Space Activities in 2021

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Preface

In this paper I present some statistics characterizing astronautical activity in calendar year 2021. In the 2014 edition of this review, I described my methodological approach and some issues of definitional ambiguity; that discussion is not repeated here, and it is assumed that the reader has consulted the earlier document, available at https://planet4589.org/space/papers/space14.pdf (The present work may be found as space21.pdf at the same location).

Special note: GCAT

In 2020 I published the first edition of the General Catalog of Artificial Space Objects (GCAT), with details of orbital and suborbital launches, and of orbital and deep space objects. The catalog is at https://planet4589.org/space/gcat and this report is largely based on the data in it.

For the 2021 edition the sections have been somewhat re-ordered, and for the first time I have generated most of the tables in this report automatically from GCAT instead of composing them manually. As a result a few details are currently missing; I hope to fix that in an updated release of this report.

1 Orbital Launch Attempts

1.1 Launch statistics by country

During 2021 there were 146 orbital launch attempts from Earth, with 136 reaching orbit. This includes one unacknowledged marginally-orbital flight by China reported by the UK Financial Times citing US intelligence sources. Table 1(a) gives statistics for all orbital attempts; Table 1(b) includes only launches that reached orbit.

Table 1: (a) Orbital Launch Attempts

	2015	2016	2017	2018	2019	2020	2021
USA	20	22	29	31	21	37	45
Russia	26	17	19	17	22	12	16
China	19	22	18	39	34	39	56
Europe	12	11	11	11	9	10	15
South Korea	*0*	*0*	*0*	*0*	*0*	*0*	*1*
North Korea	*0*	*1*	*0*	*0*	*0*	*0*	*0*
India	*5*	*7*	*5*	*7*	*6*	*2*	*2*
Japan	*4*	*4*	*7*	*6*	*2*	*4*	*3*
Iran	*1*	*0*	*0*	*0*	*2*	*2*	*2*
Israel	*0*	*1*	*0*	*0*	*0*	*1*	*0*
New Zealand	*0*	*0*	*1*	*3*	*6*	*7*	*6*
Other	10	13	13	16	16	16	14
Total	87	85	90	114	102	114	146

The Arianespace-managed Soyuz launches from French Guiana and the Starsem-managed Soyuz launches from Russia are counted as European.

Electron is licensed in the USA but launched from New Zealand territory by the New Zealand subsidiary of the US-headquartered Rocket Lab. I go back and forth on this, but for now I consider Electron to be a New Zealand launch of a US-manufactured rocket.

Table 1: (b) Launches Reaching Orbit

	2015	2016	2017	2018	2019	2020	2021
USA	18	22	29	31	21	34	43
Russia	25	16	18	16	22	12	16
China	19	21	17	38	32	35	53
Europe	12	11	11	11	8	10	15
North Korea	*0*	*1*	*0*	*0*	*0*	*0*	*0*
India	*5*	*7*	*5*	*7*	*6*	*2*	*1*
Japan	*4*	*4*	*6*	*6*	*2*	*4*	*3*
Iran	*1*	*0*	*0*	*0*	*0*	*1*	*0*
Israel	*0*	*1*	*0*	*0*	*0*	*1*	*0*
New Zealand	*0*	*0*	*0*	*3*	*6*	*6*	*5*
Other	10	13	11	16	14	14	9
Total	84	83	86	112	97	105	136

A 2017 Iranian launch was included in previous reports as a failed orbital attempt but I now assess it as an intentionally suborbital test, and so it is not included in Table 1.

1.2 Launch failures and uncataloged orbital launches

During the year there were 11 orbital launch failures. In general I award partial success scores to launches which reach orbit but do not successfuly deploy their payloads in the targeted orbit; there were two such cases in 2021.

Launches that are marginally orbital or fall just short of orbital are given 'U' designations. This year, the unacknowledged Chinese orbital missile test reportedly completed an orbit but was not cataloged by the US Space Force; it is assigned the designation 2021-U01.

The Dec 12 Proton flight delivered its payloads to a slightly lower-altitude and higher-inclination orbit than planned. Since the payloads will be able to use their own propellant to reach the target orbit, I am scoring the launch success fraction as 0.80 in this case. The Dec 27 Angara flight had a Persei (modified Blok DM-03) upper stage which completed its first burn to low parking orbit, but failed to make further planned burns to reach GEO; I am scoring it 0.40 according to the rules at https://planet4589.org/space/gcat/web/intro/success.html .

During the year I assigned the designation 2021-F04 to a possible Simorgh launch failure on Jun 23. I have decided to remove this entry from the catalogs as I feel that the evidence that it occurred is insufficient.

Table 2: F and U launches in 2021

Table 2 (a): 2021 orbital launch failures and partial failures

Designation	Date	LV State	LV	Payload	Type of failure	Launch Score
2021-F01	Feb 1	China	SQ-1	Tianshu	Stage 1 breakup	0.00
2021-F02	May 15	US/NZ	Electron	Global-8/9	Stage 2 failure	0.00
2021-F03	Jun 12	Iran	Simorgh	Tolou-2?	Unknown	0.00
2021-F05	Aug 3	China	SQ-1	Jilin-1 MF-1A	Fairing sep failure	0.00
2021-F06	Aug 12	India	GSLV Mk II	GISAT-1	Stage 3 failure	0.00
2021-F07	Aug 28	US	Astra Rocket 3	STP S27AD1	Stage 1 failure	0.00
2021-F08	Sep 3	US	Firefly Alpha	Picobus	Stage 1 failure	0.00
2021-F09	Oct 21	S Korea	Nuri	Test payload	Stage 3 underperformed	0.00
2021-123	Dec 13	Russia	Proton-M	Ekspress AMU3/7	Stage 4 underperformed	0.80
2021-F10	Dec 15	China	KZ-1A	GeeSat-1A/1B	Stage 3 failure	0.00
2021-133	Dec 27	Russia	Angara A5	IPN/Persei	Persei failed to restart	0.40
2021-F11	Dec 30	Iran	Simorgh	Test payloads	Stage 3 underperformed	0.00

Table 2(b): 2021 additional launch designations

Designation	Date	LV State	LV	Payload	Type of launch	Launch Score
2021-U01	Jul 27?	China	CZ-2C?	Orbital RV	Marginal orbit	1.00

Table 2(c): Deleted 2021 launch designations

2021-F04	Jun 23?	Iran	Simorgh	Zafar-2?	Unconfirmed	0.00

1.3 Commercial Launches

Of the 146 orbital launch attempts: 70 were carried out by governments; 27 by commercial companies under contract to their host governments, and 49 by commercial companies for commercial customers, including foreign governments.

I count US Commercial Cargo and Crew flights as ‘under contract to host government’; although the launch contract is through a commercial intermediary, the choice of vehicle is negotiated as part of a government contract.

Here GOV = Government; CO = Commercial operation of government developed rocket; CSP = Commercial service provision to government; FCS = Fully commercial service (but customers may include govt); FC = Fully commercial (no govt involved); A = Amateur, academic, non-profit. See the 2014 document for full discussion.

Table 3: Commercial vs. government launches

Launch Provider	Launches	Type	Customers		
			Gov.	Comm.	Other gov
US Launch Providers					
Astra Rocket	2	FCS	2	0	0
Firefly Alpha	1	FCS	0	1	0
NG Antares	2	FCS	0	2	0
NG Minotaur 1	1	CSP	1	0	0
NG Pegasus	1	CSP	1	0	0
SpaceX Falcon 9	31	FCS	8	22	1
ULA Atlas V	4	CSP	4	0	0
ULA Delta 4	1	CSP	1	0	0
VO Launcher One	2	FCS	2	0	0
European Launch Providers					
Arianespace Ariane 5	3	FC	1	2	0
Arianespace Soyuz	1	FCS	1	0	0
Arianespace Vega	3	FC	3	0	0
Starsem Soyuz	8	FC	0	8	0
Russian Launch Providers					
GKLS Soyuz	1	CO	0	1	0
KVR Soyuz	4	GOV	4	0	0
Khrunichev Angara	1	GOV	1	0	0
Khrunichev Proton	2	GOV	2	0	0
Roskosmos Soyuz	8	GOV	8	0	0
Chinese Launch Providers					
CALT CZ-2C	6	GOV	6	0	0
CALT CZ-2F	2	GOV	2	0	0
CALT CZ-3B/C	12	GOV	12	0	0
CALT CZ-5/5B	1	GOV	1	0	0
CALT CZ-7/7A	4	GOV	4	0	0
EXPACE KZ-1A	4	CO	1	3	0
SAST CZ-2D	6	GOV	4	2	0
SAST CZ-4B/C	14	GOV	14	0	0
SAST CZ-6	4	GOV	2	2	0
Xinghe Do. Gushenxing-1	1	FC	0	1	0
Xingji Rong. SQ-1	2	FC	0	2	0
Other Launch Providers					
IRSA Simorgh	2	GOV	2	0	0
ISRO/NSIL PSLV/GSLV	2	GOV	1	0	1
JAXA Epsilon	1	GOV	1	0	0
KARI Nuri	1	GOV	1	0	0
MHI H-IIA/B	2	CSP	1	1	0
RocketLab Electron	6	FC	1	5	0
Total	146		92	52	2

2 Satellite Launch Statistics

2.1 Satellites of the major space powers

Here I give total payloads (1) launched (Table 4) and (2) deployed (Table 5). Some satellites launched in 2020 (e.g. to the ISS) were not deployed until 2021.

The 8 ANDESITE Node satellites launched in 2019 attached to the ANDESITE satellite have not been deployed.

Not included are satellites which did not reach orbit due to launch failures.

Also not included in the count, but listed at the end of Appendix 2c, are several objects which are marginal cases: two mass simulators and the reported Chinese orbital missile payload.

Note that the correlation of specific satellites from a multi-satellite launch with specific catalog numbers (and thus, tracked objects) is uncertain in some case. This is indicated in the appendices with a question mark following the piece (international) designation.

Table 4: : Payloads launched per year

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Russia	22	29	34	27	15	24	23	31	22	20
USA	35	85	110	112	95	282	303	306	974	1244
China	25	18	26	44	40	36	98	73	74	110
Europe	22	34	28	22	22	42	60	49	133	351
Other	28	41	63	31	50	60	84	65	60	102
Total	132	207	261	236	222	444	568	524	1263	1827

The 1809 satellites listed here and in Appendix 2b as having been deployed during 2021 include some satellites launched in 2019-2020 and deployed in 2021.

Table 5: : Payloads deployed per year

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Russia	22	29	33	27	14	25	23	29	21	19
USA	35	84	96	106	106	288	187	366	985	1238
China	25	17	24	44	38	35	95	74	72	110
Europe	22	34	28	22	20	43	56	49	134	348
Other	28	41	57	31	43	65	81	61	59	94
Total	132	205	238	230	221	456	442	579	1271	1809

2.2 Satellite ownership by country

I now break this down by class for 2021 (first the launch powers, then other countries).

In 2021 the satellites deployed were owned by 42 countries and two European organizations: ESA and the European Union.

In general I consider western Europe, loosely defined, as a single 'space power' because of the tight integration of its aerospace industry. Within this view, the four leading space powers are USA, China, Russia and (W) Europe. The second tier of space powers is comprised of Japan and India; all others are lumped as 'Other', further broken down regionally (and arbitrarily) for convenience. The 'Other' powers have limited or no launch capability of their own. (South Korea and Canada have space industries that make them candidates for the second tier in the near future). Countries which owned satellites covered in previous editions of the report are included in the table even if they had no new satellites this year.

Table 6: : 2021 payloads launched by owner country and class

		A Academic/ NonProfit	B Business/ Commercial	C Civil	D Defense	SS Spaceship	Total Number
USA		29	1161	17	29	8	1244
China		7	35	24	39	5	110
Russia		2	3	3	4	8	20
D	Germany	3	7	0	0	0	10
CH	Switzerland	0	10	0	0	0	10
F	France	1	5	0	4	0	10
I	Italy	2	6	1	0	0	9
FI	Finland	0	8	0	0	0	8
NL	Netherlands	0	2	0	1	0	3
UK	UK	1	290	0	0	0	291
SK	Slovakia	1	0	0	0	0	1
N	Norway	0	0	1	0	0	1
L	Luxembourg	0	4	0	0	0	4
B	Belgium	0	1	0	0	0	1
E	Spain	0	1	0	0	0	1
I-EU	EU	0	0	2	0	0	2
Europe (W)		8	334	4	5	0	351
Japan		11	14	1	0	0	26
India		5	0	0	0	0	5
HU	Hungary	1	1	0	0	0	2
PL	Poland	0	2	0	0	0	2
LT	Lithuania	0	1	0	0	0	1
BGN	PR Bulgaria	0	1	0	0	0	1
Europe (E)		1	5	0	0	0	6
PY	Paraguay	0	0	1	0	0	1
BR	Brazil	0	2	1	0	0	3
MX	Mexico	1	0	0	1	0	2
AR	Argentina	1	0	0	0	0	1
UY	Uruguay	0	4	0	0	0	4
Latin America		2	6	2	1	0	11
TR	Turkey	0	0	2	1	0	3
IL	Israel	4	0	0	0	0	4
UAE	UAE	3	1	0	0	0	4
SA	Saudi Arabia	2	0	0	0	0	2
KW	Kuwait	0	1	0	0	0	1
Middle East		9	2	2	1	0	14
TW	Taiwan	2	0	0	0	0	2
PH	Phillipines	0	0	3	0	0	3
MYM	Myanmar	1	0	0	0	0	1
KR	South Korea	3	0	1	0	0	4
T	Thailand	1	0	0	1	0	2
VN	Vietnam	1	0	0	0	0	1
Asia (other)		8	0	4	1	0	13

Table 6: : 2021 payloads launched by owner country and class

		A Academic/ NonProfit	B Business/ Commercial	C Civil	D Defense	SS Spaceship	Total Number
TN	Tunisia	0	1	0	0	0	1
MU	Mauritius	0	0	1	0	0	1
RW	Rwanda	0	0	1	0	0	1
Africa		0	1	2	0	0	3
Canada		0	11	0	0	0	11
AU	Australia	0	6	2	0	0	8
NZ	New Zealand	0	5	0	0	0	5
Australasia		0	11	2	0	0	13
Total		82	1583	61	80	21	1827

Table 7: : Mass (tonnes) of 2021 payloads launched by owner country and class

		A Academic/ NonProfit	B Business/ Commercial	C Civil	D Defense	SS Spaceship	Total Mass (tonne)
USA		0.1	266.9	11.4	31.4	100.2	410.1
China		0.8	11.5	40.6	58.7	64.5	176.1
Russia		0.0	4.1	22.2	16.9	72.3	115.6
F	France	0.0	5.3	0.0	5.2	0.0	10.5
UK	UK	0.0	53.9	0.0	0.0	0.0	54.0
I-EU	EU	0.0	0.0	1.5	0.0	0.0	1.5
Europe (W)		0.0	60.6	1.5	5.2	0.0	67.3
Japan		0.2	0.7	4.0	0.0	0.0	5.0
Europe (E)		0.0	0.0	0.0	0.0	0.0	0.0
BR	Brazil	0.0	6.2	0.6	0.0	0.0	6.8
Latin America		0.0	6.4	0.6	0.0	0.0	7.0
TR	Turkey	0.0	0.0	8.0	0.0	0.0	8.0
Middle East		0.1	0.0	8.0	0.0	0.0	8.1
Asia (other)		0.1	0.0	0.5	0.0	0.0	0.6
Africa		0.0	0.0	0.0	0.0	0.0	0.0
Australasia		0.0	0.1	0.0	0.0	0.0	0.1
Total		1.3	350.5	88.9	112.2	237.0	790.0

2.3 Satellite manufacture by country

Most countries build only very small (cubesat) satellites, purchasing their larger satellites from one of the main space powers. Here I tabulate the manufacturers of the 1423 satellites launched in 2021with estimated launch masses of 100 kg or more.

HSF is 'Human spaceflight', including related robotic missions such as cargo ships to support ISS. 'Surv.' is surveillance, including early warning and space debris surveillance; visible and radar imaging recon satellites and weather sats are under 'Imaging'. Microgravity research, geodesy and planetary probes are included under Sci (Science). Satellites built in the UK, France, Germany, Italy, Spain and the Netherlands are lumped together as 'EUR' to reflect the integration of the western European aerospace industry.

In revisions of this year's report prior to rev 1.5, I had incorrectly assigned the manufacture of the UK-owned OneWeb satellites to Europe, while in fact the production satellites are manufactured at OneWeb Satellites in Florida. The table has been corrected accordingly.

Table 8: : 2021 payloads by manufacturer country - 100 kg and up only

	HSF	Comms	Imaging	Nav	SIGINT	Surv.	Sci	Tech	Total
USA	8	1278	6	1	0	2	4	7	1306
USSR	8	2	2	0	2	1	0	1	16
PRC	5	11	22	0	31	2	3	6	80
EUR	0	6	2	2	3	0	0	2	15
Japan	0	0	1	1	0	0	0	2	4
Brazil	0	0	1	0	0	0	0	0	1
South Korea	0	0	1	0	0	0	0	0	1
Total	21	1297	35	4	36	5	7	18	1423

2.4 New geosynchronous satellites in 2021

Table 9 lists geosynchronous satellites launched in 2021(and those reaching GEO for the first time during the year) and gives their positions at the end of the year.

Table 9: Geostationary satellites launched in 2021, ordered by longitude

Piece	Name	Operator	Location	Mission
2020-096A	SXM-7	Sirius XM	115.3W	Digital radio
2021-049A	SXM-8	SiriusXM	85.3W	Radio broadcast
2021-069A	Star One D2	Star One	70.0W	Comms
2020-056B	MEV-2	NG	1.0W	Docked to IS10-02
2021-042A	SBIRS GEO-5	USSF	8.3E	Early warning
2021-063A	Tian Lian 1-05	CAST	10.6E	Data relay
2021-001A	Turksat 5A	Turk Tel	30.9E	Comms
2021-069B	Eutelsat Quantum	Eutelsat	47.7E	Comms
2020-095A	USA 311 (ORION 10)	NRO	50.8E	Sigint
2021-003A	Tiantong-1 03	CAST	81.5E	Mobile comms
2021-071A	Zhongxing 2E	PLA?	98.1E	Comms
2021-080A	Zhongxing 9B	Chinasat	101.4E	Comms
2021-047A	Feng Yun 4B	NSMC	123.6E	Weather
2021-114A	Zhongxing 1D	PLA?	130.2E	Comms
2021-096A	Michibiki 1R	NUSS/JAXA	143.8E	Navigation
2021-077A	TJS 7	SAST?	146.5E	Tech?
2021-124A	Tian Lian 2-02	CAST	171.0E	Data relay
2021-010A	Huoyan 3? (TJS 6)	SAST	178.5E	Early warning?
2021-095A	SES-17	SES	Orbit raising	Comms
2021-095B	Syracuse 4A	DGA	Orbit raising	Comms
2021-094A	Shi Jian 21	SAST	Drift orbit	Servicing test?
2021-094C	SJ21 Subsat	SAST	Drift orbit	Servicing test?
2021-118A	STPSAT-6	USSF	Drift orbit	Tech experiments
2021-118B	LDPE-1	USSF	Drift orbit	Tech experiments
2021-123A	Ekspress AMU3	Kos. Svyaz	Orbit raising	Comms
2021-123B	Ekspress AMU7	Kos. Svyaz	Orbit raising	Comms
2021-126A	Turksat 5B	Turk Tel	Orbit raising	Comms
2021-128A	Inmarsat 6 F1	Inmarsat	Orbit raising	Mobile Comms
2021-129A	Shiyan 12-01	CAST	Orbit raising	Tech?
2021-129B	Shiyan 12-02	CAST	Orbit raising	Tech?
2021-135A	TJS 9	CAST	Orbit raising	Sigint?

2.5 New sun-synchronous satellites in 2021

Table 10 lists satellites launched to sun-synchronous orbit in 2021, ordered by the local time of their orbit's descending node (LTDN, format hhmm or hhmm:ss).

Table 10: SSO satellites launched in 2021, ordered by local time of descending node

No	Piece	Name	Operator	Mission	Orbit	LTDN
1	2021-051A	Odyssey	USSF SMC	EW	394 x 436 x 97.5	00:22:18
2	2021-026A	Gao Fen 12-02	PLA GAD	IMG-R	626 x 629 x 97.9	04:55:38
3	2021-062A	Feng Yun 3E	CNMSC	MET	823 x 828 x 98.7	05:39:57
4	2021-074A	Tianhui-2 02-01	G. Cehui dili	IMG-R	514 x 516 x 97.5	05:48:29
5	2021-074B	Tianhui-2 02-02	G. Cehui dili	IMG-R	514 x 517 x 97.5	05:48:29
6	2021-109A	Gao Fen 3-02	GWHYZ	IMG-R	750 x 752 x 98.4	06:00:16
7	2021-112A	Shiyan 11	CASC	IMG-R	486 x 504 x 97.5	06:02:15
8	2021-028A	Shiyan 6-03	CNSA	IMG	991 x 1002 x 99.5	06:03:29
9	2021-122B	Shi Jian 6/5A	CASC	SIG	455 x 470 x 97.4	06:31:03
10	2021-122A	Shi Jian 6/5B	CASC	SIG	456 x 472 x 97.4	06:31:04
11	2021-006CV	ION SVC LAURENTIUS	D-ORBIT	TECH	509 x 539 x 97.2	09:01:41
12	2021-006FD	SpaceBEE-75	Swarm Tech	COM	505 x 530 x 97.2	09:03:34
13	2021-006FC	SpaceBEE-74	Swarm Tech	COM	505 x 529 x 97.2	09:03:43
14	2021-006FB	SpaceBEE-73	Swarm Tech	COM	504 x 528 x 97.2	09:03:47
15	2021-006FA	SpaceBEE-72	Swarm Tech	COM	504 x 528 x 97.2	09:03:52
16	2021-006EZ	SpaceBEE-71	Swarm Tech	COM	504 x 528 x 97.2	09:03:57
17	2021-006EX	SpaceBEE-69	Swarm Tech	COM	504 x 527 x 97.2	09:04:04
18	2021-006EY	SpaceBEE-70	Swarm Tech	COM	504 x 527 x 97.2	09:04:07
19	2021-006EW	SpaceBEE-68	Swarm Tech	COM	504 x 527 x 97.2	09:04:07
20	2021-006EV	SpaceBEE-67	Swarm Tech	COM	504 x 527 x 97.2	09:04:09
21	2021-006EU	SpaceBEE-66	Swarm Tech	COM	504 x 527 x 97.2	09:04:10
22	2021-006ES	SpaceBEE-65	Swarm Tech	COM	504 x 526 x 97.2	09:04:16
23	2021-006ET	SpaceBEE-64	Swarm Tech	COM	504 x 526 x 97.2	09:04:19
24	2021-107A	Gao Fen 11-03	Yaogan Zongti	IMG	240 x 649 x 97.5	09:05:12
25	2021-006BC	Cora	ARC/CMU	TECH	521 x 535 x 97.5	09:27:46
26	2021-006BG	Petrie	ARC/CMU	TECH	520 x 535 x 97.5	09:28:00
27	2021-006DA	Hugo	GHG	SCI	521 x 535 x 97.5	09:28:08
28	2021-006DH	Astrocast-0105	Astrocast	TECH	523 x 535 x 97.5	09:28:14
29	2021-006DQ	Littlefoot	ARC/CMU	TECH	520 x 535 x 97.5	09:28:20
30	2021-006BE	SpaceBEE-57	Swarm Tech	COM	523 x 533 x 97.5	09:28:32
31	2021-006DS	Stella	Kepler Comms	COM	521 x 534 x 97.5	09:28:49
32	2021-006BB	Flock 4s-11	Planet Labs	IMG	522 x 535 x 97.5	09:28:53
33	2021-006BA	SudoRmRf	Kepler Comms	COM	521 x 533 x 97.5	09:29:03
34	2021-006CZ	Hawk 2B	HawkEye 360	SIG	520 x 536 x 97.5	09:29:27
35	2021-006CT	Hawk 2C	HawkEye 360	SIG	520 x 536 x 97.5	09:29:27
36	2021-006DF	Flock 4s-5	Planet Labs	IMG	518 x 532 x 97.5	09:29:30
37	2021-006DB	ICEYE-X8	ICEYE	IMG-R	521 x 535 x 97.5	09:29:32
38	2021-006DT	Flock 4s-7	Planet Labs	IMG	518 x 532 x 97.5	09:29:32
39	2021-006BP	Flock 4s-8	Planet Labs	IMG	519 x 532 x 97.5	09:29:33
40	2021-006DE	Flock 4s-28	Planet Labs	IMG	518 x 532 x 97.5	09:29:35
41	2021-006DJ	Flock 4s-6	Planet Labs	IMG	518 x 532 x 97.5	09:29:35
42	2021-006DV	Lemur-2-Chantal	Spire	COM/MET-RO	520 x 532 x 97.5	09:29:36
43	2021-006AF	SpaceBEE-63	Swarm Tech	COM	522 x 533 x 97.5	09:29:37
44	2021-006BT	Flock 4s-9	Planet Labs	IMG	519 x 532 x 97.5	09:29:41
45	2021-006DL	Flock 4s-29	Planet Labs	IMG	519 x 531 x 97.5	09:29:42
46	2021-006BQ	Flock 4s-31	Planet Labs	IMG	519 x 531 x 97.5	09:29:43
47	2021-006CB	SHERPA-FX 1	Spaceflight Ind	TECH	520 x 536 x 97.5	09:29:43
48	2021-006CD	Astrocast-0102	Astrocast	TECH	520 x 536 x 97.5	09:29:44
49	2021-006BU	Flock 4s-32	Planet Labs	IMG	519 x 531 x 97.5	09:29:45

Table 10: SSO satellites launched in 2021, ordered by local time of descending node (cont.)

