895041	355.258189	5517.501746	2

Page 26		
entricity Inclination (deg)	Arg of Perigee (deg)	
of Apogee (km) Height of Pount	_	
910	C740 F42121	6749 576699 0
7 Jul 2021 15:25:04.610 .00222989 51.573098 385.488242	0/48.543131	170 /200EE
385 488242	355 391134	5517 333826 2
920	333.371134	3317.333020
8 Jul 2021 06:42:40.152	6748.406449	6748.438840 0
.00219085 51.573114	199.928064	167.186774
385.086659	355.517021	5517.164779 2
930		
8 Jul 2021 22:00:13.983	6748.268867	6748.300142 0
.00215281 51.573187	203.581689	163.934472
384.690940	355.635345	5516.994692 2
940	6840 120026	6740 160440
9 Jul 2021 13:17:46.093	6748.130236	6748.160449 0
9 Jul 2021 13:17:46.093 .00211597 51.573308 384.302326	207.294995	5516.823387 2
950	333.744373	5510.025507
10 Jul 2021 04:35:16.467	6747.990544	6748.019752 0
.00208047 51.573465	211.064127	157.429540
383.921801	355.843703	5516.650851 2
960		
10 Jul 2021 19:52:45.094	6747.849888	6747.878146 0
.00204642 51.573637	214.883494	154.176920
383.550119	355.932174	5516.477204 2
970		
11 Jul 2021 11:10:11.960 .00201401 51.573805	6747.708190	6747.735560 0
383.188542	218.748518	5516.302356 2
980	330.008379	5516.302356 2
12 Jul 2021 02:27:37.054	6747.565485	6747.592029 0
.00198338 51.573947		
		5516.126351 2
990		
12 Jul 2021 17:45:00.363	6747.421850	6747.447629 0
.00195462 51.574046	226.588452	
	356.121923	5515.949282 3
000		
13 Jul 2021 09:02:21.877		6747.302370 0
.00192791 51.574089 382.173560		141.165263 5515.771162 3
010	330.137100	5515.771102
14 Jul 2021 00:19:41.585	6747.132045	6747.156488 0
.00190334 51.574075		
381.861631		
020		
14 Jul 2021 15:36:59.477	6746.985817	6747.009690 0
.00188102 51.574010	238.505833	134.658509

Page 27		
		i-major Axis (km) Ecc
entricity Inclination (deg)		
of Apogee (km) Height of Pe	erigee (km) Sidereal	Period (sec) Orbit Co
unt		
381.563939	356.181440	5515.412276 3
030		
15 Jul 2021 06:54:15.544	6746.838827	6746.862195 0
.00186106 51.573911		
381.281489	356.168900	5515.231420 3
040 15 Jul 2021 22:11:29.776 .00184350 51.573804	CT45 CO4404	6746 F14100
15 Jul 2021 22:11:29.776	6746.691194	6746.714123 0
.00184350 51.573804	246.451485	128.150992
381.014684	356.139561	5515.049859 3
050	5745 74222	
16 Jul 2021 13:28:42.169 .00182845 51.573715	6746.543081	6746.565637 0
.00182845 51.573715	250.396379	124.896950
380.764387	356.092886	5514.867792 3
060		
17 Jul 2021 04:45:52.717	6746.394589	6746.416837 0
.00181596 51.573672	254.310692	121.642743
380.531047	356.028626	5514.685342 3
070		
17 Jul 2021 20:03:01.416	6746.245653	6746.267658 0
.00180603 51.573693	258.183315	118.388396
17 Jul 2021 20:03:01.416 .00180603 51.573693 380.314587	355.946728	5514.502429 3
080		
18 Jul 2021 11:20:08.265	6746.096512	6746.118338 0
.00179871 51.573783	262.007802	115.133938
380.115635	355.847040	5514.319345 3
090	6845 048056	
19 Jul 2021 02:37:13.261		
.00179401 51.573937	265.776362	111.879393
379.934323	355.729612	5514.136202 3
100	6845 808850	6845 010410 0
19 Jul 2021 17:54:16.404	6/45./9//52	6/45.819412 0
.00179189 51.574132 379.770176		108.624776
	355.594647	5513.952834 3
110	CE45 C40001	6845 660050
20 Jul 2021 09:11:17.695		
.00179235 51.574340		
	355.442318	5513.769584 3
120	CD45 400014	
21 Jul 2021 00:28:17.135		
.00179536 51.574529		
	355.273136	5513.586663 3
130 21 Jul 2021 15:45:14.726	C745 340505	CD45 251400
21 JUL 2U21 15:45:14.726	6745.349525 280.152540	6745.371400 0
.00180083 51.574672		
379.381680	355.087120	5513.403543 3
140	6745 200107	6745 222265 0
22 Jul 2021 07:02:10.469	0/43.20019/	6745.222265 0

entricity Inclination (deg) of Apogee (km) Height of Pount	Arg of Perigee (deg) erigee (km) Sidereal	Period (sec) Orbit Co
	000 55050	05 405455
.00180875 51.574749 379.285682	283.550598 354.884847	95.605455 5513.220698 3
22 Jul 2021 22:19:04.364	6745.050787	6745.073105 0
.00181899 51.574756 379.205330	286.862657 354.666880	92.350291 5513.037825 3
160 23 Jul 2021 13:35:56.413 .00183153 51.574699	6744.901550	6744.924176 0
379.140709	290.090565 354.433642	89.094937 5512.855237 3
170		
24 Jul 2021 04:52:46.619 .00184629 51.574595 379.091261	293.234029 354.185652	85.839377 5512.672908 3
24 Jul 2021 20:09:34.984	6744.603257	6744.626669 0
.00186312 51.574467 379.055741	296.290511 353.923598	82.583606 5512.490498 3
190 25 Jul 2021 11:26:21.507	6744.454127	6744.478016 0
.00188200 51.574338 379.034141	299.264134	79.327627
200 26 Jul 2021 02:43:06.191 .00190284 51.574228		
.00190284 51.574228 379.025793	302.156485 353.359066	76.071455 5512.126093 3
210		
26 Jul 2021 17:59:49.035 .00192547 51.574152 379.029386	304.966715	72.815111 5511.943683 3
220 27 Jul 2021 09:16:30.038		
.00194989 51.574117 379.044850	307.700225	69.558615
230 28 Jul 2021 00:33:09.198		
.00197597 51.574124	310.359658	66.301988
379.071477 240	352.420030	5511.578502 3
28 Jul 2021 15:49:46.513 .00200360 51.574165	312.945238	63.045245
379.107990 250	352.084568	
29 Jul 2021 07:06:21.978 .00203272 51.574230	315.462808	59.788398
379.154273 260	351.738576	5511.211556 3

Time (UTCG)	Page 29				
of Apogee (km) Height of Perigee (km) Sidereal Period (sec) Orbit Cont 1	Time (UTCG)	Semi-parameter	(km) Semi	i-major Axis (km)	Ecc
nt					
9 Jul 2021 22:22:55.587 6743.404287 6743.432992 0 00206321 51.574304 317.912944 56.531449 379.209107 351.382878 5511.027146 3 00 Jul 2021 13:39:27.334 6743.252373 6743.281970 0 0 Jul 2021 13:39:27.334 6743.252373 532.301497 53.274396 379.272357 351.017583 5510.842014 3 80 1 Jul 2021 04:55:57.211 6743.099695 6743.130234 0 00212811 51.574426 322.631644 50.017231 379.343350 350.643118 5510.656009 3 1 Jul 2021 20:12:25.207 6742.946132 6742.977659 0 0021280 51.574453 324.904251 46.759940 379.42103 379.505132 350.260316 5510.468978 3 00 1 Aug 2021 11:28:51.314 6742.791595 6742.824159 0 00219759 51.574449 327.124871 43.502509 379.595114 51.5744413 329.296556 40.244920 379.595114 51.574413 329.296556 40.244920 379.595114 51.574413 329.296556 40.244920 379.595114 51.574489 331.42022 36.987161 379.78930 349.63969 5500.091380 3 00 2 Aug 2021 18:01:37.808 6742.479219 6742.513996 0 00223921 379.59514 349.63969 5500.091380 30 379.789630 51.574468 349.063969 5509.900619 3 379.789630 51.574264 333.500934 33.729219 379.789630 51.574264 333.500934 33.729219 379.789630 51.574264 333.500934 33.729219 379.789630 51.574168 379.893361 50.574268 335.541456 30.471086 379.893361 50.574268 335.541456 30.471086 379.893361 50.574268 335.541456 30.471086 379.893361 50.574268 335.541456 50.990659 3 30.471086 379.893361 50.574268 335.541456 30.471086 379.893361 50.574268 335.541456 50.990659 3 30.471086 379.893361 50.574268 335.541456 50.990659 3 30.471086 379.893361 50.574268 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.990639 50.574168 335.541456 50.9906		ght of Perigee (km)	Sidereal E	Period (sec) 0	rbit Co
9 Jul 2021 22:22:55.587 6743.404287 6743.432992 0 00206321 51.574304 317.912944 56.531449 379.209107 351.382878 5511.027146 3 70 Jul 2021 13:39:27.334 6743.252373 6743.281970 0 0 Jul 2021 13:39:27.334 574373 320.301497 53.274396 379.272357 351.017583 5510.842014 3 80 1 Jul 2021 04:55:57.211 6743.099695 6743.130234 0 00212811 51.574426 322.631644 50.017231 379.343350 350.643118 5510.656009 3 90 1 Jul 2021 20:12:25.207 6742.946132 6742.977659 0 00216230 51.574453 324.904251 46.759940 379.421003 350.260316 5510.468978 3 00 1 Aug 2021 11:28:51.314 6742.791595 6742.824159 0 00219759 51.574449 327.124871 43.502509 379.595114 329.296556 40.244920 379.595114 329.295114 329.296556 40.244920 379.595114 329.296556 40.244920 379.59514 329.296556 40.244920 379.59514 379.690024 51.574464 3331.420222 36.987156 330.227112 51.574349 331.420222 36.987166 379.690024 51.574264 333.50094 5509.900619 379.690024 51.574264 379.78930 348.650681 5509.708368 348.20020 51.574264 379.78930 348.650681 5509.708368 3 00227112 51.574369 331.420222 36.987156 0 00234809 51.574168 6742.321203 6742.357156 0 00234809 51.574168 333.500944 333.72219 379.893361 348.650681 5509.708368 3 00234809 51.574168 333.50094 5509.708368 3 00234809 51.574168 333.50094 5509.708368 3 00234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 339.50904 5509.708368 3 002234809 51.574168 339.50904 27.212760 5509.708368 3 002234809 51.574168 339.509041 23.954244 5509.12203 70 00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545					
9 Jul 2021 22:22:55.587 6743.404287 6743.432992 0 00206321 51.574304 317.912944 56.531449 379.209107 351.382878 5511.027146 3 70 Jul 2021 13:39:27.334 6743.252373 6743.281970 0 0 Jul 2021 13:39:27.334 574373 320.301497 53.274396 379.272357 351.017583 5510.842014 3 80 1 Jul 2021 04:55:57.211 6743.099695 6743.130234 0 00212811 51.574426 322.631644 50.017231 379.343350 350.643118 5510.656009 3 90 1 Jul 2021 20:12:25.207 6742.946132 6742.977659 0 00216230 51.574453 324.904251 46.759940 379.421003 350.260316 5510.468978 3 00 1 Aug 2021 11:28:51.314 6742.791595 6742.824159 0 00219759 51.574449 327.124871 43.502509 379.595114 329.296556 40.244920 379.595114 329.295114 329.296556 40.244920 379.595114 329.296556 40.244920 379.59514 329.296556 40.244920 379.59514 379.690024 51.574464 3331.420222 36.987156 330.227112 51.574349 331.420222 36.987166 379.690024 51.574264 333.50094 5509.900619 379.690024 51.574264 379.78930 348.650681 5509.708368 348.20020 51.574264 379.78930 348.650681 5509.708368 3 00227112 51.574369 331.420222 36.987156 0 00234809 51.574168 6742.321203 6742.357156 0 00234809 51.574168 333.500944 333.72219 379.893361 348.650681 5509.708368 3 00234809 51.574168 333.50094 5509.708368 3 00234809 51.574168 333.50094 5509.708368 3 00234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 333.50094 5509.708368 3 002234809 51.574168 339.50904 5509.708368 3 002234809 51.574168 339.50904 27.212760 5509.708368 3 002234809 51.574168 339.509041 23.954244 5509.12203 70 00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.00246874 51.573924 341.441337 50.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545 500.695545					
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00238768 51.574073 337.542656 27.212760 380.000453 347.804843 5509.319182 3 60 60 6741.839069 6741.878811 0 00242793 51.573988 339.509041 23.954244 380.110622 347.373001 5509.122039 3 70 6741.675532 6741.716620 0 00246874 51.573924 341.441337 20.695545	4 Aug 2021 15:50:33.04	6742.00	1212	6742.039648	0
60 5 Aug 2021 07:06:47.523 6741.839069 6741.878811 0 00242793 51.573988 339.509041 23.954244 380.110622 347.373001 5509.122039 3 70 5 Aug 2021 22:23:00.011 6741.675532 6741.716620 0 00246874 51.573924 341.441337 20.695545	00238768 51	L.574073	337.542656	27.212760	
5 Aug 2021 07:06:47.523 6741.839069 6741.878811 0 00242793 51.573988 339.509041 23.954244 380.110622 347.373001 5509.122039 3 70 5 Aug 2021 22:23:00.011 6741.675532 6741.716620 0 00246874 51.573924 341.441337 20.695545		347.804843		5509.319182	3
380.110622 347.373001 5509.122039 3 70 5 Aug 2021 22:23:00.011 6741.675532 6741.716620 0 00246874 51.573924 341.441337 20.695545	50				
380.110622 347.373001 5509.122039 3 70 5 Aug 2021 22:23:00.011 6741.675532 6741.716620 0 00246874 51.573924 341.441337 20.695545	5 Aug 2021 07:06:47.52	6741.83	9069	6741.878811	0
380.110622 347.373001 5509.122039 3 70 5 Aug 2021 22:23:00.011 6741.675532 6741.716620 0 00246874 51.573924 341.441337 20.695545	00242793 51	L.573988	339.509041	23.954244	
5 Aug 2021 22:23:00.011 6741.675532 6741.716620 0 00246874 51.573924 341.441337 20.695545	380.110622	347.373001		5509.122039	3
00246874 51.573924 341.441337 20.695545					
					0
380.223196 346.936045 5508.923239 3					
	380.223196	346.936045		5508.923239	3