No	Piece	Name	Operator	Mission	Orbit	LTDN
50	2021-006DP	Flock 4s-10	Planet Labs	IMG	519 x 532 x 97.5	09:29:45
51	2021-006EE	Flock 4s-30	Planet Labs	IMG	519 x 532 x 97.5	09:29:48
52	2021-006DK	Astrocast-0104	Astrocast	TECH	520 x 535 x 97.5	09:29:48
53	2021-006BJ	Flock 4s-33	Planet Labs	IMG	519 x 531 x 97.5	09:29:50
54	2021-006CW	Hawk 2A	HawkEye 360	SIG	520 x 536 x 97.5	09:29:50
55	2021-006DC	Lemur-2-Ruairi-Elidh	Spire	COM/MET-RO	519 x 532 x 97.5	09:29:51
56	2021-006EL	Flock 4s-47	Planet Labs	IMG	519 x 530 x 97.5	09:29:53
57	2021-006EP	Flock 4s-45	Planet Labs	IMG	517 x 534 x 97.5	09:29:58
58	2021-006CK	Flock 4s-3	Planet Labs	IMG	518 x 534 x 97.5	09:30:09
59	2021-006CG	Flock 4s-4	Planet Labs	IMG	517 x 533 x 97.5	09:30:10
60	2021-006BV	SpaceBEE-43	Swarm Tech	COM	517 x 528 x 97.5	09:30:15
61	2021-006BH	SpaceBEE-56	Swarm Tech	COM	517 x 528 x 97.5	09:30:16
62	2021-006CX	ICEYE-X9	ICEYE	IMG-R	522 x 537 x 97.5	09:30:18
63	2021-006BF	SpaceBEE-44	Swarm Tech	COM	517 x 528 x 97.5	09:30:18
64	2021-006AH	SpaceBEE-51	Swarm Tech	COM	517 x 527 x 97.5	09:30:19
65	2021-006CL	Flock 4s-27	Planet Labs	IMG	517 x 534 x 97.5	09:30:23
66	2021-006EN	Flock 4s-43	Planet Labs	IMG	520 x 531 x 97.5	09:30:25
67	2021-006BL	Flock 4s-12	Planet Labs	IMG	519 x 531 x 97.5	09:30:27
68	2021-006CU	Daneel	Kepler Comms	COM	519 x 534 x 97.5	09:30:27
69	2021-006BK	SpaceBEE-45	Swarm Tech	COM	517 x 528 x 97.5	09:30:27
70	2021-006AJ	SOMP 2b	TU Dresden	SCI	515 x 534 x 97.5	09:30:30
71	2021-006CN	Flock 4s-26	Planet Labs	IMG	516 x 533 x 97.5	09:30:31
72	2021-006EB	Hiber 4	Hiber	COM	516 x 534 x 97.5	09:30:31
73	2021-006CP	Flock 4s-2	Planet Labs	IMG	517 x 533 x 97.5	09:30:34
74	2021-006CC	Astrocast-0103	Astrocast	TECH	519 x 536 x 97.5	09:30:38
75	2021-006BR	Amarok	Kepler Comms	COM	520 x 533 x 97.5	09:30:42
76	2021-006AY	SpaceBEE-55	Swarm Tech	COM	515 x 533 x 97.5	09:30:44
77	2021-006BS	Flock 4s-34	Planet Labs	IMG	519 x 531 x 97.5	09:30:45
78	2021-006BZ	ARCE 1C	U South Fla	TECH	516 x 531 x 97.5	09:30:47
79	2021-006EC	Flock 4s-25	Planet Labs	IMG	517 x 534 x 97.5	09:30:48
80	2021-006ED	Flock 4s-1	Planet Labs	IMG	517 x 533 x 97.5	09:30:48
81	2021-006DX	Artemis	Kepler Comms	COM	520 x 534 x 97.5	09:30:50
82	2021-006BN	Flock 4s-35	Planet Labs	IMG	519 x 531 x 97.5	09:30:50
83	2021-006AT	Lucky	Kepler Comms	COM	516 x 533 x 97.5	09:30:53
84	2021-006T	Astrocast-0101	Astrocast	TECH	519 x 535 x 97.5	09:30:54
85	2021-006BY	Prometheus 2.10	SOCOM	COM	516 x 531 x 97.5	09:30:54
86	2021-006CA	Izanami	QPS Labs	IMG-R	517 x 532 x 97.5	09:30:57
87	2021-006CJ	Lemur-2-Mango1	Spire	COM/MET-RO	516 x 532 x 97.5	09:30:57
88	2021-006EG	ARCE 1B	U South Fla	TECH	517 x 530 x 97.5	09:31:00
89	2021-006EH	ARCE 1A	U South Fla	TECH	516 x 531 x 97.5	09:31:02
90	2021-006BM	Flock 4s-13	Planet Labs	IMG	519 x 532 x 97.5	09:31:04
91	2021-006DW	Flock 4s-36	Planet Labs	IMG	519 x 531 x 97.5	09:31:04
92	2021-006CY	XR 1	ICEYE US/Orbital Effects	IMG-R	519 x 534 x 97.5	09:31:05
93	2021-006V	SpaceBEE-49	Swarm Tech	COM	519 x 529 x 97.5	09:31:06
94	2021-006AE	ASELSAT	Aselsan	TECH	515 x 533 x 97.5	09:31:07
95	2021-006W	SpaceBEE-60	Swarm Tech	COM	519 x 528 x 97.5	09:31:07
96	2021-006AD	AII-Charlie	Aurora Insight/SpaceQuest	SIG	514 x 533 x 97.5	09:31:11
97	2021-006U	SpaceBEE-61	Swarm Tech	COM	518 x 529 x 97.5	09:31:13
98	2021-006DU	Flock 4s-14	Planet Labs	IMG	519 x 532 x 97.5	09:31:14
99	2021-006DN	Flock 4s-37	Planet Labs	IMG	519 x 531 x 97.5	09:31:15

Table 10: SSO satellites launched in 2021, ordered by local time of descending node (cont.)

No	Piece	Name	Operator	Mission	Orbit	LTDN
100	2021-006AG	SpaceBEE-50	Swarm Tech	COM	518 x 529 x 97.5	09:31:16
101	2021-006DZ	Flock 4s-24	Planet Labs	IMG	516 x 534 x 97.5	09:31:16
102	2021-006AB	UVSQ-SAT	U Versailles SQ/LATMOS	SCI	514 x 533 x 97.5	09:31:21
103	2021-006AC	Yushan Weixing	NTOU	COM	514 x 533 x 97.5	09:31:25
104	2021-006AK	Boba	Kepler Comms	COM	515 x 533 x 97.5	09:31:27
105	2021-006DD	Flock 4s-38	Planet Labs	IMG	519 x 532 x 97.5	09:31:28
106	2021-006EQ	Flock 4s-42	Planet Labs	IMG	517 x 534 x 97.5	09:31:30
107	2021-100A	SDGSAT-1	CAS	SCI	499 x 516 x 97.5	09:31:31
108	2021-006BX	PTD 1	ARC/Tyvak NSS	TECH	519 x 533 x 97.5	09:31:31
109	2021-006X	SpaceBEE-53	Swarm Tech	COM	518 x 527 x 97.5	09:31:31
110	2021-006EF	Flock 4s-23	Planet Labs	IMG	516 x 534 x 97.5	09:31:32
111	2021-006DG	Flock 4s-16	Planet Labs	IMG	518 x 532 x 97.5	09:31:33
112	2021-006DM	Flock 4s-15	Planet Labs	IMG	518 x 532 x 97.5	09:31:33
113	2021-006ER	Flock 4s-41	Planet Labs	IMG	517 x 533 x 97.5	09:31:37
114	2021-006DR	Lemur-2-JenniferSong	Spire	COM/MET-RO	514 x 531 x 97.5	09:31:49
115	2021-006AX	IDEASSat	NCU	SCI	516 x 534 x 97.5	09:31:51
116	2021-006EK	Flock 4s-46	Planet Labs	IMG	518 x 531 x 97.5	09:31:52
117	2021-006EM	Flock 4s-44	Planet Labs	IMG	516 x 534 x 97.5	09:31:54
118	2021-006AR	Flock 4s-22	Planet Labs	IMG	516 x 534 x 97.5	09:31:55
119	2021-006EJ	Flock 4s-48	Planet Labs	IMG	515 x 534 x 97.5	09:32:02
120	2021-006AV	Flock 4s-21	Planet Labs	IMG	516 x 534 x 97.5	09:32:03
121	2021-006EA	Flock 4s-20	Planet Labs	IMG	517 x 534 x 97.5	09:32:13
122	2021-006CF	Flock 4s-39	Planet Labs	IMG	517 x 533 x 97.5	09:32:14
123	2021-006CM	Flock 4s-18	Planet Labs	IMG	517 x 534 x 97.5	09:32:14
124	2021-006CQ	Flock 4s-40	Planet Labs	IMG	517 x 533 x 97.5	09:32:16
125	2021-006CR	Flock 4s-19	Planet Labs	IMG	517 x 534 x 97.5	09:32:19
126	2021-006CH	Flock 4s-17	Planet Labs	IMG	517 x 533 x 97.5	09:32:21
127	2021-006AM	CubeL	DLR	TECH	517 x 536 x 97.5	09:32:23
128	2021-006AW	Lemur-2-NallyWacker	Spire	COM/MET-RO	514 x 531 x 97.5	09:32:32
129	2021-006DY	Lemur-2-NoobNoob	Spire	COM/MET-RO	515 x 532 x 97.5	09:32:33
130	2021-006AU	SpaceBEE-42	Swarm Tech	COM	510 x 527 x 97.5	09:32:33
131	2021-006AZ	SpaceBEE-54	Swarm Tech	COM	510 x 527 x 97.5	09:32:34
132	2021-006AN	SpaceBEE-40	Swarm Tech	COM	510 x 527 x 97.5	09:32:35
133	2021-006AS	Lemur-2-Saoirsedh5Guo	Spire	COM/MET-RO	515 x 531 x 97.5	09:32:35
134	2021-006AQ	SpaceBEE-41	Swarm Tech	COM	510 x 527 x 97.5	09:32:36
135	2021-006AP	Lemur-2-Neva	Spire	COM/MET-RO	514 x 531 x 97.5	09:32:36
136	2021-006CS	Baby Yoda	Kepler Comms	COM	516 x 532 x 97.5	09:32:40
137	2021-006AL	SpaceBEE-48	Swarm Tech	COM	509 x 526 x 97.5	09:32:50
138	2021-006BW	Capella 4	Capella Space	IMG-R	510 x 525 x 97.5	09:33:13
139	2021-006CE	Capella 3	Capella Space	IMG-R	511 x 525 x 97.5	09:33:24
140	2021-102B	Oruri	Teikyo	TECH	553 x 578 x 97.6	09:33:35
141	2021-102A	RAISE-2	JAXA	TECH	556 x 577 x 97.6	09:33:41
142	2021-102C	Asutarisuku	Chiba kogyu	SCI	553 x 576 x 97.6	09:33:42
143	2021-102D	DRUMS	Kawasaki	TECH	550 x 574 x 97.5	09:33:44
144	2021-006S	SpaceBEE-62	Swarm Tech	COM	510 x 531 x 97.5	09:33:45
145	2021-102E	Z-SAT	MHI Meiyu	IMG	545 x 575 x 97.6	09:34:15
146	2021-102F	Hibari	TITech	TECH	544 x 575 x 97.6	09:34:16
147	2021-102H	KOSEN-1	Kochi College	AST	541 x 574 x 97.6	09:34:24
148	2021-102J	ARICA	Aoyama Gakuin	AST	540 x 574 x 97.6	09:34:25
149	2021-102G	NanoDragon	VNSC/Meisei Electric	COM/TECH	543 x 575 x 97.6	09:34:25

Table 10: SSO satellites launched in 2021, ordered by local time of descending node (cont.)

No	Piece	Name	Operator	Mission	Orbit	LTDN
150	2021-006R	SpaceBEE-59	Swarm Tech	COM	505 x 525 x 97.5	09:35:41
151	2021-006Q	SpaceBEE-47	Swarm Tech	COM	505 x 525 x 97.5	09:35:48
152	2021-006BD	SpaceBEE-58	Swarm Tech	COM	505 x 525 x 97.5	09:35:50
153	2021-006P	SpaceBEE-46	Swarm Tech	COM	504 x 525 x 97.5	09:35:57
154	2021-006N	SpaceBEE-52	Swarm Tech	COM	503 x 523 x 97.5	09:36:29
155	2021-006C	Starlink 2201	SpaceX/Seattle	COM	299 x 306 x 97.5	09:41:05
156	2021-006D	Starlink 2202	SpaceX/Seattle	COM	309 x 311 x 97.5	09:49:26
157	2021-006K	Starlink 2208	SpaceX/Seattle	COM	309 x 311 x 97.5	09:49:33
158	2021-061A	Neimenggu 1	Changguang WJ	IMG	528 x 545 x 97.5	09:57:21
159	2021-061C	Jilin-1 GaoFen 03D 02 xing	Changguang WJ	IMG	525 x 545 x 97.5	09:57:46
160	2021-061E	Guangdong Hengjian	Guoxing	IMG	526 x 544 x 97.5	09:57:50
161	2021-061D	Jilin-1 GaoFen 03D 03 xing	Changguang WJ	IMG	525 x 544 x 97.5	09:57:53
162	2021-061B	Jilin-1 GaoFen 03D 01 xing	Changguang WJ	IMG	525 x 543 x 97.5	09:58:04
163	2021-006B	Starlink 2200	SpaceX/Seattle	COM	300 x 306 x 97.5	09:58:28
164	2021-088B	Cesium Satellite 1	Cesium	TECH	551 x 579 x 97.6	10:06:05
165	2021-088E	CuPID	BU	AST	549 x 573 x 97.6	10:06:27
166	2021-088C	Cesium Satellite 2	Cesium	TECH	549 x 579 x 97.6	10:06:28
167	2021-088D	CUTE	Colorado	AST	548 x 573 x 97.6	10:06:29
168	2021-088A	Landsat 9	USGS EROS/GSFC	IMG	701 x 703 x 98.2	10:12:38
169	2021-050D	Tianjian	Hangtian Gongch.	TECH	487 x 501 x 97.5	10:20:26
170	2021-050B	Yangwang 1	Qiyuan Taikong	AST	485 x 499 x 97.5	10:21:04
171	2021-050C	Haisi-2	Xiamen Daxue	IMG	484 x 498 x 97.5	10:21:08
172	2021-050A	Beijing-3	21AT	IMG	484 x 498 x 97.5	10:21:10
173	2021-034C	AII-Bravo	Aurora Insight/NanoAvionics	SIG	608 x 612 x 97.8	10:21:59
174	2021-034F	Lemur-2-SpecialK	Spire	COM/MET-RO	608 x 611 x 97.8	10:22:16
175	2021-034B	Lemur-2-Amanda-Svante	Spire	COM/MET-RO	608 x 611 x 97.8	10:22:19
176	2021-034D	ELO Alpha	EutelsatSA	COM	608 x 610 x 97.8	10:22:38
177	2021-034E	NorSat-3	NSC	COM	606 x 609 x 97.8	10:23:13
178	2021-079A	Gao Fen 5-02	GWHYZ	IMG	700 x 701 x 98.3	10:24:19
179	2021-073D	LEDSAT	Roma	TECH	523 x 563 x 97.5	10:26:18
180	2021-033G	Jin Zijing 1-01	Ling Zhong/HKATG	IMG	490 x 508 x 97.4	10:26:18
181	2021-033A	Qilu-1	Shandong changye/Shandong	IMG	491 x 509 x 97.4	10:26:21
182	2021-073B	RADCUBE	MTA ER/C3S	SCI	522 x 562 x 97.5	10:26:25
183	2021-073C	Sunstorm	Reaktor Space/ESA	AST	523 x 563 x 97.5	10:26:26
184	2021-033E	Tianqi Xingzuo 09	Guodian Gaokeji	COM	490 x 508 x 97.4	10:26:29
185	2021-033C	Foshan 1	Jihua Lab	IMG	490 x 507 x 97.4	10:26:41
186	2021-033F	NEO-1	Qiyuan Taikong	TECH	490 x 508 x 97.4	10:26:58
187	2021-067A	Tianhui 1-04	G. Cehui dili	IMG	494 x 497 x 97.5	10:27:00
188	2021-073A	BRO-4	Unseen Labs	SIG	519 x 561 x 97.5	10:27:13
189	2021-033D	Zhongan Guotong 1	Zhong'an Guotong	IMG	488 x 505 x 97.4	10:27:17
190	2021-033B	Qilu-4	Shandong changye/Shandong	IMG	486 x 507 x 97.4	10:27:19
191	2021-033H	Jin Zijing 1-02	Ling Zhong/HKATG	IMG	488 x 505 x 97.4	10:27:37
192	2021-033J	Taijing 2-01	Weina	IMG	486 x 501 x 97.4	10:28:08
193	2021-073E	Pleiades Neo 4	ADS Intelligence	IMG	622 x 625 x 97.9	10:29:59
194	2021-034A	Pleiades Neo 3	ADS Intelligence	IMG	623 x 625 x 97.9	10:30:00
195	2021-131A	Zi Yuan 1-02E	CRESDA	IMG	772 x 775 x 98.6	10:30:21
196	2021-131B	Hope-OSCAR-113	CAMSAT	COM	761 x 766 x 98.6	10:30:29
197	2021-015T	GHRCEsat	GHRCE	TECH	489 x 503 x 97.4	10:30:54
198	2021-015U	JITsat	Jeppiaar	TECH	488 x 502 x 97.4	10:30:58
199	2021-015S	Sri Shakthi Sat	SIET	TECH	488 x 503 x 97.4	10:31:08

Table 10: SSO satellites launched in 2021, ordered by local time of descending node (cont.)

No	Piece	Name	Operator	Mission	Orbit	LTDN
200	2021-015V	Satish Dhawan SAT	Space Kids India	TECH	494 x 502 x 97.4	10:31:17
201	2021-117B	Lize 1	Changsha Tianyi/Yingshiruida	TECH	485 x 502 x 97.4	10:32:16
202	2021-117C	Baoyun	Changsha Tianyi	TECH	483 x 502 x 97.4	10:32:18
203	2021-117A	Tianjin Daxue 1	Tianjin U.	IMG	483 x 500 x 97.4	10:32:21
204	2021-117D	Jin Zijing 5	HKATG	IMG	481 x 502 x 97.4	10:32:22
205	2021-015J	SpaceBEE-83	Swarm Tech	COM	483 x 495 x 97.4	10:32:23
206	2021-015E	SpaceBEE-87	Swarm Tech	COM	484 x 495 x 97.4	10:32:24
207	2021-015H	SpaceBEE-84	Swarm Tech	COM	483 x 495 x 97.4	10:32:28
208	2021-015G	SpaceBEE-85	Swarm Tech	COM	483 x 495 x 97.4	10:32:28
209	2021-015F	SpaceBEE-86	Swarm Tech	COM	483 x 495 x 97.4	10:32:29
210	2021-117E	Jin Zijing 1-03	HKATG	IMG	477 x 500 x 97.4	10:32:29
211	2021-015K	SpaceBEE-82	Swarm Tech	COM	483 x 494 x 97.4	10:32:35
212	2021-015L	SpaceBEE-81	Swarm Tech	COM	483 x 494 x 97.4	10:32:38
213	2021-015P	SpaceBEE-80	Swarm Tech	COM	483 x 494 x 97.4	10:32:39
214	2021-015R	SpaceBEE-79	Swarm Tech	COM	483 x 494 x 97.4	10:32:41
215	2021-015M	SpaceBEE-78	Swarm Tech	COM	482 x 493 x 97.4	10:32:42
216	2021-015Q	SpaceBEE-77	Swarm Tech	COM	482 x 493 x 97.4	10:32:49
217	2021-015N	SpaceBEE-76	Swarm Tech	COM	482 x 493 x 97.4	10:32:53
218	2021-015D	Sindhu Netra	PES Univ./DRDO	TECH/COM	488 x 502 x 97.4	10:33:43
219	2021-015C	NanoConnect-2/SAI-1	UNAM/Space AI	TECH	486 x 501 x 97.4	10:33:52
220	2021-015A	Amazonia-1	INPE	IMG	754 x 756 x 98.5	10:34:58
221	2021-086A	Jilin-1 Gaofen 02D	Changguang WJ	IMG	530 x 545 x 97.5	12:38:37
222	2021-097A	Jilin-1 Gaofen 02F	Changguang WJ	IMG	527 x 546 x 97.5	12:39:05
223	2021-059P	EG-3	Echostar AU	TECH	642 x 660 x 96.0	12:46:37
224	2021-032A	USA 314	NRO	IMG*	549 x 771 x 98.1	13:02:17
225	2021-099A	Yaogan 32 hao 02 zu 01 xing	PLA GAD	SIG	695 x 696 x 98.1	13:57:24
226	2021-099B	Yaogan 32 hao 02 zu 02 xing	PLA GAD	SIG	694 x 696 x 98.1	13:57:26
227	2021-059AD	Umbra-SAR 2001	Umbra Labs	IMG-R	536 x 551 x 97.5	14:04:32
228	2021-059AG	PACE-1	ARC	TECH	520 x 534 x 97.5	14:05:26
229	2021-059CN	NAPA-2	RTAF	IMG	520 x 537 x 97.5	14:05:26
230	2021-059AK	ION SVC03 Dauntless David	D-ORBIT	TECH	526 x 534 x 97.5	14:05:32
231	2021-059Y	TROPICS Pathfinder	MIT/GSFC	SCI	520 x 533 x 97.5	14:05:32
232	2021-059AA	LINCS 2	GA-EMS/SDA	COM	520 x 533 x 97.5	14:05:33
233	2021-059CQ	W-Cube	Reaktor Space	TECH	520 x 536 x 97.5	14:05:48
234	2021-059M	SpaceBEE-104	Swarm Tech	COM	522 x 533 x 97.5	14:05:49
235	2021-059T	SpaceBEE-105	Swarm Tech	COM	522 x 533 x 97.5	14:05:52
236	2021-059X	TUBIN	TUB	TECH	521 x 534 x 97.5	14:05:52
237	2021-059E	SpaceBEE-100	Swarm Tech	COM	521 x 533 x 97.5	14:05:57
238	2021-059F	SpaceBEE-101	Swarm Tech	COM	522 x 533 x 97.5	14:05:59
239	2021-059H	SpaceBEE-102	Swarm Tech	COM	521 x 532 x 97.5	14:06:01
240	2021-059CR	Neptuno	Elecnor Deimos	SIG	519 x 530 x 97.5	14:06:03
241	2021-059K	SpaceBEE-103	Swarm Tech	COM	521 x 532 x 97.5	14:06:06
242	2021-059G	Lemur-2 Jackson	Spire	COM/MET-RO	520 x 531 x 97.5	14:06:08
243	2021-059D	SpaceBEE NZ-10	Swarm NZ	COM	520 x 531 x 97.5	14:06:08
244	2021-059AF	Mandrake 2B	SDA/DARPA	COM	520 x 533 x 97.5	14:06:08
245	2021-059J	SpaceBEE NZ-9	Swarm NZ	COM	520 x 531 x 97.5	14:06:09
246	2021-059AE	Mandrake 2A	SDA/DARPA	COM	520 x 534 x 97.5	14:06:09
247	2021-059Z	LINCS 1	GA-EMS/SDA	COM	520 x 534 x 97.5	14:06:14
248	2021-059AN	YAM-3	Loft Orbital	TECH	519 x 534 x 97.5	14:06:15
249	2021-059U	SpaceBEE-109	Swarm Tech	COM	520 x 533 x 97.5	14:06:20

Table 10: SSO satellites launched in 2021, ordered by local time of descending node (cont.)

No	Piece	Name	Operator	Mission	Orbit	LTDN
250	2021-059S	SpaceBEE-108	Swarm Tech	COM	520 x 533 x 97.5	14:06:20
251	2021-059Q	SpaceBEE-106	Swarm Tech	COM	521 x 532 x 97.5	14:06:22
252	2021-059V	Centauri 4	Fleet Space	COM	519 x 533 x 97.5	14:06:22
253	2021-059R	SpaceBEE-107	Swarm Tech	COM	520 x 532 x 97.5	14:06:23
254	2021-059CP	SPARTAN	Endurosat	TECH	520 x 529 x 97.5	14:06:27
255	2021-059L	SpaceBEE NZ-7	Swarm NZ	COM	519 x 531 x 97.5	14:06:29
256	2021-059N	SpaceBEE NZ-8	Swarm NZ	COM	519 x 531 x 97.5	14:06:29
257	2021-059AC	Rosalind	URUGUS S.A.	IMG	507 x 519 x 97.5	14:06:33
258	2021-059AV	D2/AtlaCom-1	NanoAvionics	TECH	516 x 533 x 97.5	14:06:34
259	2021-059W	SpaceBEE-110	Swarm Tech	COM	520 x 532 x 97.5	14:06:34
260	2021-059AJ	YAM-2	Loft Orbital	TECH	519 x 533 x 97.5	14:06:34
261	2021-059BE	Hawk 3B	HawkEye 360	SIG	512 x 533 x 97.5	14:06:37
262	2021-059AW	Lemur-2 AnnaBanana	Spire	COM/MET-RO	515 x 531 x 97.5	14:06:38
263	2021-059AM	ICEYE-X12	ICEYE	IMG-R	528 x 536 x 97.5	14:06:41
264	2021-059AP	ICEYE-X13	ICEYE	IMG-R	529 x 538 x 97.5	14:06:42
265	2021-059AH	GNOMES-2	PlanetiQ	COM	518 x 532 x 97.5	14:06:43
266	2021-059AB	SpaceBEE-111	Swarm Tech	COM	518 x 532 x 97.5	14:06:50
267	2021-059AR	ICEYE-X11	ICEYE	IMG-R	517 x 533 x 97.5	14:06:54
268	2021-059BS	QMR-KWT	Orbital Space KW	TECH	518 x 529 x 97.5	14:06:57
269	2021-059CM	Ghalib	Marshall Intech	TECH	518 x 529 x 97.5	14:06:59
270	2021-059AQ	ICEYE-X15	ICEYE	IMG-R	517 x 532 x 97.5	14:06:59
271	2021-059AL	Capella 5	Capella Space	IMG-R	513 x 526 x 97.5	14:07:04
272	2021-059BD	KSF1-A	Kleos Space	SIG	511 x 532 x 97.5	14:07:18
273	2021-059AX	Faraday Phoenix	In-Space	TECH	512 x 536 x 97.5	14:07:21
274	2021-059BC	Lemur-2 Merima	Spire	COM/MET-RO	510 x 532 x 97.5	14:07:25
275	2021-059AY	Lemur-2 John-Treires	Spire	COM/MET-RO	512 x 531 x 97.5	14:07:29
276	2021-059BA	Lemur-2 AC-Cubed	Spire	COM/MET-RO	510 x 533 x 97.5	14:07:29
277	2021-059CE	Astrocast-0203	Astrocast	TECH	513 x 533 x 97.5	14:07:31
278	2021-059CG	Hawk 3A	HawkEye 360	SIG	512 x 534 x 97.5	14:07:40
279	2021-059CA	Tanker-001 Tenzing	Astro Digital/Orbit Fab	TECH	512 x 534 x 97.5	14:07:46
280	2021-059AZ	KSF1-B	Kleos Space	SIG	511 x 532 x 97.5	14:07:49
281	2021-059BZ	KSF1-D	Kleos Space	SIG	510 x 531 x 97.5	14:07:52
282	2021-059CF	Shasta	Astro Digital/Orbital Sidekick	TECH	511 x 534 x 97.5	14:07:53
283	2021-059BB	PAINANI-2	SEDENA	TECH	513 x 533 x 97.5	14:07:55
284	2021-059BM	Shannon	Lynk	COM	511 x 533 x 97.5	14:07:57
285	2021-059CH	SHERPA-FX 2	Spaceflight Ind	TECH	511 x 534 x 97.5	14:07:57
286	2021-059BQ	SHERPA-LTE 1	Spaceflight Ind	TECH	510 x 526 x 97.5	14:07:58
287	2021-059CJ	Lemur-2 CarlSantaMari	Spire	COM/MET-RO	509 x 530 x 97.5	14:07:58
288	2021-059CC	Arthur	Aerospacelab	TECH	512 x 531 x 97.5	14:08:02
289	2021-059CD	Astrocast-0201	Astrocast	TECH	515 x 531 x 97.5	14:08:02
290	2021-059CK	Astrocast-0205	Astrocast	TECH	513 x 532 x 97.5	14:08:09
291	2021-059CB	Astrocast-0204	Astrocast	TECH	511 x 532 x 97.5	14:08:13
292	2021-059BT	Ayan-21	OQ Tech Rwanda	TECH	511 x 531 x 97.5	14:08:14
293	2021-059BK	SpaceBEE-97	Swarm Tech	COM	506 x 528 x 97.5	14:08:25
294	2021-059BY	SpaceBEE-98	Swarm Tech	COM	506 x 528 x 97.5	14:08:25
295	2021-059BV	SpaceBEE-99	Swarm Tech	COM	506 x 528 x 97.5	14:08:26
296	2021-059BH	SpaceBEE-96	Swarm Tech	COM	505 x 528 x 97.5	14:08:26
297	2021-059BN	SpaceBEE-93	Swarm Tech	COM	505 x 527 x 97.5	14:08:27
298	2021-059BL	SpaceBEE-94	Swarm Tech	COM	505 x 528 x 97.5	14:08:27
299	2021-059BJ	SpaceBEE-88	Swarm Tech	COM	505 x 527 x 97.5	14:08:28

Table 10: SSO satellites launched in 2021, ordered by local time of descending node (cont.)