entricity Inclination (deg) of Apogee (km) Height of Pount	Arg of Perigee (deg) erigee (km) Sidereal	Period (sec) Orbit Co
380 6 Aug 2021 13:39:10.490	6741 510464	6741 552040 0
6 Aug 2021 13:39:10.490 .00251009 51.573887	343.343708	17.436675
.00251009 51.573887 380.337865	346.494014	5508.722615 3
390		
7 Aug 2021 04:55:18.940	6741.343852	6741.387753 0
.00255191 51.573878	345.218381	14.177646 5508.520148 3
380.454143 400	340.04/303	5506.520146
7 Aug 2021 20:11:25.345	6741.175796	6741.221159 0
.00259409 51.573893	347.065875	10.918474
7 Aug 2021 20:11:25.345 .00259409 51.573893 380.571478	345.596841	5508.315959 3
410 8 Aug 2021 11:27:29.688		
.00263660 51.573926	348.889840	7,659169
380.689517		
420		
9 Aug 2021 02:43:31.950	6740.835102	6740.883495 0
.00267937 51.573963	350.692144	4.399739
380.807820 430		
9 Aug 2021 17:59:32.114 .00272232 51.573991	6740 - 662595	6740.712551 0
.00272232 51.573991	352.473047	1.140184
380.925940	344.225161	5507.692587 3
440		
10 Aug 2021 09:15:30.164 .00276540 51.573994	6740.488657	6740.540205 0
381.043506	354.235/25	357.880498 5507.481358 3
450		
11 Aug 2021 00:31:26.083	6740.313357	6740.366525 0
.00280854 51.573961	355.981692	354.620667
381.160109	343.298941	5507.268497 3
460 11 Aug 2021 15:47:19.855	6740 136736	6740.191538 0
.00285168 51.573885		351.360670
381.275387	342.833688	5507.054037 3
470		
12 Aug 2021 07:03:11.465		
.00289475 51.573769		
381.388938 480	342.367639	5506.838032 3
12 Aug 2021 22:19:00.898	6739.779633	6739.837798 0
.00293771 51.573621		344.840086
381.500465	341.901132	5506.620510 3
490	4800 F000-1	
13 Aug 2021 13:34:48.140 .00298048 51.573457	6739.599254	6739.659124 0 341.579460
.00230040 51.5/345/	2.01/602	341.3/3400

Time (UTCG) Ser entricity Inclination (deg) of Apogee (km) Height of Pe		RAAN (deg) Height	t
unt			
			_
			_
381.609541	341.434707	5506.401539	3
500			
14 Aug 2021 04:50:33.175 .00302301 51.573299	6739.417714	6739.479303	0
.00302301 51.573299	4.497352	338.318600	
381.715800	340.968806	5506.181166	3
510			
14 Aug 2021 20:06:15.992	6739.234976	6739.298297	0
.00306527 51.573167	6.166700	335.057509	
381.819058	340.503537	5505.959344	3
520			_
15 Aug 2021 11:21:56.575 .00310718 51.573076 381.918799	6739.051117	6739.116180	0
.00310718 51.573076	7.828205	331.796206	3
530	340.039561	5505.736163	3
16 Aug 2021 02:37:34.913			0
.00314867 51.573032	9 483005	328 534713	
382.014636			3
540	333.37,271	3303.311020	_
16 Aug 2021 17:53:10.992	6738.679956	6738.748519	0
.00318975 51.573032	11.130846	325.273060	
382.106458	339.116581	5505.285610	3
17 Aug 2021 09:08:44.797	6738.492611	6738.562927	0
.00323031 51.573061	12.774200	322.011270	
17 Aug 2021 09:08:44.797 .00323031 51.573061 382.193574	338.658279	5505.058179	3
560			
18 Aug 2021 00:24:16.316	6738.304008	6738.376074	0
.00327029 51.573098	14.414115	318.749360	_
382.275523	338.202624	5504.829207	3
570 18 Aug 2021 15:39:45.533	6730 114134	6738.187945	0
.00330969 51.573119		315.487333	U
382.352277			3
580	337.749013	3304.330074	,
19 Aug 2021 06:55:12.432	6737.922928	6737.998473	0
.00334839 51.573104		312.225180	-
382.422930			3
590			
19 Aug 2021 22:10:36.997			0
.00338641 51.573040	19.316684	308.962880	
	336.853512	5504.132512	3
600			
20 Aug 2021 13:25:59.210			0
.00342362 51.572923		305.700407	_
382.545039	336.410985	5503.896624	3
610	6727 240150	6727 420905 4	0
21 Aug 2021 04:41:19.051	6737.340150	6737.420805	U

Page 32		
Time (UTCG) Ser entricity Inclination (deg) of Apogee (km) Height of Po	Arg of Perigee (deg	
unt		
.00345995 51.572760	22.58164	3 302.437732
.00345995 51.572760 382.594942	335.972668	5503.658657 3
020		
21 Aug 2021 19:56:36.499	6737.142465	6737.224782 0
.00349546 51.572564	24.21436	5 299.174830 5503.418468 3
382.637464 630		
22 Aug 2021 11:11:51.532 .00352999 51.572356 382.671408	6736.942794	6737.026743 0
.00352999 51.572356	25.84903	9 295.911681
382.671408	335.108077	5503.175812
040		
23 Aug 2021 02:27:04.124	6736.740936	6736.826485 0
.00356351 51.572157	27.48626	9 292.648276
382.696266	334.682704	5502.930441 3
650	6736 536930	6736.623956 0
23 Aug 2021 17:42:14.249	0/30.530039	8 289 384614
.00359609 51.571983 382.712494	334.261419	5502.682292
660		
24 Aug 2021 08:57:21.877 .00362758 51.571851 382.718717	6736.330158	6736.418804 0
.00362758 51.571851	30.76807	3 286.120701
382.718717	333.844892	5502.430932 3
670		
25 Aug 2021 00:12:26.976 .00365796 51.571767	6/36.12U611	6736.210745 0
382.714502	32.41515	5502.176015
680	333.132303	3302.170013
25 Aug 2021 15:27:29.511	6735.908331	6735.999914 0
25 Aug 2021 15:27:29.511 .00368728 51.571732	34.06590	1 279.592181
382.700423	333.025406	5501.917704 3
690		
26 Aug 2021 06:42:29.446	6735.692775	6735.785758 0 7 276.327605
.00371541 51.571740 382.674964	332.622551	5501.655324
700	332.022331	3301.033324
26 Aug 2021 21:57:26.742	6735.474077	6735.568415 0
.00374245 51.571780		
382.638945	332.223885	5501.389045 3
710		
27 Aug 2021 13:12:21.358	6735.251638	6735.347277 0
.00376824 51.571839	39.05134	8 269.797889
382.590677 720	331.829878	5501.118120 3
28 Aug 2021 04:27:13.246	6735.025200	6735.122084 0
.00379275 51.571898	40.72661	7 266.532766
382.529697	331.440471	5500.842231 3
730		

Page 33			
Time (UTCG) Ser entricity Inclination (deg) of Apogee (km) Height of Po	Arg of Perigee		Height
unt			
28 Aug 2021 19:42:02.358 .00381608 51.571944	6734.795052	6734.893128	0
.00381608 51.571944	42.	408435 263.267464	
382.457036	331.055221	5500.561738	3
29 Aug 2021 10:56:48.646 .00383808 51.571961	6734.560463	6/34.6596/1	U
.00383808 51.5/1961	220 674500	098/10 260.0019/9	2
382.370842	330.6/4500	5500.2/5/34	3
750	6734 331306	6724 421470	^
30 Aug 2021 02:11:32.053 .00385872 51.571942	6/34.321206	707051 256 726207	U
.003656/2 51.5/1942	45.	79/951 250./3029/ E400 003036	3
382.270695 760	330.298264	5499.983936	3
30 Aug 2021 17:26:12.525	6734.077730	6734.179009	0
.00387810 51.571881	47	505383 253 470401	
382.157829	329.926190	5499.686902	3
770			
31 Aug 2021 08:40:50.005	6733.829215	6733.931432	0
.00389607 51.571780	49.	222788 250.204272	J
31 Aug 2021 08:40:50.005 .00389607 51.571780 382.030291	329.558573	5499.383617	3
/80			
31 Aug 2021 23:55:24.432 .00391265 51.571646	6733.575946	6733.679031	0
.00391265 51.571646	50.	949581 246.937891	
381.888591	329.195471	5499.074428	3
790			
1 Sep 2021 15:09:55.747	6733.317605	6733.421489	0
.00392786 51.571490	52.	687039 243.671239	
381.732445	328.836534	5498.758948	3
800			
2 Sep 2021 06:24:23.884	6733.053798	6733.158405	
.00394159 51.571331	54.	435720 240.404300	
381.560732	328.482077	5498.436684	3
810			
2 Sep 2021 21:38:48.781	6732.785202	6732.890462	0
.00395395 51.571186		194886 237.137061	
	328.131948	5498.108476	3
820			
3 Sep 2021 12:53:10.374		6732.616812	0
.00396479 51.571074		965954 233.869517	_
	327.786375	5497.773283	3
830	6830 031003	6820 228410	•
4 Sep 2021 04:07:28.592	0/32.231083	6732.337410	0
3213,2022	55.	749153 230.601667 5497.431053	3
380.955411 840	327.445410	349/.43IU33	3
4 Sep 2021 19:21:43.373	6731 046292	6732 053020	0
.00398201 51.571012		543848 227.333517	J
380.723110		5497.082731	3
		2 25 , 1002 , 01	3

entricity Inclination (deg) of Apogee (km) Height of Pount	Arg of Perigee (deg) erigee (km) Sidereal	Period (sec) Orbit Co
850 5 Sep 2021 10:35:54.649	6721 655012	6721 762805 0
.00398835 51.571076	63.351140	224.065077
380.474552	326.777239	5496.727370 3
860		
6 Sep 2021 01:50:02.353		
.00399314 51.571201	65.171158	220.796360 5496.365033
380.209736 870	326.450383	5496.365033
	6731.058815	6731.166325 0
.00399649 51.571372	67.003474	217.527376
6 Sep 2021 17:04:06.421 .00399649 51.571372 379.930355	326.128295	5495.996704 3
880		
7 Sep 2021 08:18:06.788 .00399826 51.571567	6730.752454	6730.860054 0
379.634795	325.811313	5495.621603
890		
7 Sep 2021 23:32:03.393	6730.441467	6730.549079 0
.00399858 51.571756	70.707055	210.988648
379.324724 900		
8 Sep 2021 14:45:56.176 .00399732 51.571911	6730.125245	6730.232784 0
.00399732 51.571911	72.578573	207.718905
370.330040	325.192920	5494.853389 3
910		
9 Sep 2021 05:59:45.072 .00399445 51.572005	6729.804021	6729.911401 0
378.656711	74.463472	5494.459808 3
920	321.032032	3434.433000
9 Sep 2021 21:13:30.024	6729.478495	6729.585637 0
.00399011 51.572020	76.361922	201.178599
378.300451 930	324.596823	5494.060871 3
10 Sep 2021 12:27:10.977	6729.148340	6729.255157 0
.00398416 51.571954		197.907995
377.928578	324.307736	5493.656167 3
940		
11 Sep 2021 03:40:47.874		
.00397658 51.571818 377.541250		194.637056 5493.245977 3
950	321.023123	3433.243377
11 Sep 2021 18:54:20.664	6728.475372	6728.581286 0
.00396748 51.571636		191.365762
377.139812	323.748760	5492.830982 3
960 12 Sep 2021 10:07:49.298	6728.132953	6728.238289 0
.00395674 51.571442	84.092989	188.094101