No	Piece	Name	Operator	Mission	Orbit	LTDN
300	2021-059BF	SpaceBEE-92	Swarm Tech	COM	505 x 527 x 97.5	14:08:28
301	2021-059BP	SpaceBEE-91	Swarm Tech	COM	505 x 527 x 97.5	14:08:28
302	2021-059BW	SpaceBEE-90	Swarm Tech	COM	505 x 527 x 97.5	14:08:28
303	2021-059BU	SpaceBEE-95	Swarm Tech	COM	505 x 527 x 97.5	14:08:29
304	2021-059AT	Elisa	URUGUS S.A.	IMG	455 x 473 x 97.3	14:08:29
305	2021-059BG	SpaceBEE-89	Swarm Tech	COM	505 x 527 x 97.5	14:08:30
306	2021-059CL	Astrocast-0202	Astrocast	TECH	511 x 530 x 97.5	14:08:31
307	2021-059BR	KSF1-C	Kleos Space	SIG	510 x 532 x 97.5	14:08:34
308	2021-059BX	Hawk 3C	HawkEye 360	SIG	512 x 534 x 97.5	14:08:40
309	2021-059AU	Grace	URUGUS S.A.	IMG	455 x 473 x 97.3	14:09:13
310	2021-059AS	Sofya	URUGUS S.A.	IMG	455 x 473 x 97.3	14:09:13
311	2021-059A	Starlink 3003	SpaceX/Seattle	COM	515 x 520 x 97.5	14:09:44
312	2021-059B	Starlink 3004	SpaceX/Seattle	COM	515 x 520 x 97.5	14:09:46
313	2021-059C	Starlink 3005	SpaceX/Seattle	COM	516 x 519 x 97.5	14:09:48
314	2021-091K	Jin Zijing Weixing 2	Ling Zhong/HKATG	IMG	499 x 522 x 97.4	17:59:49
315	2021-091D	JTSY	SISE	COM	502 x 525 x 97.5	18:00:02
316	2021-091C	Tianshu-1	Huoyan	TECH	501 x 523 x 97.5	18:00:05
317	2021-091B	QX-1	DFH Shenzhen	MET	502 x 523 x 97.5	18:00:07
318	2021-091E	HEAD-2E	HEAD	COM	500 x 523 x 97.5	18:00:12
319	2021-091F	MD-1	DFH Shenzhen	SCI	501 x 522 x 97.5	18:00:12
320	2021-091G	SSS-1	APSCO/Beihang	TECH	501 x 522 x 97.5	18:00:13
321	2021-091H	HEAD-2F	HEAD	COM	500 x 523 x 97.5	18:00:13
322	2021-091J	Tianyuan-1	NJUST	TECH	500 x 523 x 97.5	18:00:15
323	2021-091L	SSS-2A	APSCO/SJTU	TECH	499 x 521 x 97.5	18:00:53
324	2021-091A	Xihe	NJU/SAST	AST	496 x 521 x 97.5	18:00:55
325	2021-022AC	NAPA-2 mass simulator?	GK Launch Serv.	TECH	533 x 563 x 97.5	22:53:06
326	2021-022X	BEESAT 8	TUB	SCI	533 x 562 x 97.5	22:53:17
327	2021-022U	KMSL	Chosun U	MGRAV	532 x 562 x 97.5	22:53:18
328	2021-022G	PUMBAA	Yonsei U	SCI	533 x 562 x 97.5	22:53:24
329	2021-022AM	BEESAT 5	TUB	SCI	531 x 561 x 97.5	22:53:26
330	2021-022AB	BEESAT 6	TUB	SCI	531 x 561 x 97.5	22:53:27
331	2021-022AA	ChallengeOne	Telnet Holding	SCI	532 x 563 x 97.5	22:53:27
332	2021-022AN	BEESAT 7	TUB	SCI	531 x 561 x 97.5	22:53:28
333	2021-022AP	NanoSatC-Br 2	INPE	SCI	532 x 561 x 97.5	22:53:29
334	2021-022V	Sirius-DZZ	VShE/OTs Sirius	SCI	532 x 563 x 97.5	22:53:37
335	2021-022W	NIU VsHE-DZZ	VShE	SCI	532 x 562 x 97.5	22:53:39
336	2021-022K	WildTrackCube-SIMBA	Roma/U. Nairobi	SCI	533 x 562 x 97.5	22:53:41
337	2021-022Z	Rocinante	Kepler Comms	COM	531 x 561 x 97.5	22:53:41
338	2021-022T	C3PO	Kepler Comms	COM	532 x 561 x 97.5	22:53:44
339	2021-022AD	GRB-Alpha	TUKE	SCI	532 x 562 x 97.5	22:53:44
340	2021-022L	Hiber 3	Hiber	SCI	532 x 560 x 97.5	22:53:49
341	2021-022Y	KSU-Cubesat	King Saud U	SCI	532 x 562 x 97.5	22:53:52
342	2021-022AE	OrbiKraft-Zorkiy	Sputniks	SCI	532 x 562 x 97.5	22:54:02
343	2021-022AF	3B5GSAT	Open Cosmos/Sateliot	SCI	531 x 560 x 97.5	22:54:16
344	2021-022R	Najm-1	KACST	IMG	534 x 559 x 97.5	22:54:31
345	2021-022N	ELSA-d Chaser	Astroscale	TECH	533 x 558 x 97.5	22:54:49
346	2021-022P	Unisat 7	GAUSS SrI	TECH	533 x 557 x 97.5	22:54:52
347	2021-022Q	Vigoride mass simulator	GK Launch Serv.	TECH	532 x 557 x 97.5	22:54:58
348	2021-022J	DMSat-1	Rashid Space Ctr	IMG	532 x 557 x 97.5	22:55:02
349	2021-022AK	BCCSAT-1	Bangkok Cr.Col./KMUTNB	IMG	533 x 555 x 97.5	22:55:10

Table 10: SSO satellites launched in 2021, ordered by local time of descending node (cont.)

No	Piece	Name	Operator	Mission	Orbit	LTDN
350	2021-022S	LacunaSat 2b	Lacuna Space/Open Cosmos	SCI	530 x 559 x 97.6	22:55:19
351	2021-022H	SAMSON 2	Technion	SCI	531 x 556 x 97.5	22:55:22
352	2021-022AG	STECCO	Roma	CAL	531 x 555 x 97.5	22:55:25
353	2021-022F	SAMSON 1	Technion	SCI	533 x 556 x 97.5	22:55:25
354	2021-022AL	FEES	GP Adv Proj	COM	532 x 553 x 97.5	22:55:29
355	2021-022M	SAMSON 3	Technion	SCI	531 x 556 x 97.5	22:55:29
356	2021-022A	CAS500-1	KARI	IMG	496 x 504 x 97.4	22:55:48
357	2021-022AJ	Magyar-OSCAR-106	BME	SIG	529 x 555 x 97.5	22:56:00
358	2021-022C	GRUS 1B	AXELSPACE	IMG	574 x 602 x 97.7	22:56:01
359	2021-022B	GRUS 1C	AXELSPACE	IMG	574 x 602 x 97.7	22:56:15
360	2021-022E	Suisen	Fukui ken	IMG	573 x 602 x 97.7	22:56:17
361	2021-022D	GRUS 1E	AXELSPACE	IMG	574 x 602 x 97.7	22:56:38
362	2021-022AH	DIY-OSCAR-111	DIYSatellite	TECH	526 x 552 x 97.5	22:56:45

3 Scientific Space Programs

Major scientific satellites launched this year were

- JWST, the NASA/ESA/CSA James Webb Space Telescope, an infrared astronomy observatory now on its way to Sun-Earth L2.
- IXPE, NASA's Imaging X-ray Polarimetry Explorer, which will study polarization of X-rays from neutron star and black hole sources.
- Xihe, the China H-Alpha Solar Explorer, was developed by Nanjing U. and SAST/Shanghai, and will carry out solar physics studies.
- Haiyang 2 04 was launched by China for oceanographic studies.
- Yangwang 1 is a small astronomy satellite from the private Chinese company Origin Space

In deep space:

- NASA's Lucy set off on a long-term mission to explore Jupiter's Trojan asteroids.
- NASA's DART will arrive at the Didymos system in Sep 2022 and impact the asteroid's moon, Dimorphos
- NASA's Perseverance rover landed on Mars on Feb 18. Its Ingenuity helicopter performed a series of test flights in the vicinity of the landing site.
- China's Tianwen-1 probe entered Mars orbit and its Zhurong rover landed on the Martian surface.
- The UAE Mars probe, Al'Amal (Hope), entered Martian orbit
- ESA's Solar Orbiter and NASA's Parker Solar Probe continued gravity assists to adjust their orbits to fly closer to the Sun
- ESA's Bepi Colombo made its first Mercury flyby
- NASA's Osiris-Rex departed Bennu and is en route to Earth with its asteroid sample

4 Military Space Activities

Military satellites include navigation, communications, and technology development missions in addition to the intelligence gathering activities that I report here.

4.1 Space Surveillance

China launched the TJS 6 geostationary satellite on Feb 4. It is thought to be another Huoyan early warning payload. Russia launched the 5th Kupol/EKS payload (Kosmos-2552) on Nov 25, part of a Molniya orbit system superseding the Oko satellites. The US Space Force's SBIRS GEO 5 satellite was launched on May 18.

The Space Force Odyssey payload, launched on Jun 13 to LEO, is testing technology for space surveillance.

4.2 Optical Imaging

China launched the Yaogan 34 satellite (Apr 30) and the Gao Fen 11-03 satellite (Nov 20), thought to be military imaging satellites, as well as Shiyan 6-02, possibly also with a military imaging mission.

The US National Reconnaissance office launced the large USA 314 satellite on Apr 26. The satellite is thought to be a CRYSTAL Block 5 spacecraft, the successor to the KH-11 series.

Russia launched the second small EMKA satellite, Kosmos-2551, on Sep 9. A small imaging cubesat, NAPA-2, was launched for the Royal Thai Air Force on Jun 30.

4.3 Radar Imaging

China launched one radar satellite, Gao Fen 12-02, thought to be part of a military program.

4.4 Signals Intelligence

China launched several groups of probable military signals intelligence satellites in 2021: Yaogan 30 groups 8, 9, and 10 (3 sats each; May 6, Jun 18, Jul 19); Yaogan 31 group 2, 3 and 4 (3 sats each; Jan 29, Feb 24, Mar 13); Yaogan 32 group 2 (2 sats), Nov 3; Yaogan 35A/B/C (3 sats, Nov 6) and SJ-6 Group 5 (2 sats, Dec 10). The TJS-9 satellite launched in December may be a Qianshao-3 geostationary SIGINT satellite.

Russian launched another Lotos-S1 satellite (Kosmos-2549, Feb 2) and the first Pion-NKS satellite (Kosmos-2550, Jun 25).

France launched its first operational SIGINT satellites (CERES 1 to 3, Nov 16).

4.5 NRO satellites with unknown missions

On Jun 15 three small NRO satellites were launched to a 600 km, 55 deg orbit. They were designated USA 316 to 318. Their mission is unknown.

4.6 USA satellite designations in 2021

The USA satellite designations were introduced in 1984 for US military satellites, to obscure the missions of the secret ones. Here is an index of USA names assigned in 2021.

The agency abbreviations are:

Del 4	Delta 4, US Space Force
Del 8	Delta 8, US Space Force
NRO	US National Reconnaissance Office
SMC	Space and Missile Center, LAAFB, US Space Force

Table 11: : USA satellite designations 2021

Cover name	Other name	Piece name	Agency	Orbit	Notes
USA 314	CRYSTAL Block 5 F2	2021-032A	NRO	524 x 758 x 98.02	Imaging
USA 315	SBIRS GEO 5	2021-042A	SMC/Del 4	35750 x 35824 x 7.6 GEO 8E	Early Warn
USA 316	[Unk Smallsat 9]	2021-052A	NRO	590? x 605? x 55.0	Unknown
USA 317	[Unk Smallsat 10]	2021-052B	NRO	590? x 605? x 55.0	Unknown
USA 318	[Unk Smallsat 11]	2021-052C	NRO	590? x 605? x 55.0	Unknown
USA 319	GPS III SV05	2021-054A	SMC/Del 8	20174 x 20192 x 55.1	Navigation

5 Space Stations in 2021

5.1 ISS traffic

Table 13 lists arrivals, departures, deployments and spacewalks at ISS during 2021.

Table 12: ISS event log, 2021

Date	Piece	Name	Operator	Event	Loc	Crew
2021 Jan 6 1511	2020-069A	S.S Kalpana Chawla	NG	Depart	Unity N	
2021 Jan 12 1405	2020-093A	Dragon CRS-21	SpaceX	Depart	Harmony Z	
2021 Jan 27 1118		EVA-69 EMU 3006, 3009	NASA	EVA	Quest	Hopkins, Glover
2021 Jan 27 1600	1998-067RY	ColKA cover	ESA	Jettison	Quest	
2021 Feb 1 1248		EVA-70 EMU 3006, 3009	NASA	EVA	Quest	Hopkins, Glover
2021 Feb 9 0521	2020-050A	Progress MS-15	Roskosmos	Depart	Pirs	
2021 Feb 17 0626	2021-011A	Progress MS-16	Roskosmos	Arrive	Pirs	
2021 Feb 22 0938	2021-013A	S.S. Katherine Johnson	NG	Arrive	Unity N	
2021 Feb 28 1101		EVA-71 EMU 3015, 3009	NASA	EVA	Quest	Rubins, Glover
2021 Mar 5 1133		EVA-72 EMU 3015, 3009	NASA	EVA	Quest	Rubins, Noguchi
2021 Mar 11 1330	1998-067RZ	EP-9	JAXA	Jettison		
2021 Mar 13 1309		EVA-73 EMU 3009, 3006	NASA	EVA	Quest	Glover, Hopkins
2021 Mar 14 1120	1998-067SF	Maya-2	DOST	Deploy	Kibo RMS/J-SSOD	
2021 Mar 14 1120	1998-067SG	OPUSAT-II	OPU	Deploy	Kibo RMS/J-SSOD	
2021 Mar 14 1120	1998-067SH	GuaraniSat	AEP Paraguay	Deploy	Kibo RMS/J-SSOD	
2021 Mar 14 1120	1998-067SB	RSP-01	RymanSat	Deploy	Kibo RMS/J-SSOD	
2021 Mar 14 1120	1998-067SD	Tsuru	Kyutech	Deploy	Kibo RMS/J-SSOD	
2021 Mar 15 1150	1998-067SE	Sanko/STARS-EC	Shizuoka	Deploy	Kibo RMS/J-SSOD	
2021 Mar 14 1150	1998-067SA	WARP-01 Nichirin	WARP	Deploy	Kibo RMS/J-SSOD	
2021 Mar 14 1430	1998-067SC	TAU-Sat-1	Tel Aviv U	Deploy	Kibo RMS/J-SSOD	
2021 Mar 22 0830	1998-067SJ	Lawkanat-1	Hokkaido/Myanmar	Deploy	Kibo RMS/J-SSOD-M	
2021 Mar 19 1638	2020-072A	Soyuz MS-17	Roskosmos	Depart	Rassvet	Ryzhikov, Kud'-Sverchkov, Rubins
2021 Mar 19 1712	2020-072A	Soyuz MS-17	Roskosmos	Arrive	Poisk	Ryzhikov, Kud'-Sverchkov, Rubins
2021 Apr 5 1030	2020-084A	Dragon Crew-1 Resilience	SpaceX	Depart	Harmony F	
2021 Apr 5 1108	2020-084A	Dragon Crew-1 Resilience	SpaceX	Arrive	Harmony Z	
2021 Apr 9 1105	2021-029A	Soyuz MS-18	Roskosmos	Arrive	Rassvet	Novitskiy, Dubrov, Vande Hei
2021 Apr 17 0134	2020-072A	Soyuz MS-17	Roskosmos	Depart	Poisk	Ryzhikov, Kud'-Sverchkov, Rubins
2021 Apr 24 0907	2021-030A	Dragon Crew-2 Endeavour	SpaceX	Arrive	Harmony F	
2021 May 2 0034	2020-084A	Dragon Crew-1 Resilience	SpaceX	Depart	Harmony Z	
2021 Jun 2 0525		VKD-48 Orlan MKS-5,4	Roskosmos	EVA	Poisk	Novitskiy, Dubrov
2021 Jun 2 1056	1998-67SK	SP RRZh container	Roskosmos	Jettison	Poisk	
2021 Jun 5 0909	2021-048A	Dragon CRS-22	SpaceX	Arrive	Harmony Z	
2021 Jun 14 0505	1998-067SL	RamSat	Oak Ridge Schools	Deploy	Kibo RMS/NRCSD	
2021 Jun 14 0505	1998-067SM	SOAR	Manchester	Deploy	Kibo RMS/NRCSD	
2021 Jun 16 1204		EVA-74 EMU 3009, 3006	NASA	EVA	Quest	Pesquet, Kimbrough
2021 Jun 20 1135		EVA-75 EMU 3009, 3015	NASA	EVA	Quest	Pesquet, Kimbrough
2021 Jun 22 1055	1998-067SP	Mir-Sat-1	MRIC	Deploy	Kibo RMS/J-SSOD	
2021 Jun 22 1230	1998-067SQ	G-SATELLITE-2	OneTeam	Deploy	Kibo RMS/J-SSOD	
2021 Jun 25 1145		EVA-76 EMU 3009, 3015	NASA	EVA	Quest	Pesquet, Kimbrough

Table 12: ISS event log, 2021(cont.)

Date	Piece	Name	Operator	Event	Loc	Crew
2021 Jun 29 1632	2021-013A	S.S Katherine Johnson	NG	Depart	Unity N	
2021 Jul 2 0059	2021-057A	Progress MS-17	Roskosmos	Arrive	Poisk	
2021 Jul 8 1445	2021-048A	Dragon CRS-22	SpaceX	Depart	Harmony Z	
2021 Jul 21 1044	2021-030A	Dragon Crew-2 Endeavour	SpaceX	Depart	Harmony F	
2021 Jul 21 1135	2021-030A	Dragon Crew-2 Endeavour	SpaceX	Arrive	Harmony Z	
2021 Jul 26 1055	2021-011A	Progress MS-16/Pirs	Roskosmos	Depart	Zvezda N	
2021 Jul 29 1329	2021-066A	Nauka	Roskosmos	Arrive	Zvezda	
2021 Aug 12 1007	2021-072A	S.S. Ellison Onizuka	NG	Arrive	Unity N	
2021 Aug 30 1430	2021-078A	Dragon CRS-23	SpaceX	Arrive	Harmony F	
2021 Sep 3 1410		VKD-49 Orlan MKS-5,4	Roskosmos	EVA	Poisk	Novitskiy, Dubrov
2021 Sep 9 1430		VKD-50 Orlan MKS-5,4	Roskosmos	EVA	Poisk	Novitskiy, Dubrov
2021 Sep 12 1149		EVA-77 EMU 3015,3009	NASA	EVA	Quest	Hoshide, Pesquet
2021 Sep 28 1221	2021-029A	Soyuz MS-18	Roskosmos	Depart	Rassvet	Novitskiy, Dubrov, Vande Hei
2021 Sep 28 1304	2021-029A	Soyuz MS-18	Roskosmos	Arrive	Nauka A	Novitskiy, Dubrov, Vande Hei
2021 Sep 30 1312	2021-078A	Dragon CRS-23	SpaceX	Depart	Harmony F	
2021 Oct 5 1223	2021-089A	Soyuz MS-19	Roskosmos	Arrive	Rassvet	Shkaplerov, Shipenko, Peresild
2021 Oct 6 0920	1998-067SR	Binar-1	Curtin U	Deploy	Kibo RMS/J-SSOD	
2021 Oct 6 0920	1998-067SS	Maya-3	DOST/UPD	Deploy	Kibo RMS/J-SSOD	
2021 Oct 6 0920	1998-067ST	Maya-4	DOST/UPD	Deploy	Kibo RMS/J-SSOD	
2021 Oct 6 1055	1998-067SU	CUAVA-1	CUAVA/Sydney	Deploy	Kibo RMS/J-SSOD	
2021 Oct 12 1100	1998-067SV	CapSAT	UIUC	Deploy	Kibo RMS/NRCSD	
2021 Oct 12 1230	1998-067SW	PR-CUnar2	UIPRB	Deploy	Kibo RMS/NRCSD	
2021 Oct 12 1230	1998-067SX	SPACE HAUC	U Mass. Lowell	Deploy	Kibo RMS/NRCSD	
2021 Oct 17 0114	2021-029A	Soyuz MS-18	Roskosmos	Depart	Nauka A	Novitskiy, Shipenko, Peresild
2021 Oct 20 2342	2021-057A	Progress MS-17	Roskosmos	Depart	Poisk	
2021 Oct 22 0421	2021-057A	Progress MS-17	Roskosmos	Arrive	Nauka A	
2021 Oct 30 0131	2021-098A	Progress MS-18	Roskosmos	Arrive	Zvezda	
2021 Nov 8 1905	2021-030A	Dragon Crew-2 Endeavour	SpaceX	Depart	Harmony Z	
2021 Nov 11 2332	2021-103A	Dragon Crew-3 Endurance	SpaceX	Arrive	Harmony F	
2021 Nov 20 1601	2021-072A	S.S. Ellison Onizuka	NG	Depart	Unity N	
2021 Nov 25 1122	2021-057A	Progress MS-17/adapter	Roskosmos	Depart	Nauka	
2021 Nov 26 1519	2021-111A	Prichal/Progress M-UM	Roskosmos	Arrive	Nauka	
2021 Dec 2 1108		EVA-78 EMU 3015,3004	NASA	EVA	Quest	Marshburn, Barron
2021 Dec 8 1340	2021-119A	Soyuz MS-20	Roskosmos	Arrive	Poisk	Misurkin, Maezawa, Hirano
2021 Dec 19 2350	2021-119A	Soyuz MS-20	Roskosmos	Depart	Poisk	Misurkin, Maezawa, Hirano
2021 Dec 22 0841	2021-127A	Dragon CRS-24	SpaceX	Arrive	Harmony Z	
2021 Dec 22 2303	2021-111A	Progress M-UM	Roskosmos	Depart	Prichal	

5.2 Chinese Space Station

Assembly of the long-awaited Chinese Space Station (CSS) began in 2021. Launch of Tianhe (天和号核心舱, Tianhe hao hexin cang, Tianhe core module) occurred on Apr 29 on a CALT Chang Zheng 5B rocket. The CSS is very similar in concept to the Soviet Mir complex; the core module has axial forward and aft ports as well as a docking node with lateral ports which will be used for additional modules; it is supplied by Tianzhou robot cargo ships and Shenzhou crew ferries.

As with the previous launch of CZ-5B, the rocket's 21-tonne core stage was left in low orbit to make an uncontrolled reentry. The two CZ-5B reentries are the most massive objects to be deliberately left to make such an uncontrolled reentry since Skylab in 1979. Most launch vehicles with similar non-restartable large core stages (e.g. Ariane 5, Shuttle) put them in marginally suborbital trajectories where their impact location can be accurately controlled; an upper stage or a payload propulsion system is then used to perform the last small delta-V for orbit insertion. The fact that CALT designed the CZ-5B to leave the inert core stage in orbit for a reentry at a random location exposes the public to excessive risk by the standards of most other space agencies.

The overall station is sometimes called the 'Tiangong station' (Tiangong Kongjianzhan), which is confusing following the now-completed misisons of the simpler Tiangong-1 and Tiangong-2 stations. It is more often just called the 'Chinese Space Station' (Zhongguo Kongjianzhan,中国空间站) and I will refer to it this way.

The first expedition arrived on Shenzhou-12 in June with Nie, Liu, Tang as the crew. They returned to Earth in September, with the second crew of Zhai, Wang and Ye arriving on Shenzhou-13 in October for a planned six month mission.