rage 35		
Time (UTCG) Ser	ni-parameter (km) Sem	i-major Axis (km) Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg) Height
of Apogee (km) Height of Pe		
	singee (Am) bideredi	reriod (Bec) orbit co
unt		
200 002155	202 450404	E400 410000
376.723155	323.4/9424	5492.410983
13 Sep 2021 01:21:13.726	6727.786741	6727.891412 0
.00394433 51.571272	86.060006	184.822068
376 201417	323 217407	5491.986243 3
13 Sep 2021 01:21:13.726 .00394433 51.571272 376.291417	323.217407	5151.500215
300		
13 Sep 2021 16:34:33.905	6727.437098	6727.541024 0
.00393037 51.571155	88.041602	181.549670
375.845733	322.962314	5491.557215 3
990		01711007110
14 4	6000 000000	6000 100006 0
14 Sep 2021 07:47:49.792	6727.083992	6727.187086 0
.00391472 51.571111	90.036605	178.276921
375.385134	322.715039	5491.123853 4
000		
14 Sep 2021 23:01:01.344 .00389749 51.571142 374.910621	6726 727659	6726.829842 0
14 Sep 2021 23:01:01.344	0/20./2/050	0/20.029042 0
.00389749 51.571142	92.046445	175.003836
374.910621	322.475063	5490.686453 4
010		
15 Sep 2021 14:14:08.521	6726 368111	6726.469299 0
15 bep 2021 14.14.00.521	0/20.300111	171 720420
.00387855 51.571236		
374.421264	322.243333	5490.245026 4
020		
16 Sep 2021 05:27:11.285	6726.005445	6726.105551 0
00385788 51 571368	96.105985	168 456710
.00385788 51.571368	200 000041	5400 500605
373.917061	322.020041	5489.799687 4
030		
16 Sep 2021 20:40:09.595	6725.639689	6725.738637 0
16 Sep 2021 20:40:09.595 .00383559 51.571508	98.157725	165.182677
373.398797	321.804476	5489.350484 4
	321.004470	3403.330404
040		
17 Sep 2021 11:53:03.414		
.00381153 51.571625	100.222894	161.908322
		5488.897432 4
050		-
	6804 000055	6804 005334
18 Sep 2021 03:05:52.701	6724.898955	6724.995334 0
.00378569 51.571693	102.301585	158.633628
		5488.440516 4
060		
18 Sep 2021 18:18:37.419	6724 F220F2	6724.618831 0
.00375817 51.571697		
371.754104	321.209558	5487.979612 4
070		
19 Sep 2021 09:31:17.524	6724.145502	6724.238997 0
.00372883 51.571630		
	321.028459	5487.514643 4
080		
20 Sep 2021 00:43:52.977	6723.763752	6723.855684 0
_		

Page 36		
		i-major Axis (km) Ecc
entricity Inclination (deg)		
of Apogee (km) Height of P	erigee (km) Sidereal	Period (sec) Orbit Co
unt		
.00369764 51.571498	108.629847	148.807300
370.581055	320.856312	5487.045429 4
090		
20 Sep 2021 15:56:23.731	6723.378414	6723.468711 0
.00366471 51.571315	110.771833	145.531045
360 971 261	320 692161	5486.571748 4
369.971261	320.032101	5400.571740
100		
21 Sep 2021 07:08:49.740 .00362988 51.571099	6722.989278	6723.077862 0
.00362988 51.571099	112.929480	142.254362
369.344836	320.536888	5486.093337 4
110		
21 Sep 2021 22:21:10.955	6722.596147	6722.682948 0
.00359328 51.570872	115 106877	138 977248
360 700400	200 200407	130.977240
368.702409	320.38948/	5485.609964 4
120		
22 Sep 2021 13:33:27.323 .00355473 51.570656 368.042499	6722.198679	6722.283623 0
.00355473 51.570656	117.301447	135.699705
368.042499	320.250746	5485.121205 4
130		
23 Sep 2021 04:45:38.788	6721 796535	6721.879547 0
.00351421 51.570469	110 514011	120 401 520
.00351421 51.5/0469	119.514011	132.421/39
367.364621	320.120474	5484.626648 4
140		
23 Sep 2021 19:57:45.290	6721.389574	6721.470593 0
.00347185 51.570323	121.749354	129.143362
366.669548	319.997637	5484.126134 4
150 24 Sep 2021 11:09:46.766 .00342749 51.570226	6720 077222	6721.056189 0
24 Sep 2021 11:09:46.766	0/20.9//232	0/21.030109 0
.00342749 51.570226	124.004921	125.864582
365.955556	319.882821	5483.618967 4
160		
25 Sep 2021 02:21:43.145	6720.559103	6720.635933 0
.00338111 51.570178		122.585410
	319.775712	
170	313.773712	3103.101033
	6700 135100	6000 000000
25 Sep 2021 17:33:34.355	6/20.135182	6720.209829 0
.00333286 51.570174	128.585994	119.305853
364.470366	319.675293	5482.583200 4
180		
26 Sep 2021 08:45:20.320	6719.704681	6719.777089 0
.00328258 51.570204	130.914655	116.025913
363.698272		5482.053641 4
	319.301900	J=02.055041 4
190		
26 Sep 2021 23:57:00.947		
.00323026 51.570254	133.271966	112.745587
362.904437	319.494032	5481.514170 4
200		

Page 37			
Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)			
of Apogee (km) Height of Pe			
unt			
27 Sep 2021 15:08:36.151 .00317607 51.570308	6718.821755	6718.889531	0
.00317607 51.570308	135.659771	109.464866	
362.092192	319.412870	5480.967561	4
210			
210 28 Sep 2021 06:20:05.847 .00311986 51.570351	6718 369584	6718 434978	0
00311086 51 570351	139 079330	106 193736	Ū
361 350543	210 227414	5400 411364	4
301.230342	319.337414	5480.411364	4
28 Sep 2021 21:31:29.939	6717.909920	6717.972899	0
.00306181 51.570369	140.534502	102.902179	
360.405072	319.266725	5479.845978	4
230			
29 Sep 2021 12:42:48.328	6717 441724	6717 502254	0
00200170 F1 F702F2	142 026752	00 620172	U
.00300179 51.570352 359.529790	143.026/52	99.620172	
359.529790	319.200718	5479.270131	4
240			
30 Sep 2021 03:54:00.906	6716.964650	6717.022703	0
.00293983 51.570294	145.558088	96.337688	
30 Sep 2021 03:54:00.906 .00293983 51.570294 358.632610	319.138796	5478.683408	4
250			
30 Sep 2021 19:05:07.566	6716 470216	6716 534776	0
30 Sep 2021 19:03:07.500	0/10.4/9210	0710.554770	U
.00287614 51.570197	148.136362	93.054704	_
357.715474	319.080078	5478.086458	4
260			
1 Oct 2021 10:16:08.197	6715.984360	6716.037413	0
.00281061 51.570066	150.760834	89.771196	
356.776589	319.024237	5477.477987	4
			_
2 Oct 2021 01:27:02.681 .00274332 51.569913	6715 470965	6715 530405	0
2 OCL 2021 01:27:02.001	0/15.4/9005	6/15.550405	U
.00274332 51.569913	153.435516	86.48/145	
355.816220	318.970589	5476.857738	4
280			
2 Oct 2021 16:37:50.904			0
.00267448 51.569754	156.169478	83.202540	
	318.918287		4
290			
3 Oct 2021 07:48:32.748	6714 442066	6714 400507	0
00000404	150 063003	0/14.40039/	U
.00260404 51.569608	158.963023		
	318.866779	5475.583317	4
300			
3 Oct 2021 22:59:08.097	6713.910569	6713.953620	0
.00253225 51.569491	161.826204	76.631654	
		5474.928929	4
310			•
4 Oct 2021 14:09:36.832	6713 360001	6712 400607	0
			U
.00245908 51.569417			_
351.780515	318.762859	5474.262390	4

Page 30		
Time (UTCG)	Semi-parameter (km) S	emi-major Axis (km) Ecc
entricity Inclination (de	g) Arg of Perigee (de	g) RAAN (deg) Height
of Apogee (km) Height of	Perigee (km) Siderea	l Period (sec) Orbit Co
unt	3 ,	(1111)
320		
5 Oct 2021 05:19:58.831	6712.815696	6712.853870 0
.00238468 51.5693	94 167.7711	89 70.058584
350.724877	318.708862	5473.583788 4
5 Oct 2021 05:19:58.831 .00238468 51.5693 350.724877	3201700002	31,3033,33
5.50 F 0.55 2021 20.20.12 076	6710 054101	6712 200077 0
5 Oct 2021 20:30:13.976 .00230931 51.5694	6/12.254181	6/12.2899// 0
.00230931 51.5694	20 170.8711	13 66.771262
349.653714	318.652240	5472.894115 4
340		
6 Oct 2021 11:40:22.153	6711.682986	6711.716453 0
.00223302 51.5694	85 174.0624	64 63.483431
348.566874	318 592032	5472.192692 4
350	310.392032	34/2.132032
550	CT11 10000T	4544 400500 A
7 Oct 2021 02:50:23.245	6711.102337	6711.133533 0
7 Oct 2021 02:50:23.245 .00215603 51.5695 347.465933	73 177.3531	39 60.195095
347.465933	318.527134	5471.479809 4
360		
7 Oct 2021 18:00:17.138	6710.512948	6710.541942 0
.00207861 51.5696	62 180 7571	44 56 906246
246 252551	210 456222	5470.756352 4
346.353551	310.430332	3470.730332 4
370		4-44 444
8 Oct 2021 09:10:03.726	6709.914594	6709.941459 0
.00200093 51.5697	29 184.2782	03 53.616866
345.230583	318.378334	5470.022055 4
9 Oct 2021 00:19:42.900	6709.307598	6709.332415 0
.00192325 51.5697	55 187.9257	38 50.326926
9 Oct 2021 00:19:42.900 .00192325 51.5697 344.099156	210 201672	5469.277322 4
344.099130	310.2910/3	3409.27/322
390		
9 Oct 2021 15:29:14.558		
.00184589 51.5697		40 47.036392
342.961906	318.194788	5468.522813 4
400		
10 Oct 2021 06:38:38.601	6708.069352	6708.090347 0
.00176912 51.5696		79 43.745230
341 920756		
	310.083938	5467.758640 4
410		
10 Oct 2021 21:47:54.933		
.00169327 51.5695	46 199.7536	42 40.453409
340.678280	317.963141	5466.985166 4
420		
11 Oct 2021 12:57:03.461	6706 800133	6706.817706 0
.00161870 51.5694		
	317.824376	5466.202721 4
430		
12 Oct 2021 04:06:04.097		
.00154577 51.5692		44 33.867722

entricity Inclination (deg) of Apogee (km) Height of Pount	Arg of Perigee (deg) erigee (km) Sidereal	Period (sec) Orbit Co
338.399840	317.667390	5465.411650 4
440		
12 Oct 2021 19:14:56.752 .00147486 51.569165	6705.501720	6705.516306 0
.00147486 51.569165	213.098275	30.573853
337.269010 450	317.489602	5464.611794 4
450 13 Oct 2021 10:23:41.341		
00140639 51 569082	0704.841934 217 920077	0704.055190 U
.00140639 51.569082 336.147818	317.288573	5463.803663 4
14 Oct 2021 01:32:17.781 .00134076 51.569035 335.039112	6704.175333	6704.187384 0
.00134076 51.569035	222.929897	23.984125
335.039112	317.061657	5462.987381 4
1/0		
14 Oct 2021 16:40:45.987	6703.501376	6703.512331 0
.00127836 51.569020	228.136958	20.688298
333.944804 480	316.805858	5462.162289 4
15 Oct 2021 07:49:05.874	6702 820560	6702 830530 0
.00121960 51.569024	233.519217	17.391845
332.868323	316.518737	5461.328992 4
490		
15 Oct 2021 22:57:17.355	6702.132146	6702.141240 0
.00116485 51.569033	239.075282	14.094766
490 15 Oct 2021 22:57:17.355 .00116485 51.569033 331.811255	316.197225	5460.486584 4
500 16 Oct 2021 14:05:20.343 .00111449 51.569029 330.776569	CD01 42CFDC	6701 444000
16 UCT 2021 14:05:20.343	6/01.4365/6	6/UI.4449UU U
330.776569	315.839231	5459.635605 4
510		
17 Oct 2021 05:13:14.750	6700.733629	6700.741283 0
.00106878 51.568998	250.552647	7.498694
329.765916		5458.775777 4
520		
17 Oct 2021 20:21:00.482	6700.022325	6700.029405 0
.00102797 51.568929 328.779810		
530	315.005001	5457.905901 4
18 Oct 2021 11:28:37.442	6699.302984	6699.309578 0
.00099217 51.568819		
327.819426	314.525731	
540		
19 Oct 2021 02:36:05.530		
	268.119083	
326.884339	314.004377	5456.136607 4
550	6607 937700	6607 843663
19 Oct 2021 17:43:24.640	6697.837799	6697.843662 0