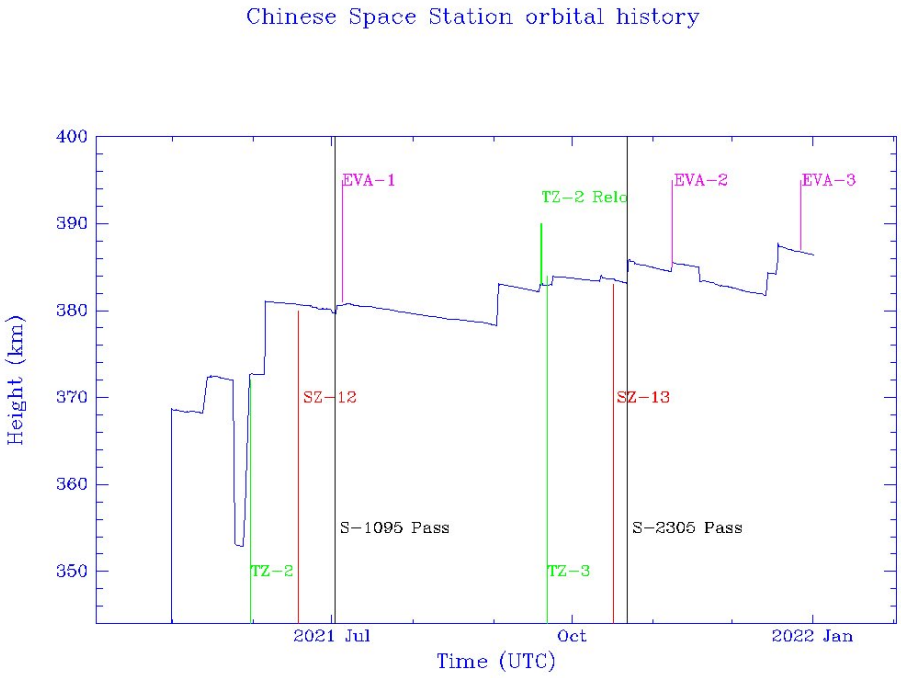


Figure 1: CSS orbital history, showing major events

In Dec 2021 China submitted document A/AC.105/1262 to the UN in which it complained about two close encounters with Starlink satellites. Analysis of the TLEs confirms that the close passes in question did indeed occur as described.

Table 13: CSS event log, 2021

Date	Piece	Name	Event	Loc	Crew
2021 Apr 29 0323	2021-035A	Tianhe	Launch		
2021 Apr 29 0331	2021-035A	Tianhe	Separation from core stage		
2021 May 9 0224	2021-035B	CZ-5B Y2 core stage	Reentry	Maldives 2.7N 72.5E	
2021 May 29 2101	2021-046A	Tianzhou-2	Arrive	TH Aft	
2021 Jun 17 0754	2021-053A	Shenzhou 12	Arrive	TH Fwd	Nie, Liu, Tang
2021 Jul 1 0950?	2021-035A	Tianhe / S-1095	COLA orbit adjust	Tianhe	
2021 Jul 4 0011		E1 EVA-1 (Feitian A,B)	EVA	TH AL	Liu, Tang
2021 Aug 20 0038		E1 EVA-2 (Feitian A,B)	EVA	TH AL	Nie, Liu
2021 Sep 16 0056	2021-053A	Shenzhou 12	Depart	TH Fwd	Nie, Liu, Tang
2021 Sep 18 0225	2021-046A	Tianzhou-2	Depart	TH Aft	
2021 Sep 18 0630?	2021-046A	Tianzhou-2	Arrive	TH Fwd	
2021 Sep 20 1408	2021-085A	Tianzhou-3	Arrive	TH Aft	
2021 Oct 15 2248	2021-092A	Shenzhou-13	Arrive	TH Nadir	Zhai, Wang, Ye
2021 Oct 21 0316?	2021-035A	Tianhe / S-2305	COLA orbit adjust	TH	
2021 Nov 7 1051?		E2 EVA-1 (Feitian A,C)	EVA	TH AL	Zhai, Wang
2021 Dec 26 1044		E2 EVA-2 (Feitian A,C)	EVA	TH AL	Ye, Zhai

On Jul 1 at 0950 UTC the CMSEO (zhongguo zairen hangtian gongcheng bangonghsi, China Human Spaceflight Engineering Office) commanded the CSS to make an orbit adjustment to dodge Starlink 1095, which was in the process of lowering its orbit towards disposal; a close (km or less) pass would otherwise have happened at about 1315 UTC. It appears that the Starlink also made a small avoidance burn around the same time, but it sounds like there was no advance communication between SpaceX and the CMSEO about the pass.

On Oct 21 the then-recently-launched Starlink-2305 satellite was orbit raising through the altitude of the CSS and was predicted to pass within 1 km of the Chinese station at about 2200 UTC. The CSS made an orbit adjustment at about 0316 UTC to avoid the encounter. In this case Starlink-2305 does not appear to have made any avoidance burns.

Note that when a satellite is in a well tracked and stable (constant) orbit, prediction of upcoming close passes is relatively straighforward. But when the orbital elements of the satellites are constantly changing, potentially unpredictably, as in the case of Starlink satellites changing their orbit with electric propulsion, prediction of such ‘conjunctions’ is not reliably possible.

China says it ‘has the honour to refer to article V of the [Outer Space Treaty] which provide that [States] should immediately inform the other [member states] of any phenomena they discover in outer space ... which could consititute a danger to the life or health of astronauts’. In other words, implying that SpaceX is such a phenomenon!

China also ‘brings to the attention [of] all States parties to the Outer Space Treaty ... article VI ... States ... bear interational responsibility for national activities .. whether by governmental agencies or by non-governmetnal entities...’. In other words, what SpaceX is doing is the responsibility of the US government.

One should note that the ISS has had to dodge Chinese space debris several times over the years, so no-one is pure here. However, I am encouraged that China is raising the profile of this issue at the UN - there’s been a lot of informal discussion and sniping in the press, but it’s very unusual to have a formal document presented to the UN by one country complaining about another country’s space activities. Taking it seriously would provide an opportunity not only to have action on this issue, but also to bring China itself into better compliance with international norms (on upper stage disposal, for example).

Figure 2: Apogee and perigee for S-1095 (blue) and CSS (red) during the Jul 1 encounter. It looks like S-1095 may also have done a small avoidance burn.

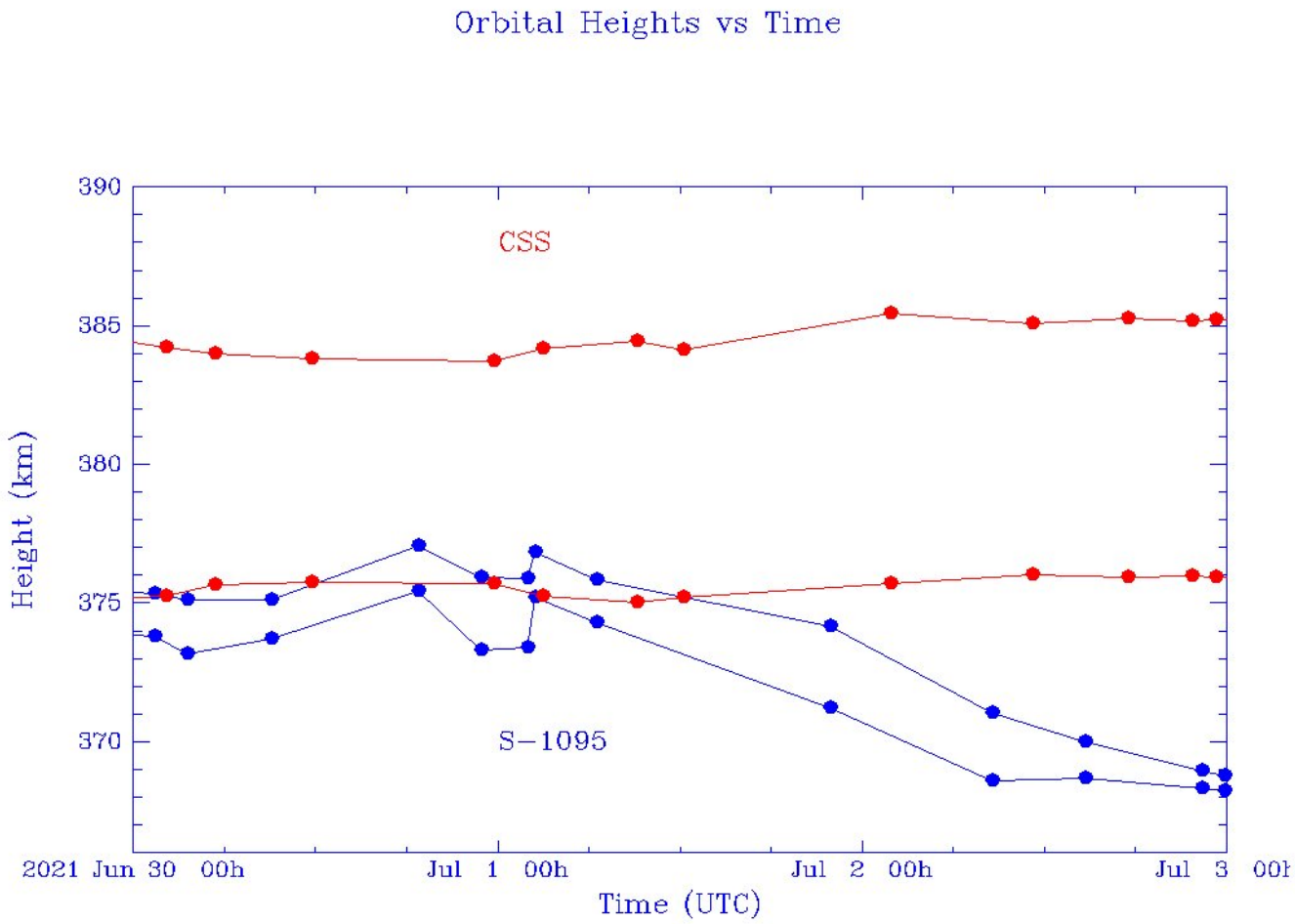
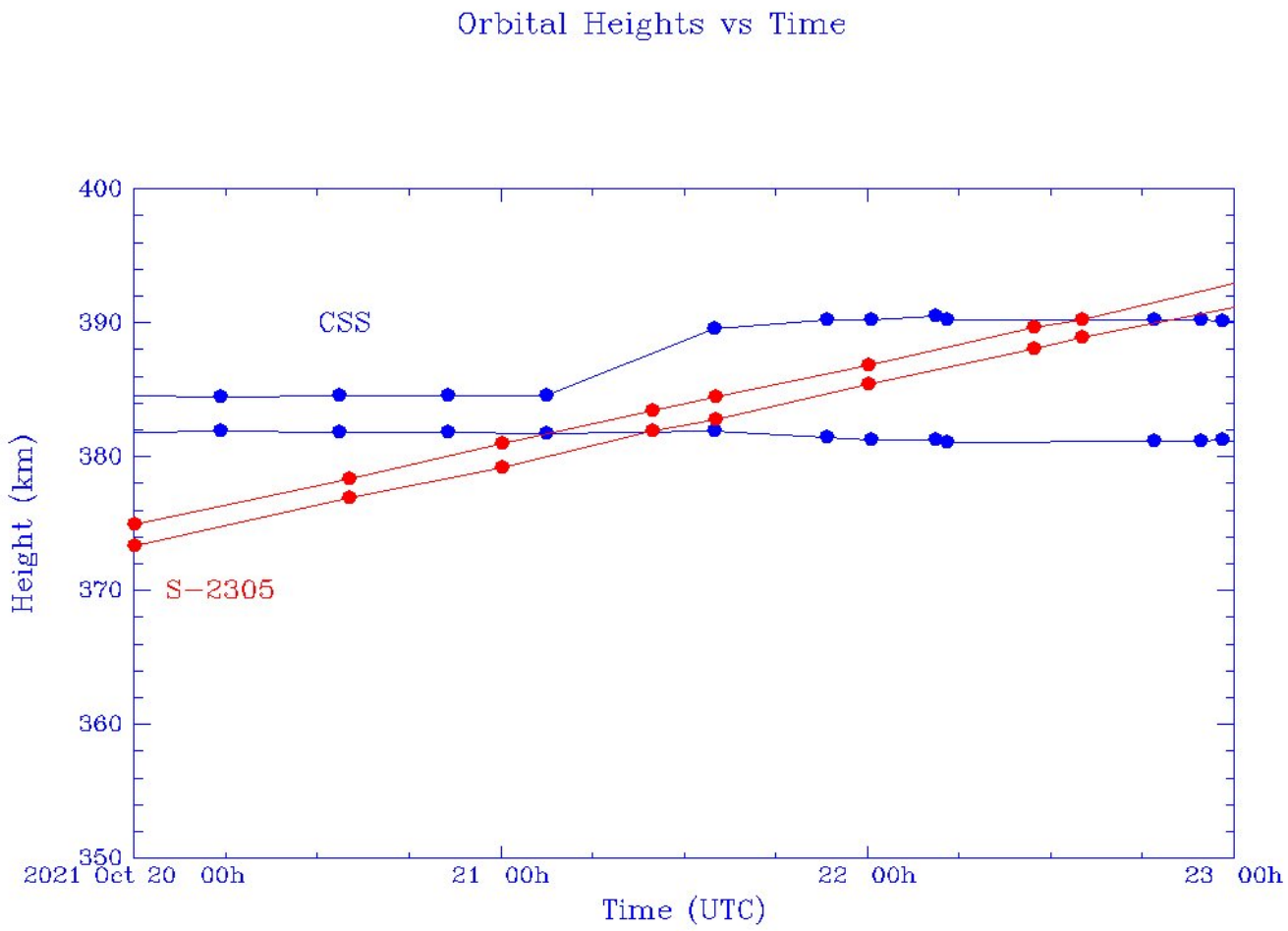


Figure 3: In contrast, for the Oct 21 pass of Starlink 2305, the CSS orbit change is more obvious and the Starlink, which had just begun orbit raising 5 days earlier, seems to be raising continuously without adjustment for the CSS pass



6 Orbital Debris and Orbital Decay

At the end of 2021there were 24422 cataloged objects in orbit or beyond and the total known mass in orbit increased to 9982 tonnes. The breakdown for number of objects is listed in table 14 and for the mass in orbit in table 15. Note that the sum of the individual mass figures falls short of the mass totals by a few tonnes due to complications with spurious catalog entries; but the uncertainties on those totals are probably in any case probably of the order of ten percent due to the uncertainty on masses of individual objects.

I include as active payloads any satellite thought to be still transmitting even occasionally, while other sources may only include those thought to be in full operational service. In either case, distinguishing active from dead payloads is often partly guesswork for those satellites which do not perform regular orbital maintenance manuevers, and the uncertainty in the total number of active satellites is probably of order 10%.

Estimates of total debris masses have been updated, and are somewhat lower than in previous editions of this report. A new category 'Alt.Pay.' (alternative payloads) has been added as a bookkeeping convenience to account for objects that are in a marginal category - could arguably be considered payloads but are not counted as such in most lists. They are mostly short lived and so make only a small contribution here.

Figure 4 shows the evolution of the debris population versus time; this year I mark Starlink satellites as a separate category. In Figure 5 to 9 I show subsets of this data for small and large objects (below/above 100 kg) and for the lower and upper parts of LEO (below/above 600 km), showing the dramatic difference in the population and its evolution for LLEO (Lower LEO, below 600 km) and ULEO (Upper LEO, 600-2000 km).

Table 14: : Debris objects in orbit at end of year, 2014-2021

	Active Payloads	Dead Payloads	Alt Pay.	Rocket Bodies	Op. Debris	FY1C debris	Iridium/ Strela deb	Other debris	Spurious	Total
2014 Dec 31	1263	2555	9	1682	1539	3027	1666	5904	6	17652
2015 Dec 31	1366	2596	10	1720	1541	2955	1554	6528	6	18277
2016 Dec 31	1466	2647	9	1753	1554	2931	1508	6589	6	18464
2017 Dec 31	1784	2724	9	1784	1575	2915	1486	6563	6	18847
2018 Dec 31	2037	2791	9	1845	1642	2901	1464	6708	6	19404
2019 Dec 31	2290	2911	9	1873	1671	2889	1455	6974	7	20080
2020 Dec 31	3291	3063	10	1894	1689	2879	1442	7542	6	21817
2021 Dec 31	4877	3111	12	1924	1727	2859	1417	8490	4	24422

Table 15: : Mass of objects in orbit at end of year, 2014-2021(tonnes)

	Active Payloads	Dead Payloads	Alt Pay.	Rocket Bodies	Op. Debris	FY1C debris	Iridium/ Strela deb	Other debris	Spurious	Total
2014 Dec 31	2544	1807	0	2918	152	0	0	1	0	7425
2015 Dec 31	2707	1835	0	3026	159	0	0	1	0	7731
2016 Dec 31	2840	1884	0	3113	163	0	0	1	0	8003
2017 Dec 31	2997	1923	0	3220	168	0	0	1	0	8312
2018 Dec 31	3188	1938	0	3394	167	0	0	1	0	8691
2019 Dec 31	3350	1973	0	3449	172	0	0	1	0	8948
2020 Dec 31	3680	2021	0	3502	177	0	0	1	0	9384
2021 Dec 31	4231	2018	1	3553	178	0	0	1	0	9982

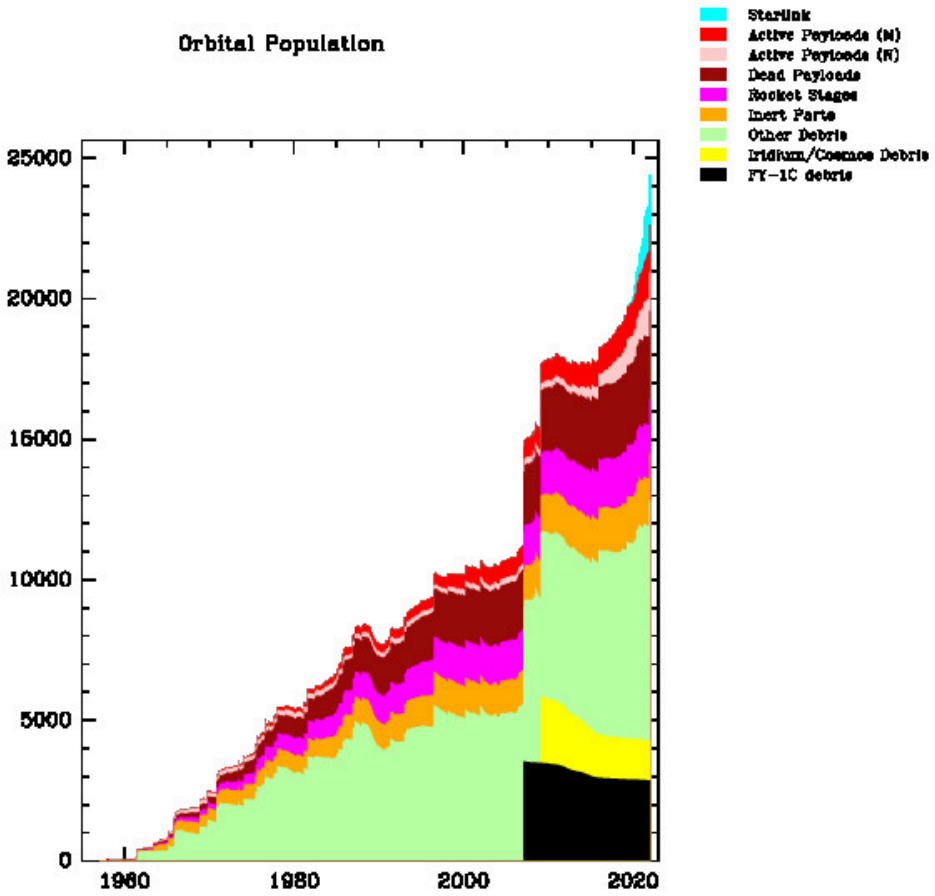


Figure 4: Orbital object population 1957-2021

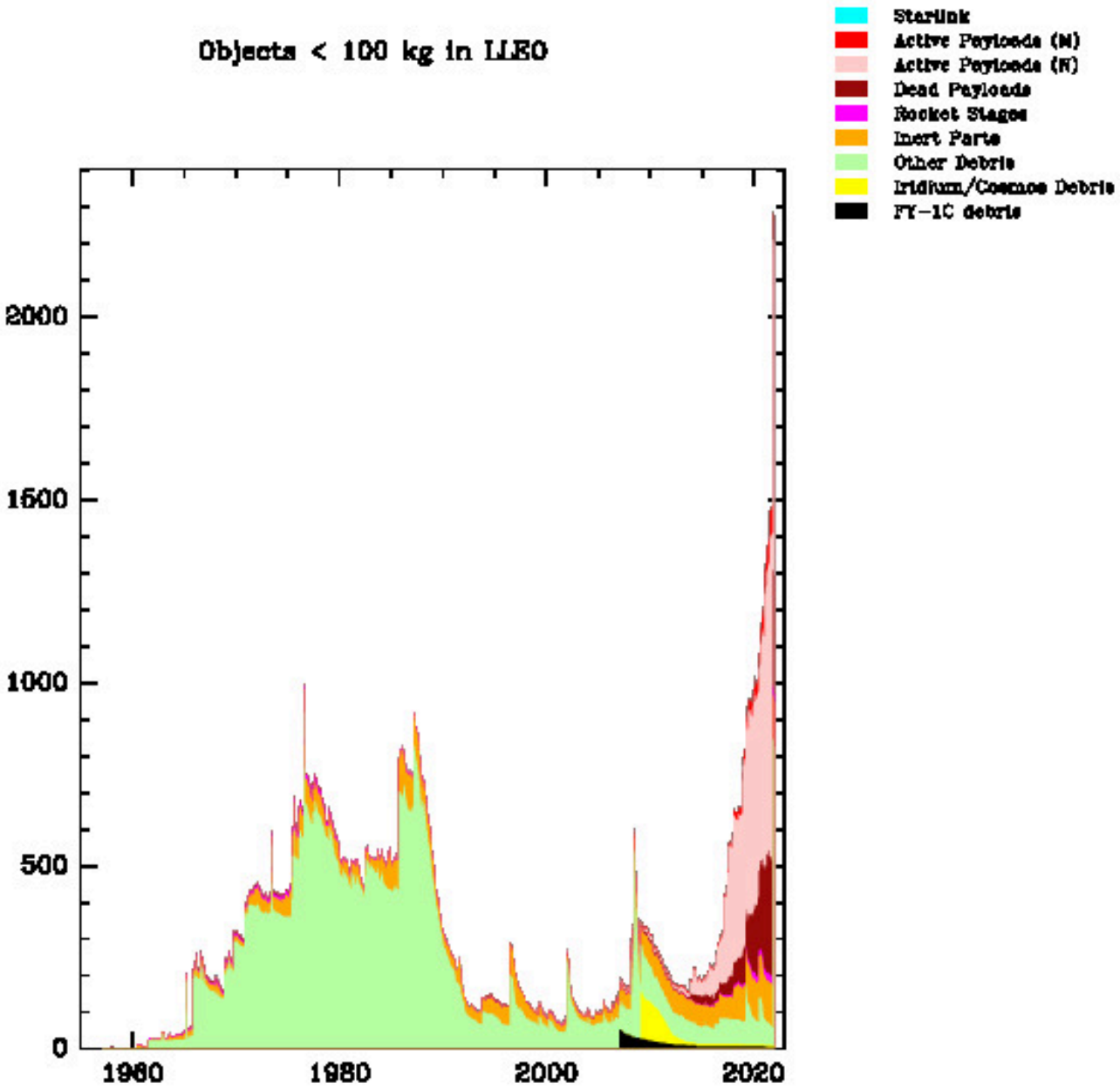


Figure 5: Time evolution of LEO debris and active satellite population (a): Small (<100 kg) objects in lower (< 600 km) LEO

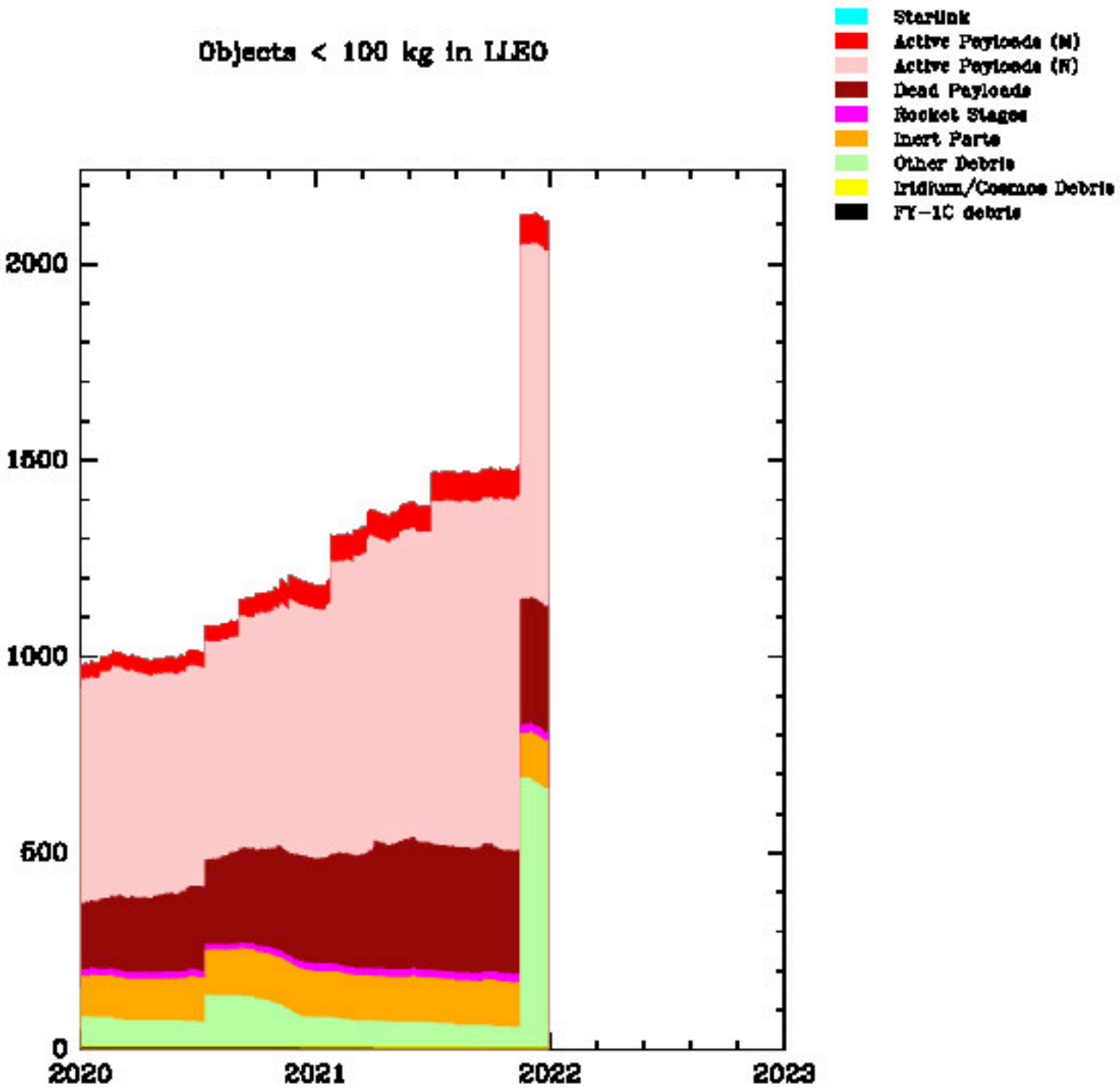


Figure 6: Closeup of last few years: Small (<100 kg) objects in lower (< 600 km) LEO, showing spike due to Russian ASAT test in late 2021

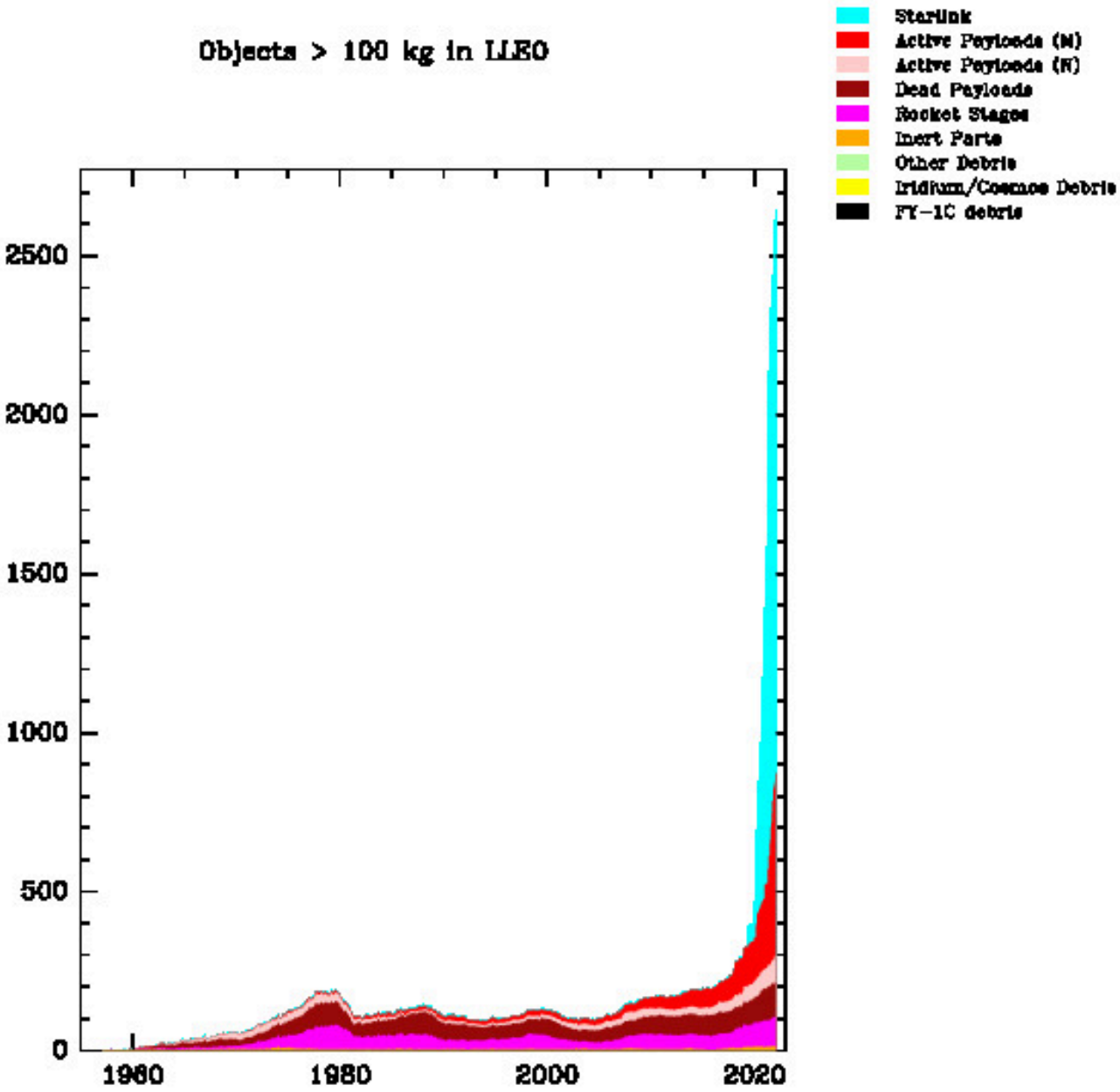


Figure 7: Time evolution of LEO debris and active satellite population (b): Big (>100 kg) objects in lower (< 600 km) LEO

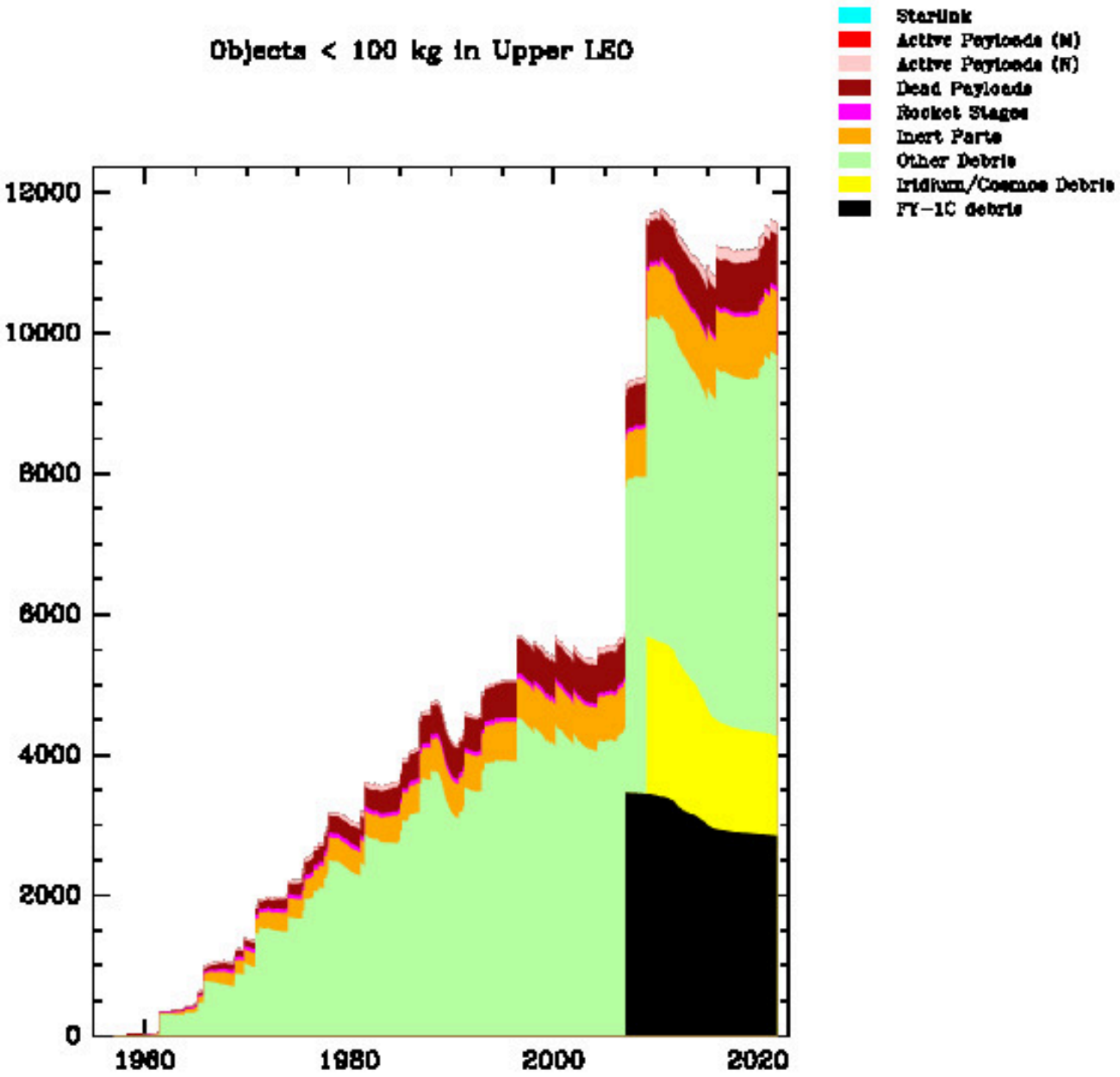


Figure 8: Time evolution of LEO debris and active satellite population (c): Small (<100 kg) objects in upper (> 600 km) LEO

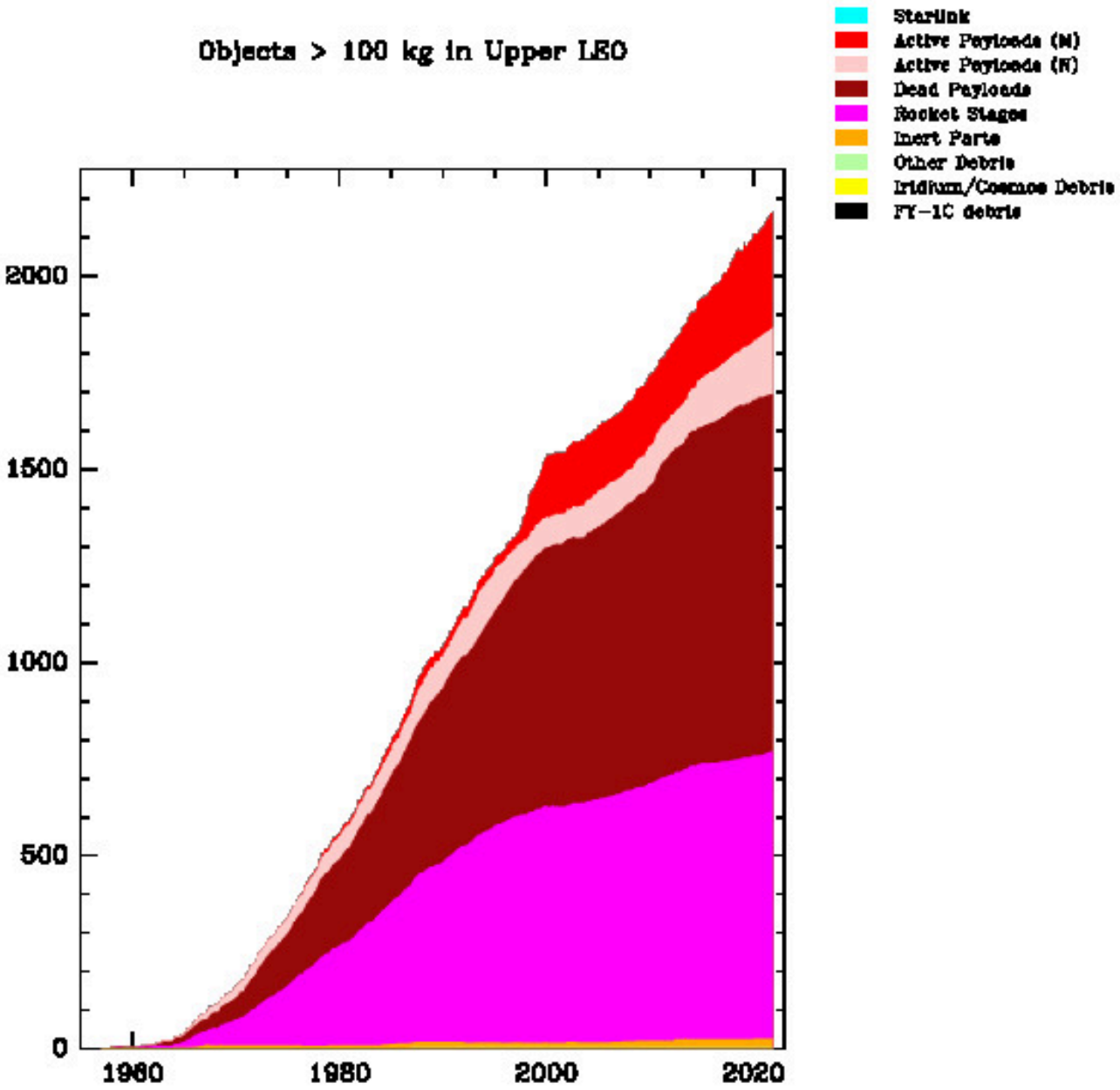


Figure 9: Time evolution of LEO debris and active satellite population (d): Big (>100 kg) objects in upper (> 600 km) LEO

6.1 Disposal of launch vehicle upper stages

For the 136 successful orbital launches I look at which launches went to which type of orbit, and whether rockets disposed of their upper stages in a controlled deorbit or whether they left one or more stages (and possibly associated debris) in orbit to decay naturally. Upper stages that achieve Earth escape are also counted as a controlled disposal.

The orbit categories are SSO (Sun-synchronous low Earth orbit), ISS (International Space Station launches), Other LEO (Low Earth orbit except for SSO and ISS); GTO (Geotransfer orbit), GEO direct (where launch vehicle upper stage deploys payload directly in geostationary orbit), 12-hour circular MEO orbits (as used by GPS), deep space (beyond about 150,000 km) and 'other high orbit'.

I will note that some SSO/other LEO launches perform a perigee lowering disposal burn to ensure stage reentry within a few weeks. However, the reentry location is still uncontrolled in these cases. Cases where SSO/LEO perigee lowering is to below 180 km are noted with an asterisk in the table.

Table 16: Launches by orbit and launch-associated Earth orbit debris, 2021

Launch vehicle	Total launches	Launches with upper stage disposal	Stages left in Earth orbit	Other LV debris
(a) SSO				
Arianespace Vega	2	2	0	0
CALT CZ-2C	1	0	1 (1*)	0
EXPACE KZ-1A	3	0	3 (1*)	0
ISRO/NSIL PSLV/GSLV	1	0	1	0
JAXA Epsilon	1	0	2	0
KVR Soyuz	1	0	1	0
NG Pegasus	1	0	1	0
SAST CZ-2D	4	4	0	0
SAST CZ-4B/C	7	0	7	7
SAST CZ-6	2	1	1	0
SpaceX Falcon 9	2	2	0	5
ULA Atlas V	1	1	0	0
ULA Delta 4	1	1	0	0
Xinghe Do. Gushenxing-1	1	1	0	0
Total SSO	28	12	17 (2*)	12
(b) ISS				
Khrunichev Proton	1	0	1	0
NG Antares	2	0	2	0
Roskosmos Soyuz	7	0	7	0
SpaceX Falcon 9	5	5	0	0
Total ISS	15	5	10	0
(c) CSS				
CALT CZ-2F	2	0	2	0
CALT CZ-5/5B	1	0	1	0
CALT CZ-7/7A	2	0	2	3
Total CSS	5	0	5	3

Table 16 (cont):

Launch vehicle	Total launches	Launches with upper stage disposal	Stages left in Earth orbit	Other LV debris
(d) Other LEO				
Arianespace Vega	1	0	1	0
Astra Rocket	1	0	1	0
CALT CZ-2C	5	1	4	0
GKLS Soyuz	1	1	0	2
KVR Soyuz	2	0	2	0
Khrunichev Angara	1	0	1	3
NG Minotaur 1	1	0	1	0
RocketLab Electron	5	0	10 (2*)	0
SAST CZ-2D	2	1	1	2
SAST CZ-4B/C	7	0	7	8
SAST CZ-6	2	0	2	0
SpaceX Falcon 9	19	16	3	70
Starsem Soyuz	8	8	0	0
VO Launcher One	2	0	2	0
Total Other LEO	57	27	35 (2*)	85
(e) GTO/MEO Transfer				
Arianespace Ariane 5	2	0	2	2
CALT CZ-3B/C	12	0	12	0
CALT CZ-7/7A	2	0	2	1
KVR Soyuz	1	0	1	0
Khrunichev Proton	1	0	1	1
MHI H-IIA/B	2	0	2	0
Roskosmos Soyuz	1	0	1	0
SpaceX Falcon 9	4	1	3	1
ULA Atlas V	1	1	0	0
Total GTO/MEO Transfer	26	2	24	5
(f) GEO Direct				
ULA Atlas V	1	0	1	0
Total GEO Direct	1	0	1	0
(g) 12-h MEO Direct				
Arianespace Soyuz	1	0	1	0
Total 12-h MEO Direct	1	0	1	0
(h) Deep Space/Escape				
Arianespace Ariane 5	1	0	0	0
SpaceX Falcon 9	1	0	0	0
ULA Atlas V	1	0	0	0
Total Deep Space/Escape	3	0	0	0
Total Overall	136	46	93 (4*)	105

6.2 Orbituaries

Table 17 gives statistics on reentries in 2021, not including deliberate deorbit and landing.

(Acknowledgements to Collin Krum for the revised section name).

Table 17: Uncontrolled Reentries 2021

	Number	Mass (t)
Active Payloads	114	21.1
Dead Payloads	44	11.5
Rocket Bodies	82	240.3
Operational debris	116	25.7
PRC ASAT/FY-1C debris	20	-
Strela/Iridium debris	25	-
Other fragment debris	141	-

In this table, ‘active payloads’ represents payloads which were thought to be active at the beginning of the year.

Controlled deorbits and landings

89 Starlink satellites reentered during 2021. The satellites orbits were lowered using thrusters but final reentry was uncontrolled.

The largest uncontrolled reentry was that of the CZ-5B Y2 first stage. Fortunately, unlike CZ-5B Y1 last year, it reentered over the ocean and no damage on the ground was reported; however, a reentry a mere 5 minutes earlier would have impacted Riyadh.

In addition to uncontrolled reentries, there were 10 controlled landings and 8 controlled deorbitings of spacecraft during 2021, representing the safe removal of around 100 tonnes from the orbital environment. 3 Russian Soyuz ships landed in Kazakhstan, two Crew Dragon and two Cargo Dragon ships splashed down in the Gulf of Mexico and one Crew Dragon and one Cargo Dragon off Florida's Atlantic coast; a Shenzhou capsule landed near Jiuquan in Inner Mongolia.

Eight ISS cargo ships (three Cygnus and five Progress) were deorbited destructively, all over the southern Pacific Ocean. One of them, Progress MS-16, took with it the retired Pirs airlock module.

Six objects reentered and burned up on controlled trajectories associated with landings of spacecraft (Soyuz orbital and propulsion modules). Six Dragon trunks were discared in orbit; three of these had made uncontrolled reentries by the end of the year.

In addition, 48 rocket stages were deorbited after only one or two Earth orbits. Only one of these was assigned a US Space Command catalog number.

A further 13 rocket stages, were inserted into slightly suborbital trajectories that ensured controlled disposal without the need for a deorbit burn (3 Ariane EPC, 3 Vega Z9A, 1 Proton stage 3, 1 Angara URM-2, 3 Soyuz-2 stage 3, 2 Chang Zheng 2C stage 2).

Table 18: Most massive uncontrolled reentries, 2021

COSPAR	Spacecraft	Date	Mass/kg	Location	Coords	Life (d)	Type
2019-009C	Falcon 9-069 Stage 2	2021 Jan 3 1329	4000.0?	20W 14N		681.49	Reentry
2013-038C	Ariane 5 L569 ESC-A	2021 Feb 10	5000.0?	-		2756.17	Reentry
2021-017BN	Falcon 9-110 Stage 2	2021 Mar 26 0400	4000.0?	123.0W 45.0N		21.82	Reentry
2021-035B	CZ-5B Y2 Stage 1	2021 May 9 0214	21600.0	72.5E 2.7N		9.95	Reentry
2020-089B	H-2A F43 Stage 2	2021 Jun 12 1834	4000.0	62W 7N		195.46	Reentry
2019-021B	Falcon Heavy-002 Stage 2	2021 Jun 14 0812	4000.0?	166E 20N		794.40	Reentry
2021-046B	CZ-7 Y3 Stage 2	2021 Jun 15 0843	6000.0	140W 24S		16.82	Reentry
2020-063B	CZ-2F T3 Stage 2	2021 Jul 1 0834	5500.0	136W 33N		300.04	Reentry
2021-053B	CZ-2F Y12 Stage 2	2021 Jul 3 1647	5500.0	177E 3N		16.64	Reentry
2021-U01	CZ-2C Yxx Stage 2	2021 Jul 27	3800.0?	-		-	Reentry
2021-066B	Proton-M No. 535-45 Stage 3	2021 Aug 6 0446	4185.0	156W 38N		15.57	Reentry
2021-082A	Falcon 9-126 Stage 2	2021 Sep 29 1502	3000.0?	120E 70S		15.46	Reentry
2021-085B	CZ-7 Y4 Stage 2	2021 Oct 4 2116	6000.0	69E 41N		14.59	Reentry
2021-092B	CZ-2F Y13 Stage 2	2021 Nov 1 1730?	5500.0	-		17.05	Reentry

For rocket upper stages deorbited soon after launch, the target impact zones are often many degrees in length along the orbit track, so the locations given below in Table 20 should not be taken too seriously.

Table 19: Landings and deorbits, 2021

COSPAR	Spacecraft	Date	Mass/kg	Location	Coords	Life (d)	Type
2020-093A	Dragon CRS-21	2021 Jan 14 0126	9000.0?	83.9W 28.6N		38.38	Landing?
2020-072A	Soyuz MS-17	2021 Apr 17 0455:12	2903.0	47.2N 69.3E		184.97	Landing?
2020-084A	Resilience	2021 May 2 0656:43	9500.0?	86.0W 29.8N?		167.27	Landing?
2021-048A	Dragon CRS-22	2021 Jul 10 0329	9000.0?	84.3W 29.2N		36.42	Landing?
2021-053A	Shenzhou 12	2021 Sep 17 0534:10?	3240.0	100 04E 41 37N		92.17	Landing?
2021-084A	Inspiration4	2021 Sep 18 2306:49?	9500.0?	80.3W 28.8N		2.96	Landing?
2021-078A	Dragon CRS-23	2021 Oct 1 0257	9000.0?	80.6W 29.8N		32.82	Landing?
2021-029A	Soyuz MS-18	2021 Oct 17 0435:44	2903.0	Kazakhstan		190.87	Landing?
2021-030A	Endeavour (SpX Crew-2)	2021 Nov 9 0332:45?	9500.0?	87.5W 29.8N		199.74	Landing?
2021-119A	Soyuz MS-20	2021 Dec 20 0313:40	2903.0	69 37E 47 21N		11.82	Landing?
2020-069A	S.S. Kalpana Chawla	2021 Jan 26 2023	2518.0	160W 45S?		115.80	Deorbit
2020-050A	Progress MS-15	2021 Feb 9 0913	4325.0	S Pacific		200.78	Deorbit
2020-026A	Progress MS-14	2021 Apr 29 0042	4325.0	S Pacific		368.95	Deorbit
2021-013A	S.S. Katherine Johnson	2021 Jul 2 0130?	2390.0	S Pacific		131.33	Deorbit
2001-041	Progress MS-16/Pirs	2021 Jul 26 1452	9727.0	S POR		7254.64	Deorbit
2021-057A	Progress MS-17	2021 Nov 25 1517:12	4325.0	POR		148.66	Deorbit
2021-072A	S.S. Ellison Onizuka	2021 Dec 15 0605?	2326.0	S POR		126.34	Deorbit
2021-111A	Progress M-UM PAO	2021 Dec 23 0430	2600.0	S POR		28.64	Deorbit

Table 20: Vehicles deorbited soon after launch, 2021

COSPAR	Spacecraft	Date	Mass/kg	Location	Coords	Life (d)	Type
2021-005	Falcon 9-106 Stage 2	2021 Jan 20 1530?	3000.0?	101E 50S?		0.10	Deorbit
2021-006	Falcon 9-107 Stage 2	2021 Jan 24 1658?	3000.0?	120W 46S?		0.08	Deorbit
2021-009	Falcon 9-108 Stage 2	2021 Feb 4	3000.0?	-		-	Deorbit
2021-012	Falcon 9-109 Stage 2	2021 Feb 16 0620?	3000.0?	70E 32S?		0.10	Deorbit
2021-018	Falcon 9-111 Stage 2	2021 Mar 11	3000.0?	-		-	Deorbit
2021-021	Falcon 9-112 Stage 2	2021 Mar 14	3000.0?	-		-	Deorbit
2021-022	Fregat No. 122-05	2021 Mar 22 1128?	1000.0	174E 10N?		0.22	Deorbit
2021-024	Falcon 9-113 Stage 2	2021 Mar 24	3000.0?	-		-	Deorbit
2021-025	Fregat No. 123-09	2021 Mar 25 0757?	1000.0	29W 45S?		0.21	Deorbit
2021-027	Falcon 9-114 Stage 2	2021 Apr 7	3000.0?	-		-	Deorbit
2021-030	Falcon 9-115 Stage 2	2021 Apr 23	3000.0?	90E 37S?		-	Deorbit
2021-031	Fregat No. 123-11	2021 Apr 25 0324?	1000.0	29W 45S?		-	Deorbit
2021-032	Delta 386	2021 Apr 26 2245?	3450.0	163W 49S?		0.08	Deorbit
2021-036	Falcon 9-116 Stage 2	2021 Apr 29	3000.0?	-		-	Deorbit
2021-034	Vega AVUM VV18	2021 Apr 29 0425?	660.0	85E 39S?		0.11	Deorbit
2021-038	Falcon 9-117 Stage 2	2021 May 4	3000.0?	-		-	Deorbit
2021-040	Falcon 9-118 Stage 2	2021 May 9	3000.0?	-		-	Deorbit
2021-041	Falcon 9-119 Stage 2	2021 May 15	3000.0?	-		-	Deorbit
2021-042	Centaur AV-091	2021 May 19 0300?	2020.0	164W 13N?		0.39	Deorbit
2021-044	Falcon 9-120 Stage 2	2021 May 26	3000.0?	-		-	Deorbit
2021-045	Fregat No. 123-10	2021 May 28 2248	1000.0	29W 45S?		0.21	Deorbit
2021-048	Falcon 9-121 Stage 2	2021 Jun 3 1828?	3000.0?	130E 50S?		0.04	Deorbit
2021-050	CZ-2D Y54 Stage 2	2021 Jun 11 0350?	4006.0	E Pacific		0.03	Deorbit
2021-054	Falcon 9-123 Stage 2	2021 Jun 17 2225?	3000.0?	30E 50S?		0.26	Deorbit
2021-059	Falcon 9-124 Stage 2	2021 Jun 30	3000.0?	-		-	Deorbit
2021-060	Fregat No. 123-12	2021 Jul 1 1758	1000.0	29W 45S?		0.21	Deorbit
2021-061	CZ-2D Y74 Stage 2	2021 Jul 3	4006.0	E Pacific		-	Deorbit
2021-U01	CZ Orbital RV	2021 Jul 27	1000.0?	-		-	Deorbit
2021-067	CZ-2D Y62 Stage 2	2021 Jul 29	4006.0	-		-	Deorbit
2021-073	Vega AVUM VV19	2021 Aug 17 0415?	660.0	88E 30S?		0.10	Deorbit
2021-075	Fregat No. 123-03	2021 Aug 21 0406	1000.0	29W 45S?		-	Deorbit
2021-076	Yuanzheng-1S Y2	2021 Aug 24 1625?	2500.0?	S Africa		0.22	Deorbit
2021-078	Falcon 9-125 Stage 2	2021 Aug 29 0814?	3000.0?	141E 51S?		0.04	Deorbit
2021-083	Fregat No. 123-05	2021 Sep 14 2359	1000.0	29W 45S?		0.24	Deorbit
2021-084	Falcon 9-127 Stage 2	2021 Sep 16 0120?	3000.0?	150W 28S?		0.05	Deorbit
2021-088	Centaur AV-092	2021 Sep 27 2131?	2020.0	172W 22N?		0.14	Deorbit
2021-091	CZ-2D Y53 Stage 2	2021 Oct 14	4006.0	-		-	Deorbit
2021-090	Fregat No. 123-14	2021 Oct 14 1450	1000.0	29W 45S?		0.22	Deorbit
2021-100	CZ-6 Y8 Stage 3	2021 Nov 5?	1000.0?	-		-	Deorbit
2021-103	Falcon 9-128 Stage 2	2021 Nov 11 0257?	3000.0?	98E 37S?		0.04	Deorbit
2021-104	Falcon 9-129 Stage 2	2021 Nov 13 1332?	3000.0?	166W 42S?		0.05	Deorbit
2021-115	Falcon 9-131 Stage 2	2021 Dec 3 0030?	3000.0?	166W 42S?		0.05	Deorbit
2021-117	Gushenxing-1 Stage 4	2021 Dec 7	150.0?	-		-	Deorbit
2021-121	Falcon 9-132 Stage 2	2021 Dec 9 0735?	3000.0?	113W 0N?		0.07	Deorbit
2021-125	Falcon 9-133 Stage 2	2021 Dec 18	3000.0?	-		-	Deorbit
2021-127	Falcon 9-135 Stage 2	2021 Dec 21	3000.0?	-		-	Deorbit
2021-132	Fregat No. 123-04	2021 Dec 27 1902:57	1000.0	29W 45S?		0.24	Deorbit
2021-134	CZ-2D Y41 Stage 2	2021 Dec 29	4006.0	-		-	Deorbit