entricity Inclination				
of Apogee (km) Heig unt				
	· ·			
.00093562 51	568484	273.872327	354.298268	
325.973297	313.44002	? 6	5455.235328	4
560				
20 Oct 2021 08:50:34.65 .00091457 51	6697	.090828	6697.096430	0
.00091457 51	568277	279.472919	350.996288	
325.084366	312.83449	14	5454.322450	4
3/0				
20 Oct 2021 23:57:35.45 .00089798 51	6696	3.332210	6696.337609	0
.00089798 51	568058	284.883341	347.693519	
324.213777	312.18744	.2	5453.395466	4
580				_
21 Oct 2021 15:04:26.89	6695	5.563230	6695.568480	0
.00088543 51	567842	290.073491	344.389947	
323.359953	311.50300	07	5452.455941	4
590	CC0/	700070	6604 70700	0
22 Oct 2021 06:11:08.84 .00087639 51 322.517447	15 6694	/820/8	0694.787220	0
.00087639 51	567638	294.995959	341.085567	4
600	310./8293	12	5451.501655	4
000 22 Oct 2021 21:17:41.15				
.00087054 51	0093 567456	200 662620	227 700276	. 0
221 692005	00/430 210 02023	299.002030	33/./003/0 E/E/ E21121	4
321.682995 610	310.02022	.9	3430.331121	-
23 Oct 2021 12:24:03.65	6693	178776	6693 183809	0
.00086716 51		304.035485	334.474372	·
320.850900				4
620				
24 Oct 2021 03:30:16.16 .00086573 51	6692	2.354656	6692.359672	. 0
.00086573 51	.567165	308.115895	331.167557	
320.016461	308.42888	34	5448.536830	4
630				
24 Oct 2021 18:36:18.50	1 6691	.514199	6691.519217	0
			327.859927	
319.177212	307.58722		5447.510487	4
640				
25 Oct 2021 09:42:10.44	18 6690	.656152	6690.661185	0
.00086732 51		315.491151	324.551479	
318.327113	306.72125	57	5446.462745	4
650				
26 Oct 2021 00:47:51.78	6689	.779303	6689.784357	0
.00086920 51			321.242203	
317.462119	305.83259	5	5445.392121	4
660				
26 Oct 2021 15:53:22.29				. 0
.00087161 51			317.932083 5444.297774	

Time (UTCG) Ser entricity Inclination (deg) of Apogee (km) Height of Po		RAAN (deg)	Height
27 Oct 2021 06:58:41.707 .00087392 51.566613 315.678274			_
27 Oct 2021 06:58:41.707	6687.965439	6687.970547	0
315 678274	3/12 088810	514.021097 5443 177647	4
680	303.900019	3443.177047	-
27 Oct 2021 22:03:49.776			
.00087616 51.566447	327.382935	311.309217	
314.753252	303.035374	5442.031057	4
690			
28 Oct 2021 13:08:46.222	6686.063221	6686.068372	0
.00087780 51.566241	329.856289	307.996406	4
313.800384 700			4
29 Oct 2021 04:13:30.748 .00087861 51.565994 312.816940	6685.075220	6685.080380	0
.00087861 51.565994	332.148165	304.682625	J
312.816940	301.069820	5439.649673	4
710			
29 Oct 2021 19:18:03.048	6684.061802	6684.066964	0
.00087873 51.565709	334.296160	301.367830	
311.803471	300.056456	5438.412794	4
720	6693 020712	6602 025061	0
30 Oct 2021 10:22:22.798 .00087773 51.565397	336 284619	208 051076	U
.00087773 51.565397 310.754722	299.023000	5437.142222	4
·/ - ()			
31 Oct 2021 01:26:29.653 .00087548 51.565074	6681.950591	6681.955712	0
.00087548 51.565074	338.122349	294.735022	
309.668601	297.968824	5435.836305	4
740			_
31 Oct 2021 16:30:23.259 .00087217 51.564757	6680.851141	6680.856223	0
308.546072	339.8415/8	291.416930 5/3/ /0/603	4
750	290:092373	3434.434033	-
1 Nov 2021 07:34:03.243	6679.719952	6679.724978	0
.00086747 51.564466	341.421963	288.097670	
307.382462	295.793495	5433.114446	4
760			
1 Nov 2021 22:37:29.218			0
.00086158 51.564219 306.178740	342.892815 294.670502	284.777219	4
770	294.670502	5431.695141	4
2 Nov 2021 13:40:40.779	6677.358817	6677.363690	0
.00085423 51.564023		281.455563	J
304.930691	293.522689	5430.233785	4
780			
3 Nov 2021 04:43:37.496			0
.00084543 51.563881		278.132692	_
303.636938	292.348558	5428.728637	4

Page 42			
Time (UTCG) Se	emi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg) Arg of Perigee (deg)	RAAN (deg)	Height
of Apogee (km) Height of 1			
	Perigee (KM) Siderear	Period (sec) Or	DIC CO
unt			
790			
3 Nov 2021 19:46:18.928 .00083535 51.563783 302.298012	6674 854481	6674 859139	0
5 NOV 2021 19.40.10.920	0074.054401	0074.039139	U
.00083535 51.563783	346.531686	274.808598	
302.298012	291.146266	5427.178907	4
800			
4 Nov 2021 10:48:44.614	6672 544902	6672 540422	^
4 NOV 2021 10:40:44.014	00/3.544902	00/3.549452	U
.00082388 51.563709	347.491164	271.483270	
300.910623	289.914240	5425.581645	4
810			
	6680 104635	6680 100005	•
5 Nov 2021 01:50:54.070	6672.194635	6672.199025	0
.00081107 51.563633	l 348.308146	268.156685	
299.473628	288.650421	5423.934911	4
920			
5 Nov 2021 16:52:46.792 .00079704 51.563523 297.986559			
5 Nov 2021 16:52:46.792	6670.802390	6670.806627	0
.00079704 51.563523	349.005293	264.828812	
297 986559	287 352695	5422 237147	4
257.500555	207.332033	3122.23/11/	-
830			
6 Nov 2021 07:54:22.257	6669.365765	6669.369842	0
.00078185 51.563358	349.545143	261.499602	
206 447261	206 010422	E420 48E446	4
296.447261	280.018422	5420.485446	4
840			
6 Nov 2021 22:55:39.912	6667.882805	6667.886713	0
.00076555 51.563123	349.948643	259 169992	
.00070333 31.30312.	349.940043	230.100332	
294.854300	284.645126	5418.677442	4
850 7 Nov 2021 13:56:39.180 .00074831 51.562814 293.206291			
7 Nov 2021 13:56:39.180	6666.351071	6666.354804	0
00074031	350 172026	254 936000	J
.00074831 51.56281	350.1/2926	254.836909	
293.206291	283.229318	5416.810185	4
860			
8 Nov 2021 04:57:19.451	6664 768092	6664 771647	0
			U
.00073031 51.56244	350.204147	251.503274	
291.501975	281.767319	5414.880685	4
870			
	6663 130546	6662 122010	•
8 Nov 2021 19:57:40.084	6663.130546	6663.133919	0
.00071152 51.562039	350.061334	248.168008	
289.737880	280.255959	5412.884918	4
880			_
			_
9 Nov 2021 10:57:40.398	6661.435590	6661.438783	0
.00069235 51.561624	4 349.694533	244.831036	
287.913857		5410.819449	4
	270.003703	3110.013113	-
890			
10 Nov 2021 01:57:19.674	6659.679587	6659.682604	0
.00067307 51.561230	349.087851	241.492290	
			A
286.028059	277.063149	3400.0/3000	4
900			
10 Nov 2021 16:56:37.137	6657.857150	6657.859994	0
.00065354 51.560883		238.151712	
31.30000.	510.2010/1	2001201712	