6.3 Retirements in the GEO belt

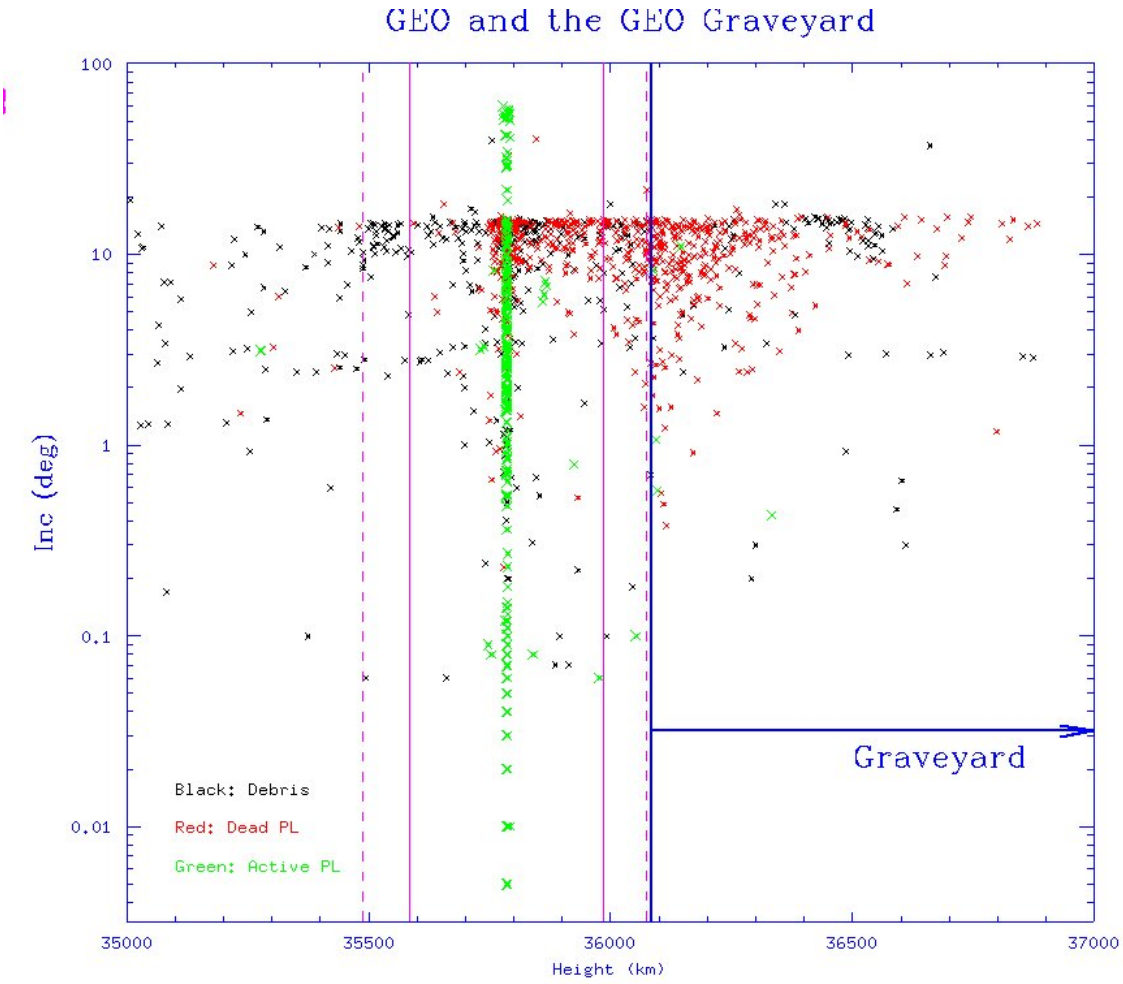


Figure 10: The figure shows log of orbital inclination vs orbital height for objects in the GEO region as of Jan 2021. Eccentrities are neglected. Active satellites (green), dead payloads (red) and debris (black) are indicated. The solid magenta lines are the GEO Protected Zone (GPZ = GEO+-200 km). Dashed magenta lines are GPZ +- 100 km (GEO +- 300 km) used in the results table. Blue line (GEO+300 km) indicates start of the GEO graveyard.

The GEO graveyard is taken to be 300 km or more above GEO (GEO is at 35786 km height.) Counts of objects in various regimes are shown below. The category 'Below GPZ' is actually defined to be objects 300 km or more below GEO.

The recommended GEO graveyard orbit begins at an altitude of 36086 km, 300 km above GEO. The table gives perigee and apogee altitude minus the GEO height of 35786 km, and is ordered by perigee.

During 2021, 18 satellites were retired from GEO; one, Measat 3, failed and was only raised by 147 km.

Table 21: GEO Population

	Debris	Dead payloads	Active payloads
Total	430	686	590
Graveyard	94	306	14
GPZ+-100	257	365	567
Below GPZ	79	15	9

Table 22: GEO retirements

ID	Satellite	Retired	Height above GEO in Jan 2021 km x km	Notes
2006-56A	Measat 3	2021 Sep 10	133 x 161	Failed
2000-46A	Star One B4	2021 Jun 15	295 x 332	
2005-46A	Telkom 2	2021 Jun 2	300 x 338	
2000-68A	Intelsat IS-12	2021 Oct 19	304 x 403	
2004-48A	AMC 16	2021 Aug 6	314 x 347	
2014-43B	GSSAP 2	2021 Oct 7?	315 x 335	
1997-08A	DSP F18	2021 Apr 2	312 x 393	
1997-53A	NSS 5	2021 Nov 26	316 x 348	
1999-06A	JCSAT 4A	2021 Dec 2?	316 x 513	
2002-15A	JCSAT 2A	2021 Jan 21	330 x 378	
2000-54A	Astra 2B	2021 Jun 12	337 x 434	
1997-07A	Intelsat IS-26	2021 Nov 7?	339 x 436	
1994-70A	Astra 1D	2021 Nov 7?	358 x 392	
2004-16A	DirectTV 7S	2021 Feb 9	361 x 410	
2009-46A	Palapa D	2021 Apr 20	361 x 506	
1999-13A	Asiasat 3S	2021 Nov 22?	378 x 415	
1999-27A	Nimiq 1	2021 Dec 18	433 x 530	
2000-28A	EUTELSAT 12 West F	2021 Oct 5	461 x 565	
2014-43A	GSSAP 1	2021 Feb 1?	1002 x 1026	

Table 22(b): Newly cataloged near-GEO debris

2021-118C	AV-093	2021 Dec 7	344 x 2860	
2021-118D	AV-093 debris?	2021 Dec 19?	203 x 330	

6.4 Debris events

There were 6 significant breakups during 2021, notablly the destruction of Kosmos-1408 by a Russian antisatellite weapon. The table indicates the number of objects cataloged so far from each, but note that often more objects are cataloged in later years following an event.

The small number of debris objects from Orbcomm and Minotaur cataloged in December 2021 appear to be from breakups a few weeks earlier. The source of those breakups is currently unknown, although the fact that they followed close on the Russian antisatellite debris event raises the possibility that these are secondary associated events.

Table 23: Breakups and debris events 2021

Date		Object	N cataloged	Orbit km x km x deg	Notes
2021 Mar 10 0711	27453	NOAA 17	115	800 x 817 x 98.6	Battery explosion?
2021 Mar 18 0741	44547	Yunhai 1-02	41	780 x 785 x 98.5	Collision (48078)
2021 Oct 24?	39765	Kosmos-2499 (Nivelir?)	21	1151 x 1508 x 82.4	Residual prop?
2021 Nov 15 0250?	13552	Kosmos-1408 (Tselina-D)	904	465 x 490 x 82.6	Destroyed by ASAT
2021 Nov 18?	25517?	Orbcomm?	8	758 x 763 x 45.0	Unknown
2021 Nov 26 2243?	45877	Minotaur rocket	8	565 x 583 x 54.0	Unknown

In addition, more fragments were cataloged from the earlier breakups of the 2007 Chinese ASAT test, as well as Resurs-O1 (1994-074), Satcom 3 (1979-101), Centaur AV-073 (2018-079), Fregat 2002 (2011-037), Ablestar 008 (1961 Omicron), and several Briz-M and CZ-3 upper stages.

7 Special Topics

7.1 SJ-21 and TJS-3

Shi Jian 21 (SJ-21) was launched in Oct 2021 into a drift orbit above the geostationary belt; it was announced as a SAST satellite for space debris reduction technologies. On Nov 1 it ejected a subsatellite and both the main satellite and the subsatellite performed maneuvers to rendezvous with each other. For about 10 days they remained about 50 km from each other and then SJ-21 reapproached the subsatellite to within a few km, remaining there through Dec 26 (a couple of cases of momentary apparent retreats to larger distances may just be bad data). On Dec 26 the two satellites separated, with the subsatellite remaining 300 km above GEO and the main satellite changing its orbit to an elliptical one with perigee 450 km below GEO.

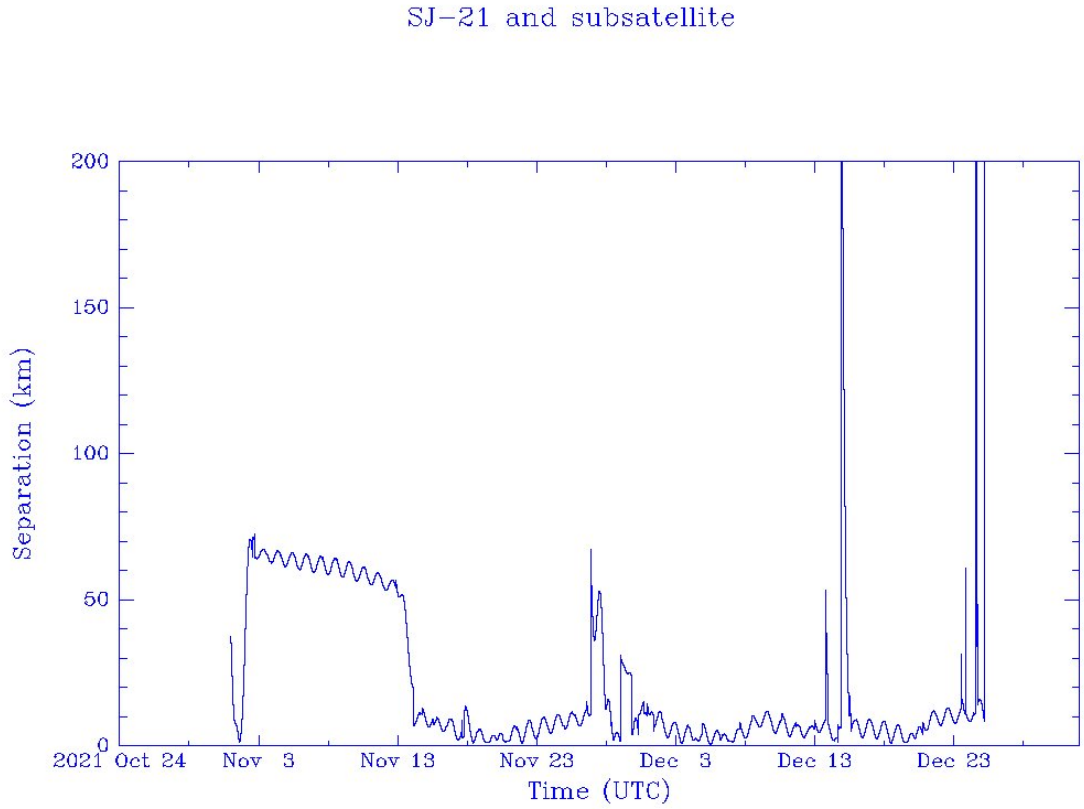


Figure 11: Separation vs time of SJ-21 and its subsatellite. The small wiggles are not thought to be real.

The SJ-21 mission is reminiscent of the TJS-3 (Tongxin Jishu Shiyan 3) mission which was carried out in geostationary orbit. In Dec 2018 TJS-3 was inserted in geostationary orbit at 59E. It released a subsatellite shortly afterwards. The two remained within 100 km until May 2019 when TJS-3 moved to 173E and the subsat adjusted its position to the old TJS-3 location. In Aug 2020 TJS-3 relocated to 111E, to 88E in early 2021, and then returned to 59E on 2021 Oct 7, once again maintaining a 100-200 km separation from the subsatellite, which had remained at 59E. On Nov 20 the subsatellite begin raising its orbit, retiring to a 36306 x 36361 km GEO graveyard orbit on Dec 1. At the end of the year TJS-3 itself remained on station at 59.0E.

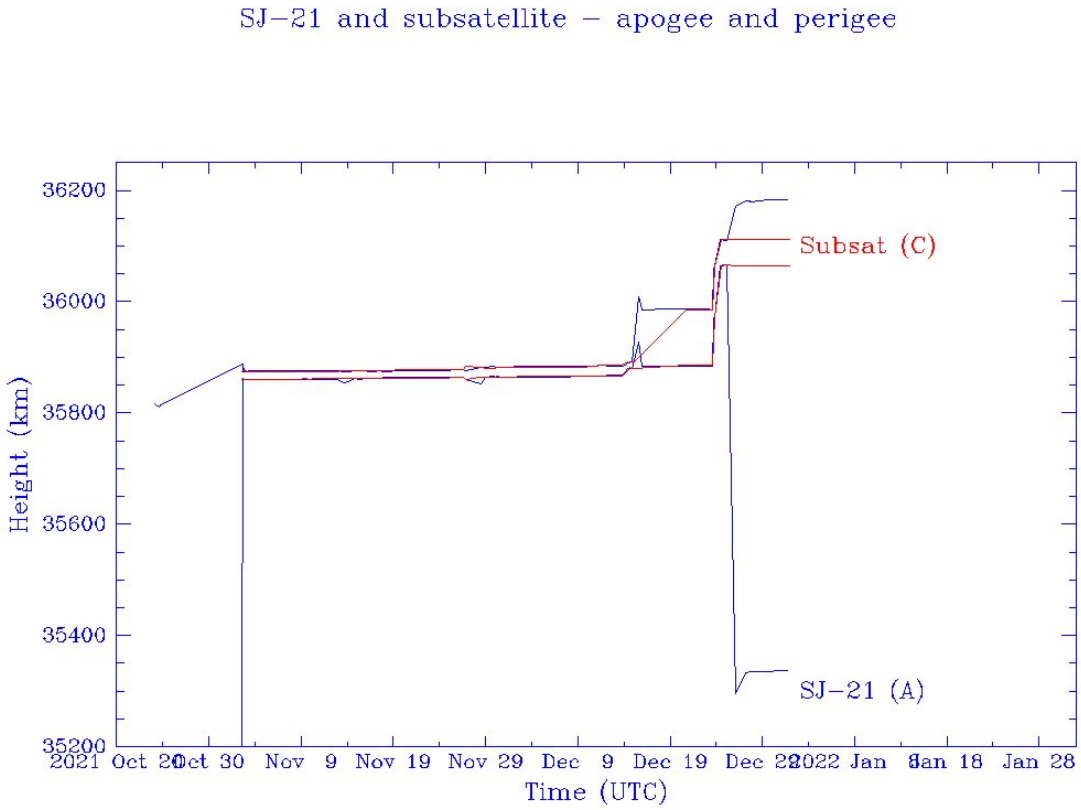


Figure 12: Height vs time of SJ-21 and its subsatellite

7.2 Nivelir program update

A series of Russian military satellites thought to be in a program called Nivelir were discussed in earlier years' reports. Kosmos-2536 continued its experiments with Kosmos-2535, returning to rendezvous with it on Mar 11 and departing again on Apr 12. The satellite lowered its perigee on Sep 14, remaining afterwards in a 528 x 614 km orbit.

Kosmos-2543, a similar satellite from a later launch, had carried out a rendezvous with Kosmos-2535 in Jun-Jul 2020. In Jul 2021 and Aug 2021 it returned the vicinity of the satellite making a few brief passes, but not rendezvous. Kosmos-2543 then lowered its orbit on 2021 Sep 3, possibly marking the end of its mission.

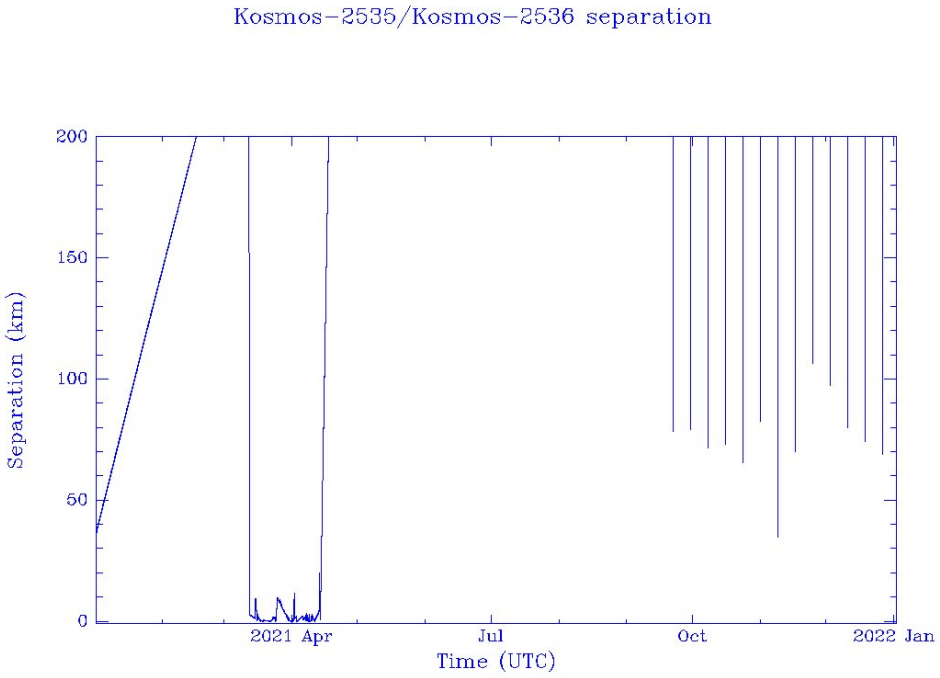


Figure 13: Distance between K2535 and K2536, showing close approach in Mar-Apr and more distant passes following orbit change in Sep.

7.3 Unacknowledged Chinese launch

In Oct 2021 reporters Demetri Sevastopulo and Kathrin Hille published a story in the Financial Times which quoted unnamed US government sources as revealing that China launched a missile sometime in August which placed a reentry vehicle (RV) in Earth orbit. The RV completed slightly less than one orbit and was deorbited for impact at an unspecified location (probably in China). This is a technique tested by the USSR in the 1960s and called 'Fractional Orbital Bombardment System' (FOBS) by the US defense community. The reports further suggest that the reentry vehicle was a manueverable hypersonic glide vehicle. The substance of the story was later confirmed by senior US Air Force and Space Force figures.

A denial from China implied that the Chinese think what is being referred to is the spaceplane test on Jul 16. At the time we thought it was a short range test, but as Marco Langbroek points out it might have been an one-orbit test where the landing was geographically not far from the takeoff. However, Chinese statements at the time described the test as suborbital, and a more recent FT statement specifies that the alleged FOBS launch was on Jul 27. No launch time is available. (A second 'hypersonic' test the new FT story mentions, on Aug 13, was not specified to be orbital.)

The launch vehicle is suspected to have been a CZ-2C, and Chinese statements indicate that the Jul 19 and Aug 24 CZ-2C launches were the 76th and 78th of the kind respectively, implying a launch between those two dates, consistent with the Jul 27 date. The earlier FT report also cites the US sources as saying the missile missed its target by 'two dozen miles', No upper stage was left in orbit, so the perigee was probably within the atmosphere or not much above it. The later reports also note that the reentry began over the South China Sea and ended on Chinese territory after a westward (retrograde) circuit of the Earth. The likely launch site for the mission is Taiyuan, although Jiuquan is also a possibility. I infer a likely orbital inclination of 137 degrees.

Space Force did not catalog any objects from the mission and it did not receive an international designation. I have assigned it the 'uncataloged' designation 2021-U01 in my system in GCAT (https://planet4589.org/space/gcat/), and added it to the launch lists as a probable CZ-2C launch.

Figure 14: A launch from Taiyuan on azimuth 313 at an Earth-relative velocity of 8.1 km/s would give the path below, with pass over the South China Sea at the end of the first orbit

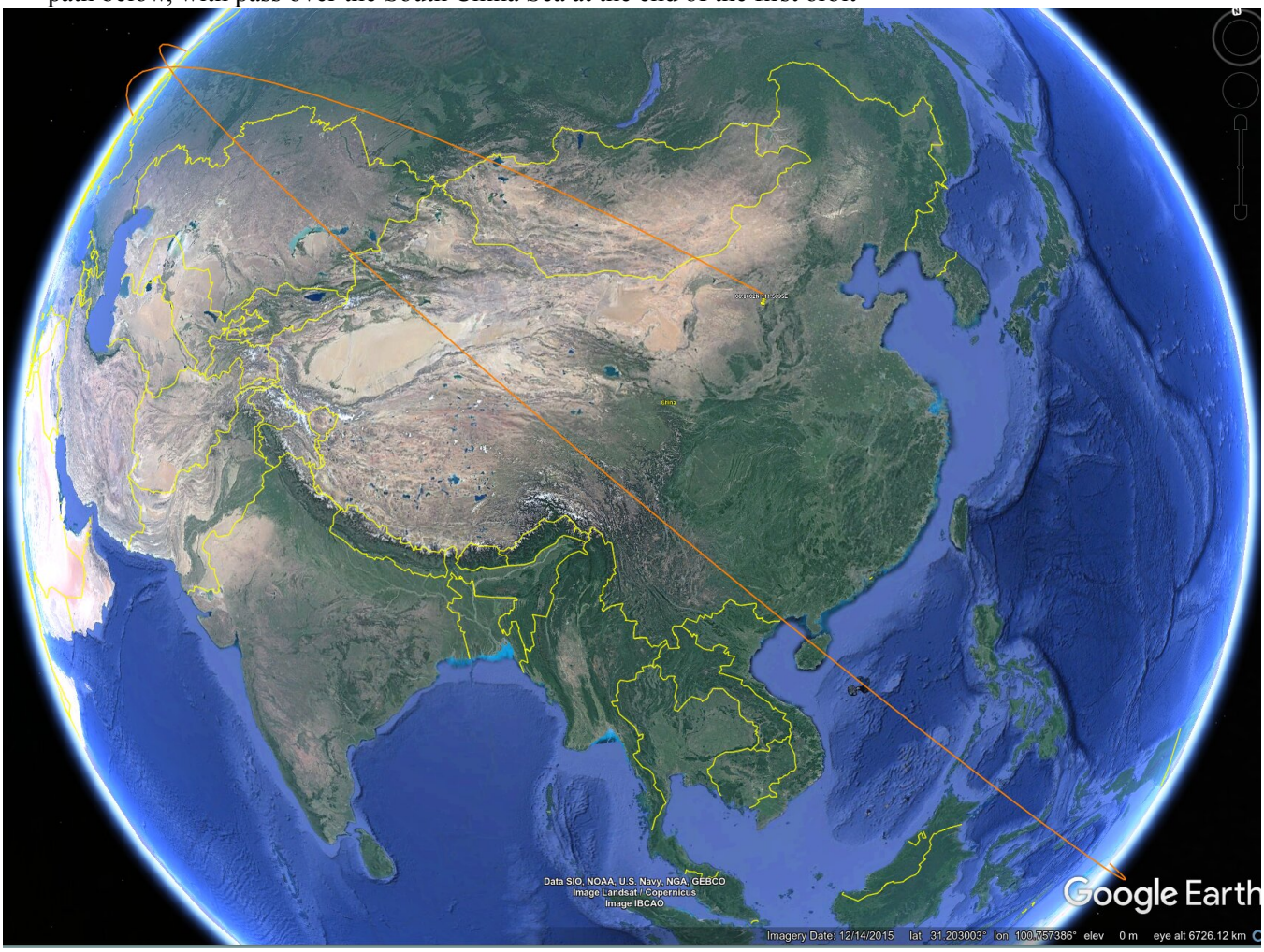
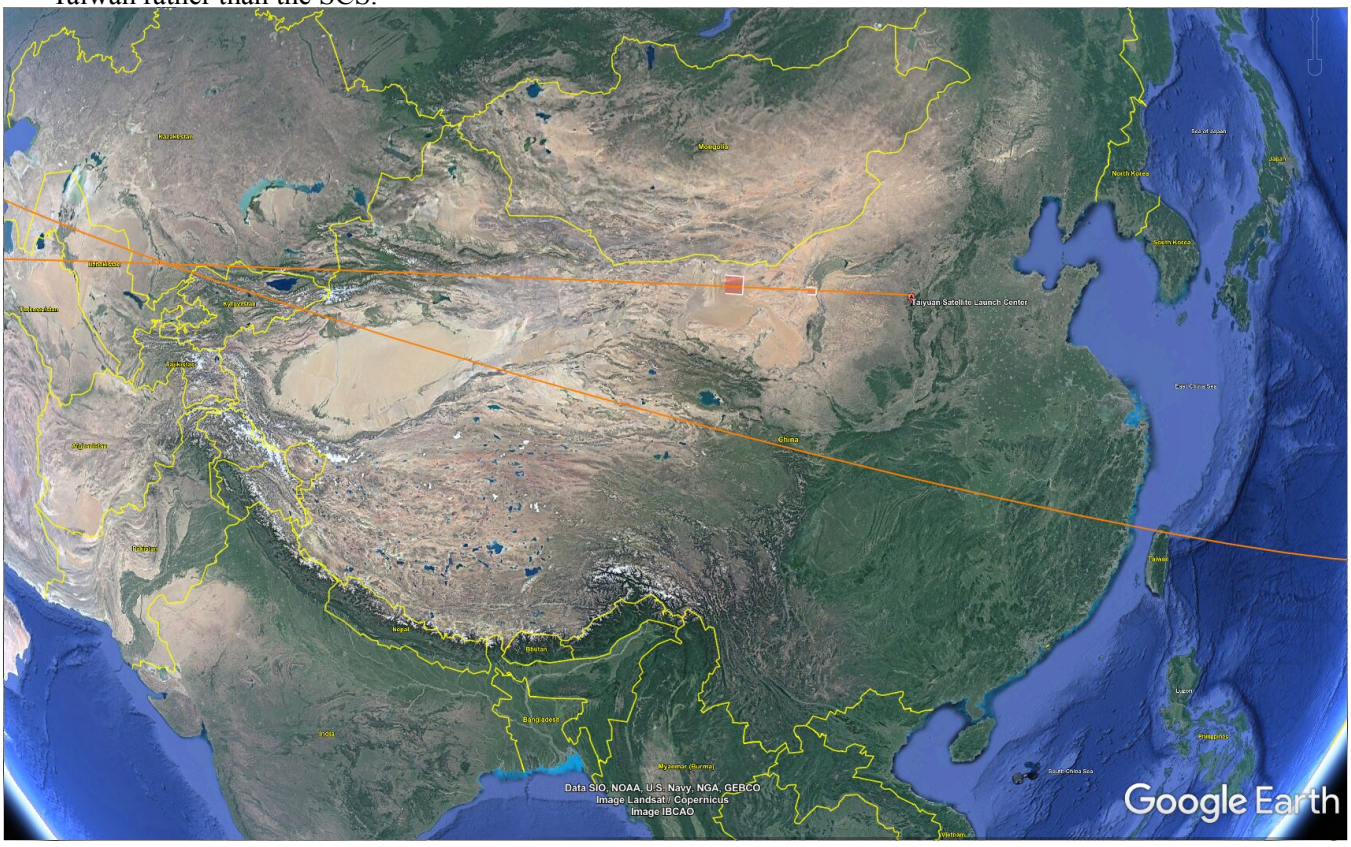


Figure 15: Here is a track forced to go through the NOTAM areas; orbit inclination = 137 deg. It goes over Taiwan rather than the SCS.



7.4 Russian ASAT

The Nudol' (Нудоль) weapon system (A-235, 14Ts033) with the 14A042 direct ascent ASAT missile is developed by VKO Almaz-Antey (Moscow) for the MO RF. The missile is a two-stage vehicle (possibly with a separate third stage kill vehicle, that's unclear) and is launched on test flights from Plesetsk.

The first test of Nudol' against a satellite target was on 2021 Nov 15. NOTAM warning areas near Plesetsk and in the Laptev sea were characteristic of earlier Nudol' test launches. The orbit groundtrack of the Kosmos-1408 satellite passed northbound over Plesetsk at about 0245 UTC.

On Nov 15 at about 0245 UTC Russia launched a Nudol' suborbital antisatellite missile from Plesetsk. The missile intercepted the defunct Soviet satellite Ikar No. 39L (codename Kosmos-1408) a few minutes later, possibly at 0250 UTC over about 60E 75N. Kosmos-1408 was in a 465 x 490 km x 82.6 deg orbit at the time. The intercept occurred at a height of 468 km above the Earth ellipsoid (486 km above the fictive 6378 km spherical Earth used for orbit parameters). The International Space Station initially passed through resulting debris cloud every 93 minutes, and on the day of the incident the crew were instructed to take safety preparations including closing hatches and being ready for evacuation if needed. As of this writing, however, there is no evidence of any debris hits from the cloud on ISS.

Figure 16: Groundtrack of Kosmos-1408 for several minutes around the time of the intercept, showing the location of the warning areas near Plesetsk and in the Laptev Sea.

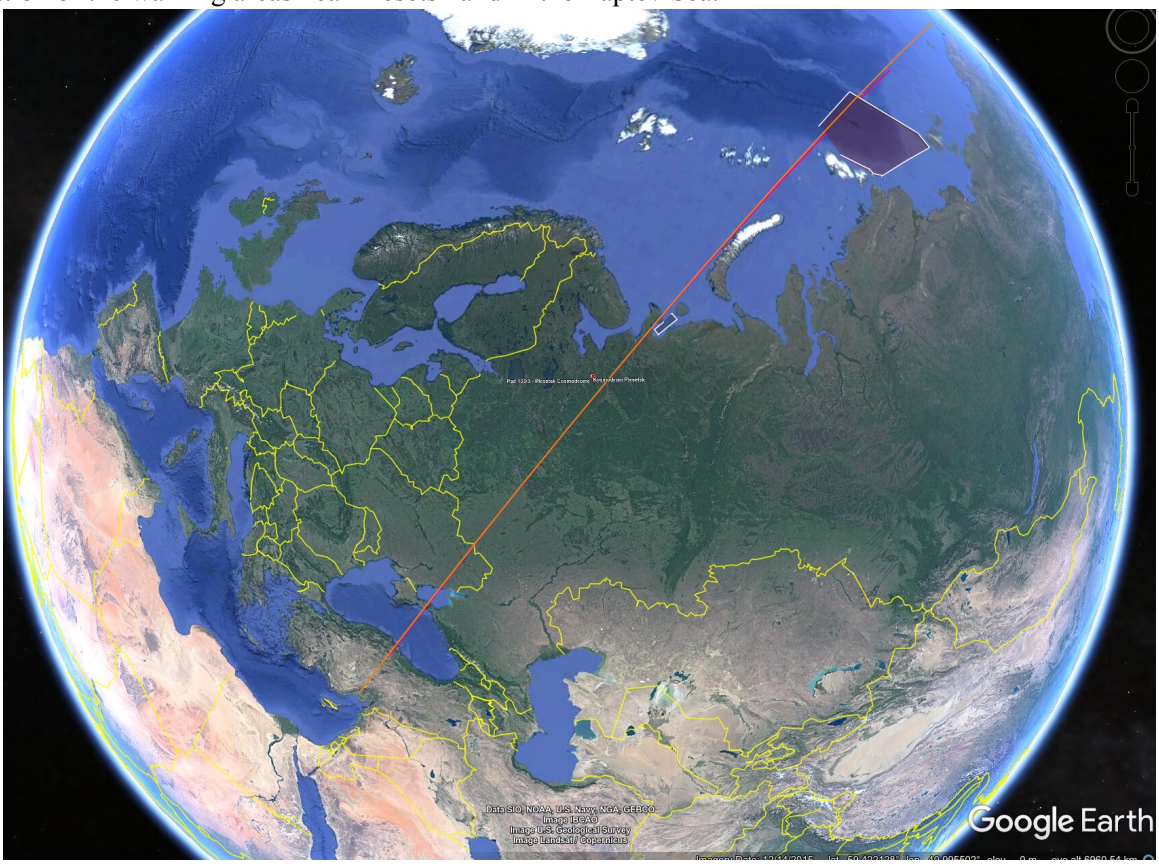


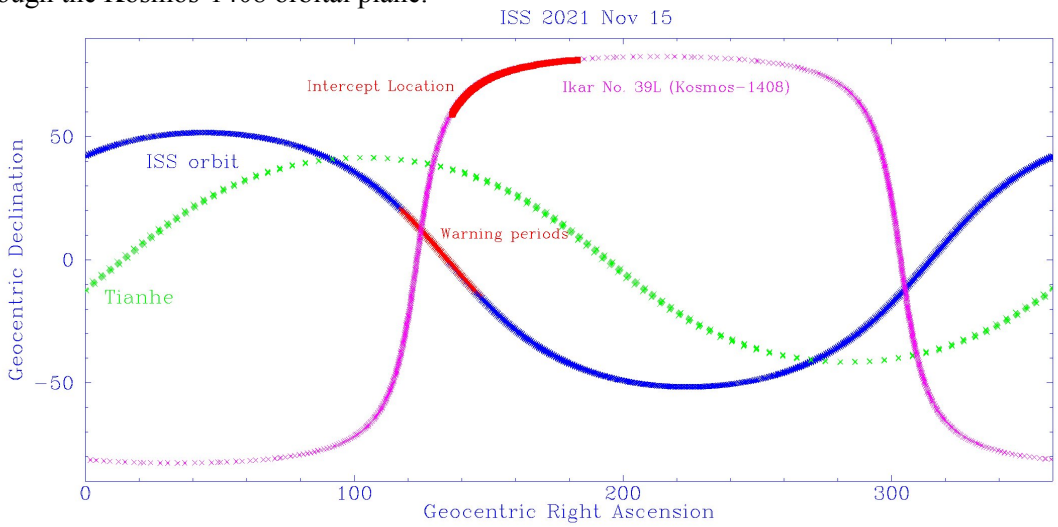
Figure 17: Image of Tselina-D satellite from the manufacturer's web site, www.yuzhnoye.com (credit: Yuzhnoe)

ЦЕЛИНА-Д

Масса, кг	1750
Время активного существования, месяцев	6
Ракета-носитель	8А92М, 11К68
Основные результаты эксперимента	Детальное радиотехническое наблюдение.
Дата выведения в космос	18 декабря 1970 г.

Figure 18: Image of similar Tselina-R satellite (credit: Yuzhnoe). This gives a clearer view of the elint antenna ‘paddles’. However, the four forked boom antennae may be unique to the Tselina-R model.

Figure 19: Geometry of the Nov 15 test, in inertial coordinates. In this frame, the orbital path of a satellite is essentially constant on timescales of a day or so (unlike a plot in geographic coordinates where the Earth's rotation means that each orbital pass is in a different location). The orbit of Kosmos-1408 is in magenta with the approximate location of the intercept marked in red. The orbit of the ISS is in blue. During Nov 15 the astronauts were given debris cloud passage warnings every 93 minutes, corresponding to a fixed orbital position in this coordinate system indicated in red. This orbital position coincides with the passage of the ISS through the Kosmos-1408 orbital plane.



Kosmos-1408 (a Yuzhnoe built Tselina-D model signals intelligence satellite whose military designation was Ikar No. 39L) was launched in 1982 and probably operated for about two years. It had a mass of 1750 kg. The satellite did not have a propulsion system and the plot shows its steady orbital decay over time, modulated by solar activity. The ISS orbital height is shown in red for comparison.

Figure 20: Orbital height vs time of K-1408 and the ISS

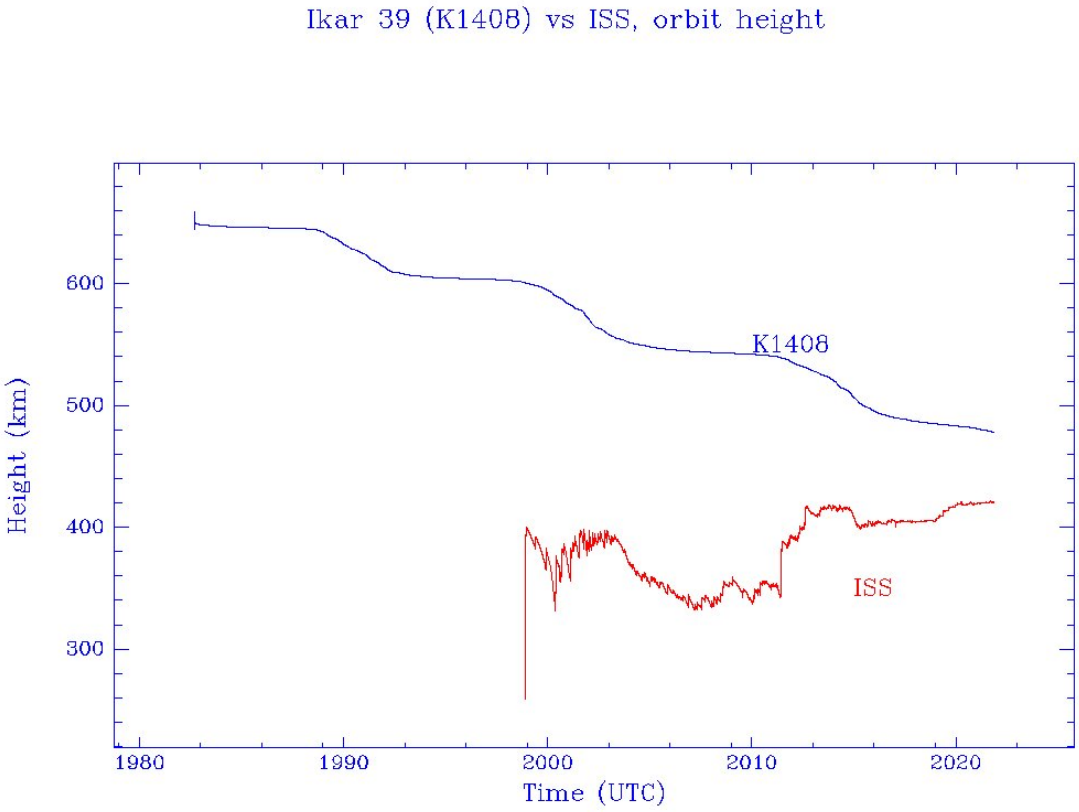
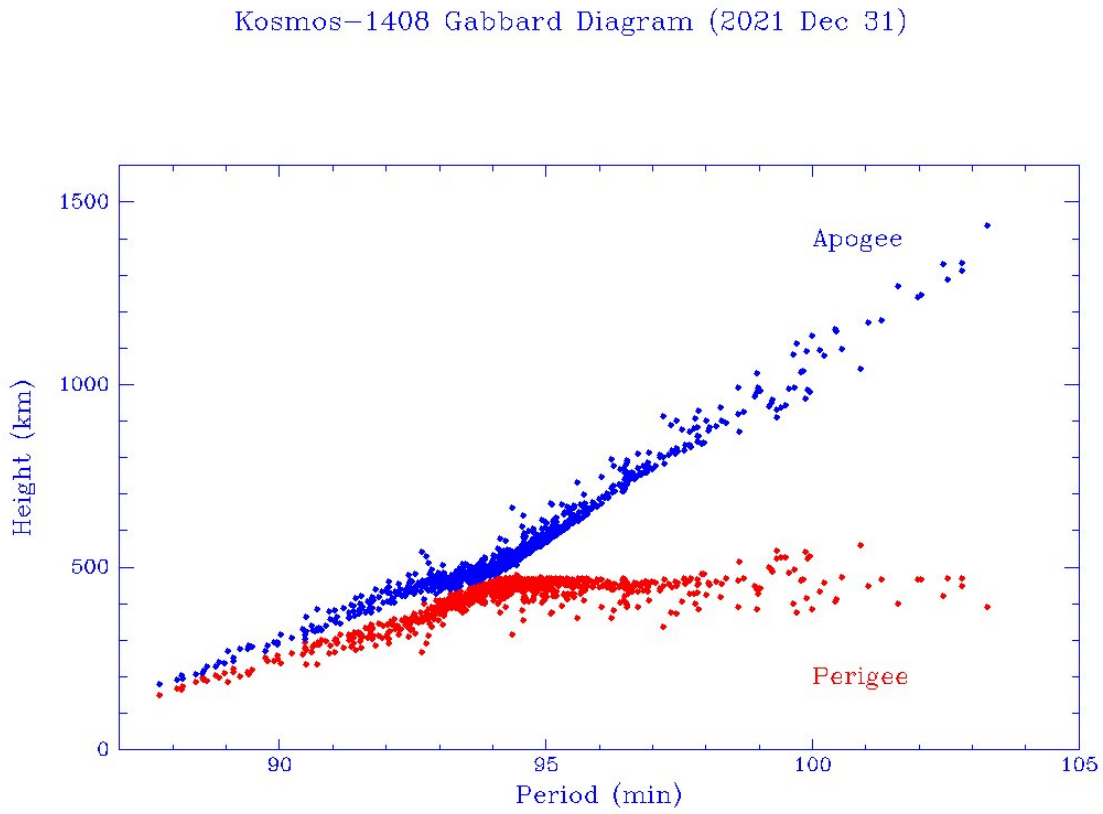


Figure 21: Gabbard diagram for the first 904 debris objects cataloged from the event by Space Force.



8 Acknowledgements

The data presented here are extracted from my satellite and launch database, generated from open source media reports combined with analysis of US Space-Track orbital elements. The analysis has benefited from the opinions of many colleagues, notably Dwayne Day, Brian Weeden, Laura Grego, David Todd, Igor Lissov, Chris Kunstadter, Robert Kratschmann, Bill Gray and posters on the forums at nasaspaceflight.com.

This year's report is dedicated to the memory of the late Phillip S. Clark (1950-2020), who set the standard for this genre of spaceflight analysis and who was welcoming and supportive to an annoying teenager who started showing up at British Interplanetary Society meetings in the late 1970s.

The author is an employee of the Smithsonian Institution, but the work reported here was performed independently and does not represent the views of the Smithsonian.

Appendix 1: 2021 Orbital Launch Attempts

LAUNCH ID	Launch date UTC	Launch vehicle	LV Flight ID	Site	Agency
2021-001	2021 Jan 8 0215	Falcon 9	105/B1060.4	CC LC40	SPX
2021-002	2021 Jan 17 1938:51	LauncherOne	R03	B747-744 MHV RW12/30	VORB
2021-003	2021 Jan 19 1625	Chang Zheng 3B	Y74	XSC	CALT
2021-004	2021 Jan 20 0726	Electron	18	MAHIA LC1A	RLABN
2021-005	2021 Jan 20 1302	Falcon 9	106/B1051.8	KSC LC39A	SPX
2021-006	2021 Jan 24 1500	Falcon 9	107/B1058.5	CC LC40	SPX
2021-007	2021 Jan 29 0447	Chang Zheng 4C	Y31	JQ LC43/94	SAST
2021-F01	2021 Feb 1 0815	Shuang Quxian 1	Y2	JQ LC43/95	XJRY
2021-008	2021 Feb 2 2045:28	Soyuz-2-1B	-	GIK-1 LC43/4	VVKO
2021-009	2021 Feb 4 0619	Falcon 9	108/B1060.5	CC LC40	SPX
2021-010	2021 Feb 4 1536:04	Chang Zheng 3B	Y77	XSC LC3	CALT
2021-011	2021 Feb 15 0445:06	Soyuz-2-1A	V 15000-041	GIK-5 LC31	FKA
2021-012	2021 Feb 16 0359:37	Falcon 9	109/B1059.6	CC LC40	SPX
2021-013	2021 Feb 20 1736:49	Antares 230+	2TRS2S1.14? (14)	MARS Pad 0A	NGIS
2021-014	2021 Feb 24 0222	Chang Zheng 4C	Y32	JQ LC43/94	SAST
2021-015	2021 Feb 28 0454	PSLV-DL	PSLV-C51	SHAR FLP	ISRO/NSIL
2021-016	2021 Feb 28 0655:01	Soyuz-2-1B	N 15000-032/122-07	GIK-5 LC31	FKA
2021-017	2021 Mar 4 0824:54	Falcon 9	110/B1049.8	KSC LC39A	SPX
2021-018	2021 Mar 11 0813:29	Falcon 9	111/B1058.6	CC LC40	SPX
2021-019	2021 Mar 11 1751:28	Chang Zheng 7A	Y2	WEN LC201	CALT
2021-020	2021 Mar 13 0219	Chang Zheng 4C	Y42	JQ LC43/94	SAST
2021-021	2021 Mar 14 1001:26	Falcon 9	112/B1051.9	KSC LC39A	SPX
2021-022	2021 Mar 22 0607:12	Soyuz-2-1A	V 15000-044/122-05	GIK-5 LC31	GKLS
2021-023	2021 Mar 22 2230	Electron	19	MAHIA LC1A	RLABN
2021-024	2021 Mar 24 0828	Falcon 9	113/B1060.6	CC LC40	SPX
2021-025	2021 Mar 25 0247:33	Soyuz-2-1B	V 15000-005/123-09	VOST PU1S	STSM
2021-026	2021 Mar 30 2245	Chang Zheng 4C	Y36	JQ LC43/94	SAST
2021-027	2021 Apr 7 1634	Falcon 9	114/B1058.7	CC LC40	SPX
2021-028	2021 Apr 8 2301	Chang Zheng 4B	Y49	TYSC LC9	SAST
2021-029	2021 Apr 9 0742:41	Soyuz-2-1A	Kh15000-046	GIK-5 LC31	FKA
2021-030	2021 Apr 23 0949:02	Falcon 9	115/B1061.2	KSC LC39A	SPX
2021-031	2021 Apr 25 2214:08	Soyuz-2-1B	V 15000-006/123-11	VOST PU1S	STSM
2021-032	2021 Apr 26 2047:00	Delta 4H	D4-42/D386	VS SLC6	ULAB
2021-033	2021 Apr 27 0320	Chang Zheng 6	Y5	TYSC LC16	SAST
2021-034	2021 Apr 29 0150:00	Vega	VV18	CSG ZLV	AE
2021-035	2021 Apr 29 0323:16	Chang Zheng 5B	Y2	WEN LC101	CALT
2021-036	2021 Apr 29 0344:30	Falcon 9	116/B1060.7	CC LC40	SPX
2021-037	2021 Apr 30 0727	Chang Zheng 4C	Y34	JQ LC43/94	SAST
2021-038	2021 May 4 1901	Falcon 9	117/B1049.9	KSC LC39A	SPX
2021-039	2021 May 6 1811:05	Chang Zheng 2C	Y47	XSC LC3	CALT
2021-040	2021 May 9 0642	Falcon 9	118/B1051.10	CC LC40	SPX
2021-F02	2021 May 15 1111:39	Electron	20	MAHIA LC1A	RLABN
2021-041	2021 May 15 2256	Falcon 9	119/B1058.8	KSC LC39A	SPX
2021-042	2021 May 18 1737	Atlas V 421	AV-091	CC SLC41	ULAL
2021-043	2021 May 19 0403	Chang Zheng 4B	Y48	JQ LC43/94	SAST
2021-044	2021 May 26 1859	Falcon 9	120/B1063.2	CC LC40	SPX
2021-045	2021 May 28 1738:39	Soyuz-2-1B	V 15000-007/123-10	VOST PU1S	STSM
2021-046	2021 May 29 1255:29	Chang Zheng 7	Y3	WEN LC201	CALT
2021-047	2021 Jun 2 1617	Chang Zheng 3B	Y72	XSC LC2	CALT
2021-048	2021 Jun 3 1729:15	Falcon 9	121/B1067.1	KSC LC39A	SPX
2021-049	2021 Jun 6 0426	Falcon 9	122/B1061.3	CC LC40	SPX
2021-050	2021 Jun 11 0303	Chang Zheng 2D	Y54	TYSC LC9	SAST
2021-F03	2021 Jun 12	Simorgh	5	SEM IKSC	IRSA
2021-051	2021 Jun 13 0811	Pegasus XL	F45 /XS053	L-1011 VSFB RW30/12	NGISC
2021-052	2021 Jun 15 1335	Minotaur 1	12	MARS Pad 0B	NGISC
2021-053	2021 Jun 17 0122:32	Chang Zheng 2F	Y12	JQ LC43/91	CALT