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Time (UTCG) Ser	ni-parameter (km) Sem	i-major Axis (km) Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg) Height
of Apogee (km) Height of Po	erigee (km) Sidereal	Period (sec) Orbit Co
unt		
284.074155	275.371832	5406.459675 4
910	2,3,3,1031	51000135075
11 Nov 2021 07:55:31.958	6655 964356	6655.967035 0
0006344E E1 E60E01	347 164360	224 900242
.00063445 51.560591	347.104300	234.009243
282.052891	273.607179	5404.154097 4
920 11 Nov 2021 22:54:03.236 .00061559 51.560362 279.955439		
11 Nov 2021 22:54:03.236	6653.993793	6653.996314 0
.00061559 51.560362	345.820708	231.464831
279.955439	271.763189	5401.754154 4
12 Nov 2021 13:52:09.999	6651.940509	6651.942886 0
.00059782 51.560186	344.189281	228.118413
277.782542	260 820230	5399.253869 4
940	209.029230	3333.233003
12 77 2001 04:40:51 104	6640 006505	6640 500004
13 Nov 2021 04:49:51.194	6649.796575	6649.798824 0
.00058157 51.560043 275.529129	342.274708	224.769923
275.529129	267.794519	5396.643639 4
950		
13 Nov 2021 19:47:05.651 .00056640 51.559910	6647.550550	6647.552682 0
.00056640 51.559910	340.117138	221.419278
273.180874	265.650491	5393.909586 4
960		
14 Nov 2021 10:43:52.075	6645 193043	6645.195079 0
.00055352 51.559762	337.719262	218 066370
370 736345	357.713202	210:0003/9
270.736345	203.3/9012	5391.040355 4
4.70		
15 Nov 2021 01:40:09.030 .00054333 51.559574	6642.710344	6642.712305 0
.00054333 51.559574 268.184487	335.137756	214.711110
268.184487	260.966124	5388.019342 4
980		
15 Nov 2021 16:35:54.881	6640.083447	6640.085349 0
.00053509 51.559328		211.353334
265.501376		5384.823503 4
990	230.33321	3301.023303
16 Nov 2021 07:31:07.767	6627 204122	6637.295998 0
.00053013 51.559010		
	255.640350	5381.430795 5
000		
16 Nov 2021 22:25:45.553 .00052745 51.558613	6634.314990	6634.316835 0
		204.629596
259.679086	252.680585	5377.808003 5
010		
17 Nov 2021 13:19:45.761	6631.117120	6631.118971 0
.00052834 51.558137		
	249.478462	
020	217.17.0102	33,3,320100
	6627 661102	6627 662074
18 Nov 2021 04:13:05.498	002/.001192	6627.663074 0

Page 44			
Time (UTCG) Ser	mi-parameter (km) Sem	i-major Axis (km)	Ecc
entricity Inclination (deg)	Arg of Perigee (deg)	RAAN (deg)	Height
of Apogee (km) Height of P	erigee (km) Sidereal :	Period (sec) On	rbit Co
unt			
.00053282 51.557588	322.215059	197.893583	
253.057419	245.994728	5369.719677	5
020			
18 Nov 2021 19:05:41.314 .00053938 51.556975 249.331784	6623.894084	6623.896011	0
.00053938 51.556975	320.198661	194.520345	
249.331784	242.186238	5365.142228	5
040		33331=1==3	•
19 Nov 2021 09:57:29.040	6619 750360	6619 752357	0
.00054918 51.556306	318 570964	101 143107	· ·
			5
245.250774	237.979939	5360.108675	5
050			
20 Nov 2021 00:48:23.547	6615.136832	6615.138920	0
.00056178 51.555589	317.382823	187.761742	
240.718205	233.285635	5354.506302	5
060			
20 Nov 2021 15:38:18.327 .00057501 51.554824	6609.918703	6609.920888	0
.00057501 51.554824	316.527655	184.375490	
235.584665	227.983112	5348.172088	5
070			
21 Nov 2021 06:27:04.868	6603.899812	6603.902106	0
.00058944 51.554000			
229.657693	221 . 872519	5340.868939	5
000			
21 Nov 2021 21:14:31.565	6506 764241	6506 766630	0
21 NOV 2021 21:14:31.505	216 069452	177 505074	U
.000001/1 31.333090	210.000422	1//.3030/4	
222.599002	214.660257	5332.215113	5
090			_
22 Nov 2021 12:00:21.626 .00061059 51.552029	6587.970120	6587.972576	0
.00061059 51.552029	316.457837	174.180504	
213.858116	205.813036	5321.556220	5
100			
23 Nov 2021 02:44:08.563	6576.453599	6576.456042	0
.00060955 51.550684			
	194.310361		5
110			
23 Nov 2021 17:25:04.622	6559.755315	6559.757582	0
.00058784 51.548746	318.582221	167.339326	•
185.476658	177.764505		5
120	177.704303	5287.406078	3
23 Nov 2021 18:51:11.031	6556 670353	6556 691533	0
			U
.00057531 51.532270			_
182.316626	174.772418	5283.687387	5
130			
23 Nov 2021 20:19:00.690			0
.00056546 51.531854			
178.764588	171.353449	5279.474770	5
131			

Page	45
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Time	(UTCG) Se	emi-parameter	(km) Sem	i-major Axis (km)	Ecc
	Inclination (deg)				
of Apogee (km) Height of H	Perigee (km)	Sidereal 1	Period (sec) On	rbit Co
unt					
23 Nov 2021	21:46:45.808	6549.1	70370	6549.172361	0
.00055144	21:46:45.808 51.531369	9	322.721730	151.150113	
174.646	862	167.423861		5274.613126	5
132					
23 Nov 2021	23:14:25.606	6544.3	92674	6544.394521	0
.00053126	51.530790	0	323.578826	150.804448	
169.734	313	162.780730		5268.842169	5
133					
	00:41:58.944				0
.00050128	51.530067	7	324.392191	150.458274	
163.620	923	157.065674		5261.701539	5
134					
	02:09:23.983				
155 400	51.529100) 140 FE14E0	325.062669	150.111469	5
135.460	266	149.551450		3232.233921	5
	03:36:37.222	6518 9	27271	6518 928161	0
.00036952	51.527631	1	325.142758	149.763823	·
143.200	051	138.382271	2201212700	5238.117948	5
136					
24 Nov 2021	05:03:29.162	6495.3	16908	6495.317100	0
.00017196	51.524597	7	320.458989	149.414911	
118.297	033	116.063167			5
137					