2021-054	2021 Jun 17 1609:35	Falcon 9	123/B1062.2	CC LC40	SPX
2021-055	2021 Jun 18 0630	Chang Zheng 2C	Y48	XSC LC3	CALT
2021-056	2021 Jun 25 1950:00	Soyuz-2-1B	-	GIK-1 LC43/4	VVKO
2021-057	2021 Jun 29 2327:20	Soyuz-2-1A	B 15000-043	GIK-5 LC31	FKA
2021-058	2021 Jun 30 1447	LauncherOne	R04	B747-744 MHV RW12/30	VORB
2021-059	2021 Jun 30 1931	Falcon 9	124/B1060.8	CC LC40	SPX
2021-060	2021 Jul 1 1248:33	Soyuz-2-1B	V 15000-008/123-12	VOST PU1S	STSM
2021-061	2021 Jul 3 0251	Chang Zheng 2D	Y74	TYSC LC9	SAST
2021-062	2021 Jul 4 2328	Chang Zheng 4C	Y43	JQ LC43/94	SAST
2021-063	2021 Jul 6 1553	Chang Zheng 3C	Y18	XSC LC2	CALT
2021-064	2021 Jul 9 1159	Chang Zheng 6	Y6	TYSC LC16	SAST
2021-065	2021 Jul 19 0019	Chang Zheng 2C	Y49	XSC LC3	CALT
2021-066	2021 Jul 21 1458:25	Proton-M	535-45	GIK-5 LC200/39	KHRU
2021-U01	2021 Jul 27?	Chang Zheng 2C	-	TYSC?	CALT
2021-067	2021 Jul 29 0401	Chang Zheng 2D	Y62	JQ LC43/94	SAST
2021-068	2021 Jul 29 0600	Electron	21	MAHIA LC1A	RLABN
2021-069	2021 Jul 30 2100	Ariane 5ECA+	VA254 (5113)	CSG ELA3	AE
2021-F05	2021 Aug 3 0739	Shuang Quxian 1	Y5	JQ LC43/95B	XJRY
2021-070	2021 Aug 4 1101	Chang Zheng 6	Y7	TYSC LC16	SAST
2021-071	2021 Aug 5 1630:04	Chang Zheng 3B	Y76	XSC LC2	CALT
2021-072	2021 Aug 10 2201:05	Antares 230+	2TRS2S1.15? (15)	MARS Pad 0A	NGIS
2021-F06	2021 Aug 12 0013	GSLV Mk II	GLSV-F10	SHAR SLP	ISRO
2021-073	2021 Aug 17 0147:06	Vega	VV19	CSG ZLV	AE
2021-074	2021 Aug 18 2232	Chang Zheng 4B	Y50	TYSC LC9	SAST
2021-075	2021 Aug 21 2213:40	Soyuz-2-1B	N 15000-050/123-03	GIK-5 LC31	STSM
2021-076	2021 Aug 24 1115	Chang Zheng 2C/YZ-1S	Y51	JQ LC43/94	CALT
2021-077	2021 Aug 24 1541	Chang Zheng 3B	Y78	XSC	CALT
2021-F07	2021 Aug 28 2235:00	Astra Rocket 3.3	LV0006	PSCA LP3B	ASTRV
2021-078	2021 Aug 29 0714:48	Falcon 9	125/B1061.4	KSC LC39A	SPX
2021-F08	2021 Sep 3 0159:00	Firefly Alpha	FLTA001	V SLC2W	FFLY
2021-079	2021 Sep 7 0301	Chang Zheng 4C	Y40	TYSC LC9	SAST
2021-080	2021 Sep 9 1150	Chang Zheng 3B	Y86	XSC	CALT
2021-081	2021 Sep 9 1959:47	Soyuz-2-1V	-	GIK-1 LC43/4	VVKO
2021-082	2021 Sep 14 0355:50	Falcon 9	126/B1049.10	VSFBS SLC4E	SPX
2021-083	2021 Sep 14 1807:19	Soyuz-2-1B	N 15000-051/123-05	GIK-5 LC31	STSM
2021-084	2021 Sep 16 0002:56	Falcon 9	127/B1062.3	KSC LC39A	SPX
2021-085	2021 Sep 20 0710:11	Chang Zheng 7	Y4	WEN LC201	CALT
2021-086	2021 Sep 27 0619	Kuaizhou-1A	Y4	JQ LC43/95A?	EXPACE
2021-087	2021 Sep 27 0820	Chang Zheng 3B	Y81	XSC LC3	CALT
2021-088	2021 Sep 27 1812:00	Atlas V 401	AV-092	VSFBS SLC3E	ULAL
2021-089	2021 Oct 5 0855:02	Soyuz-2-1A	Kh15000-047	GIK-5 LC31	FKA
2021-090	2021 Oct 14 0940:10	Soyuz-2-1B	Kh15000-009/123-14	VOST PU1S	STSM
2021-091	2021 Oct 14 1051	Chang Zheng 2D	Y53	TYSC LC9	SAST
2021-092	2021 Oct 15 1623:44	Chang Zheng 2F	Y13	JQ LC43/91	CALT
2021-093	2021 Oct 16 0934:00	Atlas V 401	AV-096	CC SLC41	ULAL
2021-F09	2021 Oct 21 0800:00	Nuri	1	NARO LC2	KARI
2021-094	2021 Oct 24 0127	Chang Zheng 3B	Y83	XSC LC2	CALT
2021-095	2021 Oct 24 0210	Ariane 5ECA+	VA255 (5115)	CSG ELA3	AE
2021-096	2021 Oct 26 0219:37	H-IIA 202	H-IIA-44	TNSC Y	MHI
2021-097	2021 Oct 27 0619	Kuaizhou-1A	Y5	JQ LC43/95?	EXPACE
2021-098	2021 Oct 28 0000:32	Soyuz-2-1A	S 15000-049	GIK-5 LC31	FKA
2021-099	2021 Nov 3 0743	Chang Zheng 2C/YZ-1S	Y41	JQ LC43/94	CALT
2021-100	2021 Nov 5 0219	Chang Zheng 6	Y8	TYSC LC16	SAST
2021-101	2021 Nov 6 0300	Chang Zheng 2D	Y63	XSC LC3	SAST
2021-102	2021 Nov 9 0055:16	Epsilon	E-5	USC EP	JAXA
2021-103	2021 Nov 11 0203:31	Falcon 9	128/B1067.2	KSC LC39A	SPX
2021-104	2021 Nov 13 1218:56	Falcon 9	129/B1058.9	CC LC40	SPX
2021-105	2021 Nov 16 0927:55	Vega	VV20	CSG ZLV	AE
2021-106	2021 Nov 18 0138	Electron	22	MAHIA LC1A	RLABN
2021-107	2021 Nov 20 0151	Chang Zheng 4B	Y52	TYSC LC9	SAST

2021-108	2021 Nov 20 0616:00	Astra Rocket 3.3	LV0007	PSCA LP3B	ASTRV
2021-109	2021 Nov 22 2345	Chang Zheng 4C	Y37	JQ LC43/94	SAST
2021-110	2021 Nov 24 0621:02	Falcon 9	130/B1063.3	VSFBS SLC4E	SPX
2021-111	2021 Nov 24 1306:35	Soyuz-2-1B	Ya15000-054	GIK-5 LC31	FKA
2021-112	2021 Nov 24 2341	Kuaizhou-1A	Y13	JQ LC43/95?	EXPACE
2021-113	2021 Nov 25 0109:13	Soyuz-2-1B	- /111-305	GIK-1 LC43/4	VVKO
2021-114	2021 Nov 26 1640:04	Chang Zheng 3B	Y79	XSC LC2	CALT
2021-115	2021 Dec 2 2312	Falcon 9	131/B1060.9	CC LC40	SPX
2021-116	2021 Dec 5 0019:20	Soyuz-ST-B	U 15000-015/133-13	CSG ELS	AE
2021-117	2021 Dec 7 0412:30	Gushenxing 1	Y2	JQ LC43/95?	XIDO
2021-118	2021 Dec 7 1019	Atlas V 551	AV-093	CC SLC41	ULAL
2021-119	2021 Dec 8 0738:15	Soyuz-2-1A	S 15000-053	GIK-5 LC31	FKA
2021-120	2021 Dec 9 0002:07	Electron	23	MAHIA LC1A	RLABN
2021-121	2021 Dec 9 0600	Falcon 9	132/B1061.5	KSC LC39A	SPX
2021-122	2021 Dec 10 0011:30	Chang Zheng 4B	Y47	JQ LC43/94	SAST
2021-123	2021 Dec 13 1207:00	Proton-M/Briz-M	535-46/88536	GIK-5 LC200/39	KHRU
2021-124	2021 Dec 13 1609	Chang Zheng 3B	Y82	XSC LC3	CALT
2021-F10	2021 Dec 15 0200	Kuaizhou-1A	Y16	JQ LC43/95	EXPACE
2021-125	2021 Dec 18 1241:40	Falcon 9	133/B1051.11	VSFBS SLC4E	SPX
2021-126	2021 Dec 19 0358:39	Falcon 9	134/B1067.3	CC LC40	SPX
2021-127	2021 Dec 21 1007:08	Falcon 9	135/B1069.1	KSC LC39A	SPX
2021-128	2021 Dec 22 1532	H-IIA 204	H-IIA-45	TNSC Y	MHI
2021-129	2021 Dec 23 1012	Chang Zheng 7A	Y3	WEN LC201	CALT
2021-130	2021 Dec 25 1220:07	Ariane 5ECA+	VA256 (5114)	CSG ELA3	AE
2021-131	2021 Dec 26 0311:31	Chang Zheng 4C	Y39	TYSC LC9	SAST
2021-132	2021 Dec 27 1310:37	Soyuz-2-1B	N 15000-052/123-04	GIK-5 LC31	STSM
2021-133	2021 Dec 27 1900:00	Angara A5/Persei	71753 (3L)/1L	GIK-1 LC35/1	KHRU
2021-134	2021 Dec 29 1113	Chang Zheng 2D	Y41	JQ LC43/94	SAST
2021-135	2021 Dec 29 1643	Chang Zheng 3B	Y84	XSC LC2	CALT
2021-F11	2021 Dec 30 0330	Simorgh	6	SEM IKSC	IRSA

Note: Owner, Agency and Country codes in the tables are defined in http://planet4589.org/space/lvdb/sdb/Orgs. Launch Sites are defined in http://planet4589.org/space/lvdb/sdb/Sites.

Appendix 2a: Satellite payloads launched in 2021

CATID	LAUNCH ID	Name	Deploy date UTC	Owner	Country	Perigee	Apogee	Inc	Status
S47306	2021-001A	Turksat 5A	2021 Jan 8 0215:00	TURKS	TR	1170	56359	15.98	In Earth orbit
S47309	2021-002A	CAPE 3	2021 Jan 17 1938:51	ULLAF	US	493	517	60.68	In Earth orbit
S47310	2021-002B	PolarCube	2021 Jan 17 1938:51	COSG	US	490	511	60.68	In Earth orbit
S47311	2021-002C	RadFxSat-2	2021 Jan 17 1938:51	AMNA/VANDU	US	493	511	60.69	In Earth orbit
S47312	2021-002D	TechEdSat-7	2021 Jan 17 1938:51	ARC/SJSU	US	489	506	60.68	In Earth orbit
S47313	2021-002E	Prometheus 2.11	2021 Jan 17 1938:51	SOCOM	US	493	514	60.68	In Earth orbit
S47314	2021-002F	MiTEE 1	2021 Jan 17 1938:51	UMI	US	489	508	60.69	In Earth orbit
S47315	2021-002G ?	Q-PACE	2021 Jan 17 1938:51	UCF	US	493	511	60.69	In Earth orbit
S47317	2021-002J ?	PICS 1	2021 Jan 17 1938:51	BYU	US	492	516	60.68	In Earth orbit
S47318	2021-002K ?	PICS 2	2021 Jan 17 1938:51	BYU	US	493	516	60.69	In Earth orbit
S47319	2021-002L	ExoCube 2	2021 Jan 17 1938:51	CALP/NSF	US	493	512	60.68	In Earth orbit
S47320	2021-002M ?	CACTUS-1	2021 Jan 17 1938:51	CAPTU	US	493	514	60.68	In Earth orbit
S47345	2021-002N	Prometheus 2.8	2021 Jan 17 1938:51	SOCOM	US	489	512	60.69	In Earth orbit
S47321	2021-003A	Tiantong-1 03 xing	2021 Jan 19 1625:00	CAST	CN	35777	35794	5.51	In Earth orbit
S47346	2021-004A	GMS-T	2021 Jan 20 0726:00	OHB	D	1210	1217	90.00	In Earth orbit
S47349	2021-005A	Starlink 1952	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47350	2021-005B	Starlink 2011	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47351	2021-005C	Starlink 2017	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47352	2021-005D	Starlink 2034	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47353	2021-005E	Starlink 2045	2021 Jan 20 1302:00	SPXS	US	263	280	53.05	In Earth orbit
S47354	2021-005F	Starlink 2046	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47355	2021-005G	Starlink 2047	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47356	2021-005H	Starlink 2049	2021 Jan 20 1302:00	SPXS	US	263	280	53.05	In Earth orbit
S47357	2021-005J	Starlink 2050	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47358	2021-005K	Starlink 2055	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47359	2021-005L	Starlink 2069	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47360	2021-005M	Starlink 2070	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47361	2021-005N	Starlink 2071	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47362	2021-005P	Starlink 2076	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47363	2021-005Q	Starlink 2077	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47364	2021-005R	Starlink 2079	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	Reentered
S47365	2021-005S	Starlink 2080	2021 Jan 20 1302:00	SPXS	US	263	280	53.05	In Earth orbit
S47366	2021-005T	Starlink 2081	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47367	2021-005U	Starlink 2082	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47368	2021-005V	Starlink 2084	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47369	2021-005W	Starlink 2085	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47370	2021-005X	Starlink 2086	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47371	2021-005Y	Starlink 2088	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47372	2021-005Z	Starlink 2089	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47373	2021-005AA	Starlink 2092	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47374	2021-005AB	Starlink 2093	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47375	2021-005AC	Starlink 2094	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47376	2021-005AD	Starlink 2096	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47377	2021-005AE	Starlink 2097	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47378	2021-005AF	Starlink 2098	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47379	2021-005AG	Starlink 2099	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47380	2021-005AH	Starlink 2100	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47381	2021-005AJ	Starlink 2101	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47382	2021-005AK	Starlink 2102	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47383	2021-005AL	Starlink 2103	2021 Jan 20 1302:00	SPXS	US	263	280	53.05	In Earth orbit
S47384	2021-005AM	Starlink 2104	2021 Jan 20 1302:00	SPXS	US	263	280	53.05	In Earth orbit
S47385	2021-005AN	Starlink 2105	2021 Jan 20 1302:00	SPXS	US	263	280	53.05	In Earth orbit
S47386	2021-005AP	Starlink 2106	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47387	2021-005AQ	Starlink 2108	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47388	2021-005AR	Starlink 2109	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47389	2021-005AS	Starlink 2110	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47390	2021-005AT	Starlink 2111	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47391	2021-005AU	Starlink 2112	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47392	2021-005AV	Starlink 2113	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47393	2021-005AW	Starlink 2114	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47394	2021-005AX	Starlink 2115	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit

S47395	2021-005AY	Starlink 2117	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47396	2021-005AZ	Starlink 2118	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47397	2021-005BA	Starlink 2119	2021 Jan 20 1302:00	SPXS	US	265	282	53.05	In Earth orbit
S47398	2021-005BB	Starlink 2120	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47399	2021-005BC	Starlink 2121	2021 Jan 20 1302:00	SPXS	US	263	280	53.05	In Earth orbit
S47400	2021-005BD	Starlink 2122	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47401	2021-005BE	Starlink 2123	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47402	2021-005BF	Starlink 2124	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47403	2021-005BG	Starlink 2127	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47404	2021-005BH	Starlink 2128	2021 Jan 20 1302:00	SPXS	US	264	280	53.05	In Earth orbit
S47405	2021-005BJ	Starlink 2130	2021 Jan 20 1302:00	SPXS	US	265	281	53.05	In Earth orbit
S47406	2021-005BK	Starlink 2133	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47407	2021-005BL	Starlink 2134	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47408	2021-005BM	Starlink 2135	2021 Jan 20 1302:00	SPXS	US	264	281	53.05	In Earth orbit
S47413	2021-006A	Starlink 2199	2021 Jan 24 1500:00	SPXS	US	515	531	97.51	Reentered
S47414	2021-006B	Starlink 2200	2021 Jan 24 1500:00	SPXS	US	512	534	97.51	In Earth orbit
S47415	2021-006C	Starlink 2201	2021 Jan 24 1500:00	SPXS	US	516	535	97.51	In Earth orbit
S47416	2021-006D	Starlink 2202	2021 Jan 24 1500:00	SPXS	US	516	535	97.51	In Earth orbit
S47417	2021-006E	Starlink 2203	2021 Jan 24 1500:00	SPXS	US	516	535	97.51	Reentered
S47418	2021-006F	Starlink 2204	2021 Jan 24 1500:00	SPXS	US	516	537	97.51	Reentered
S47419	2021-006G	Starlink 2205	2021 Jan 24 1500:00	SPXS	US	516	534	97.51	Reentered
S47420	2021-006H	Starlink 2206	2021 Jan 24 1500:00	SPXS	US	516	534	97.51	Reentered
S47421	2021-006J	Starlink 2207	2021 Jan 24 1500:00	SPXS	US	516	535	97.51	Reentered
S47422	2021-006K	Starlink 2208	2021 Jan 24 1500:00	SPXS	US	512	534	97.52	In Earth orbit
S47425	2021-006N	SpaceBEE-52	2021 Jan 24 1500:00	SWARM	US	525	536	97.52	In Earth orbit
S47426	2021-006P	SpaceBEE-46	2021 Jan 24 1500:00	SWARM	US	524	535	97.52	In Earth orbit
S47427	2021-006Q	SpaceBEE-47	2021 Jan 24 1500:00	SWARM	US	523	537	97.51	In Earth orbit
S47428	2021-006R	SpaceBEE-59	2021 Jan 24 1500:00	SWARM	US	525	536	97.51	In Earth orbit
S47429	2021-006S	SpaceBEE-62	2021 Jan 24 1500:00	SWARM	US	526	536	97.51	In Earth orbit
S47430	2021-006T	Astrocast-0101	2021 Jan 24 1500:00	ACAST	CH	521	534	97.51	In Earth orbit
S47431	2021-006U	SpaceBEE-61	2021 Jan 24 1500:00	SWARM	US	525	536	97.52	In Earth orbit
S47432	2021-006V	SpaceBEE-49	2021 Jan 24 1500:00	SWARM	US	525	535	97.51	In Earth orbit
S47433	2021-006W	SpaceBEE-60	2021 Jan 24 1500:00	SWARM	US	525	536	97.52	In Earth orbit
S47434	2021-006X	SpaceBEE-53	2021 Jan 24 1500:00	SWARM	US	525	536	97.51	In Earth orbit
S47438	2021-006AB	UVSQ-SAT	2021 Jan 24 1500:00	UVSQ/LATMOS	F	523	535	97.51	In Earth orbit
S47439	2021-006AC	Yushan Weixing	2021 Jan 24 1500:00	NTOU	TW	523	535	97.51	In Earth orbit
S47440	2021-006AD	AII-Charlie	2021 Jan 24 1500:00	AUINS/SPQ	US	522	535	97.52	In Earth orbit
S47441	2021-006AE ?	ASELSAT	2021 Jan 24 1500:00	ASELSN	TR	522	536	97.51	In Earth orbit
S47442	2021-006AF	SpaceBEE-63	2021 Jan 24 1500:00	SWARM	US	517	536	97.51	In Earth orbit
S47443	2021-006AG	SpaceBEE-50	2021 Jan 24 1500:00	SWARM	US	525	535	97.51	In Earth orbit
S47444	2021-006AH	SpaceBEE-51	2021 Jan 24 1500:00	SWARM	US	525	536	97.52	In Earth orbit
S47445	2021-006AJ	SOMP 2b	2021 Jan 24 1500:00	TUD	D	522	535	97.52	In Earth orbit
S47446	2021-006AK	Boba	2021 Jan 24 1500:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47447	2021-006AL	SpaceBEE-48	2021 Jan 24 1500:00	SWARM	US	524	535	97.50	In Earth orbit
S47448	2021-006AM	CubeL	2021 Jan 24 1500:00	DLR	D	522	535	97.51	In Earth orbit
S47449	2021-006AN	SpaceBEE-40	2021 Jan 24 1500:00	SWARM	US	521	535	97.52	In Earth orbit
S47450	2021-006AP	Lemur-2-Neva	2021 Jan 24 1500:00	SPIRE	US	521	535	97.51	In Earth orbit
S47451	2021-006AQ	SpaceBEE-41	2021 Jan 24 1500:00	SWARM	US	523	536	97.51	In Earth orbit
S47452	2021-006AR	Flock 4s-22	2021 Jan 24 1500:00	PLABS	US	521	535	97.51	In Earth orbit
S47453	2021-006AS	Lemur-2-Saoirsedh5Guo	2021 Jan 24 1500:00	SPIRE	US	521	535	97.52	In Earth orbit
S47454	2021-006AT	Lucky	2021 Jan 24 1500:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47455	2021-006AU	SpaceBEE-42	2021 Jan 24 1500:00	SWARM	US	523	535	97.51	In Earth orbit
S47456	2021-006AV	Flock 4s-21	2021 Jan 24 1500:00	PLABS	US	521	535	97.51	In Earth orbit
S47457	2021-006AW	Lemur-2-NallyWacker	2021 Jan 24 1500:00	SPIRE	US	522	535	97.51	In Earth orbit
S47458	2021-006AX	IDEASSat	2021 Jan 24 1500:00	NCU	TW	523	535	97.51	In Earth orbit
S47459	2021-006AY	SpaceBEE-55	2021 Jan 24 1500:00	SWARM	US	525	536	97.52	In Earth orbit
S47460	2021-006AZ	SpaceBEE-54	2021 Jan 24 1500:00	SWARM	US	525	536	97.51	In Earth orbit
S47461	2021-006BA	SudoRmRf	2021 Jan 24 1500:00	KEPLER	CA	527	535	97.51	In Earth orbit
S47462	2021-006BB	Flock 4s-11	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47463	2021-006BC ?	Cora	2021 Jan 24 1500:00	ARC/CMU	US	527	535	97.51	In Earth orbit
S47464	2021-006BD	SpaceBEE-58	2021 Jan 24 1500:00	SWARM	US	524	537	97.51	In Earth orbit
S47465	2021-006BE	SpaceBEE-57	2021 Jan 24 1500:00	SWARM	US	525	536	97.51	In Earth orbit
S47466	2021-006BF	SpaceBEE-44	2021 Jan 24 1500:00	SWARM	US	523	536	97.51	In Earth orbit
S47467	2021-006BG ?	Petrie	2021 Jan 24 1500:00	ARC/CMU	US	528	535	97.52	In Earth orbit
S47468	2021-006BH	SpaceBEE-56	2021 Jan 24 1500:00	SWARM	US	526	535	97.51	In Earth orbit
S47469	2021-006BJ	Flock 4s-33	2021 Jan 24 1500:00	PLABS	US	526	536	97.51	In Earth orbit

S47470	2021-006BK	SpaceBEE-45	2021 Jan 24 1500:00	SWARM	US	523	535	97.51	In Earth orbit
S47471	2021-006BL	Flock 4s-12	2021 Jan 24 1500:00	PLABS	US	520	535	97.52	In Earth orbit
S47472	2021-006BM	Flock 4s-13	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47473	2021-006BN	Flock 4s-35	2021 Jan 24 1500:00	PLABS	US	526	536	97.51	In Earth orbit
S47474	2021-006BP	Flock 4s-8	2021 Jan 24 1500:00	PLABS	US	527	535	97.51	In Earth orbit
S47475	2021-006BQ	Flock 4s-31	2021 Jan 24 1500:00	PLABS	US	525	537	97.50	In Earth orbit
S47476	2021-006BR	Amarok	2021 Jan 24 1500:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47477	2021-006BS	Flock 4s-34	2021 Jan 24 1500:00	PLABS	US	527	535	97.51	In Earth orbit
S47478	2021-006BT	Flock 4s-9	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47479	2021-006BU	Flock 4s-32	2021 Jan 24 1500:00	PLABS	US	527	535	97.51	In Earth orbit
S47480	2021-006BV	SpaceBEE-43	2021 Jan 24 1500:00	SWARM	US	523	535	97.51	In Earth orbit
S47481	2021-006BW	Capella 4	2021 Jan 24 1500:00	CAPSP	US	514	534	97.51	In Earth orbit
S47482	2021-006BX	PTD 1	2021 Jan 24 1500:00	ARC/TYVAK	US	525	536	97.51	In Earth orbit
S47483	2021-006BY	Prometheus 2.10	2021 Jan 24 1500:00	SOCOM	US	519	536	97.51	In Earth orbit
S47484	2021-006BZ	ARCE 1C	2021 Jan 24 1500:00	USF	US	526	536	97.51	In Earth orbit
S47485	2021-006CA	Izanami	2021 Jan 24 1500:00	QPS	J	514	534	97.51	In Earth orbit
S47486	2021-006CB	SHERPA-FX 1	2021 Jan 24 1500:00	SFLIN	US	515	534	97.51	In Earth orbit
S47487	2021-006CC	Astrocast-0103	2021 Jan 24 1500:00	ACAST	CH	522	536	97.51	In Earth orbit
S47488	2021-006CD	Astrocast-0102	2021 Jan 24 1500:00	ACAST	CH	523	535	97.51	In Earth orbit
S47489	2021-006CE	Capella 3	2021 Jan 24 1500:00	CAPSP	US	514	534	97.51	In Earth orbit
S47490	2021-006CF	Flock 4s-39	2021 Jan 24 1500:00	PLABS	US	523	535	97.51	In Earth orbit
S47491	2021-006CG	Flock 4s-4	2021 Jan 24 1500:00	PLABS	US	519	535	97.51	In Earth orbit
S47492	2021-006CH	Flock 4s-17	2021 Jan 24 1500:00	PLABS	US	522	535	97.52	In Earth orbit
S47493	2021-006CJ	Lemur-2-Mango1	2021 Jan 24 1500:00	SPIRE	US	524	535	97.51	In Earth orbit
S47494	2021-006CK	Flock 4s-3	2021 Jan 24 1500:00	PLABS	US	519	535	97.51	In Earth orbit
S47495	2021-006CL	Flock 4s-27	2021 Jan 24 1500:00	PLABS	US	526	537	97.50	In Earth orbit
S47496	2021-006CM	Flock 4s-18	2021 Jan 24 1500:00	PLABS	US	521	535	97.51	In Earth orbit
S47497	2021-006CN	Flock 4s-26	2021 Jan 24 1500:00	PLABS	US	526	536	97.51	In Earth orbit
S47498	2021-006CP	Flock 4s-2	2021 Jan 24 1500:00	PLABS	US	519	535	97.51	In Earth orbit
S47499	2021-006CQ	Flock 4s-40	2021 Jan 24 1500:00	PLABS	US	523	535	97.51	In Earth orbit
S47500	2021-006CR	Flock 4s-19	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47501	2021-006CS	Baby Yoda	2021 Jan 24 1500:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47502	2021-006CT	Hawk 2C	2021 Jan 24 1500:00	HE360	US	525	536	97.52	In Earth orbit
S47503	2021-006CU	Daneel	2021 Jan 24 1500:00	KEPLER	CA	525	536	97.52	In Earth orbit
S47504	2021-006CV	ION SVC LAURENTIUS	2021 Jan 24 1500:00	DORBIT	I	515	534	97.51	In Earth orbit
S47505	2021-006CW	Hawk 2A	2021 Jan 24 1500:00	HE360	US	526	535	97.51	In Earth orbit
S47506	2021-006CX	ICEYE-X9	2021 Jan 24 1500:00	ICEYE	FI	523	536	97.51	In Earth orbit
S47507	2021-006CY	XR 1	2021 Jan 24 1500:00	ICEUS/OFX	US	517	535	97.51	In Earth orbit
S47508	2021-006CZ	Hawk 2B	2021 Jan 24 1500:00	HE360	US	526	536	97.52	In Earth orbit
S47509	2021-006DA	Hugo	2021 Jan 24 1500:00	GHG	CA	528	535	97.52	In Earth orbit
S47510	2021-006DB	ICEYE-X8	2021 Jan 24 1500:00	ICEYE	FI	515	534	97.51	In Earth orbit
S47511	2021-006DC	Lemur-2-Ruairi-Elidh	2021 Jan 24 1500:00	SPIRE	US	521	535	97.51	In Earth orbit
S47512	2021-006DD	Flock 4s-38	2021 Jan 24 1500:00	PLABS	US	522	535	97.51	In Earth orbit
S47514	2021-006DE	Flock 4s-28	2021 Jan 24 1500:00	PLABS	US	515	534	97.51	In Earth orbit
S47515	2021-006DF	Flock 4s-5	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47516	2021-006DG	Flock 4s-16	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47517	2021-006DH	Astrocast-0105	2021 Jan 24 1500:00	ACAST	CH	526	535	97.51	In Earth orbit
S47518	2021-006DJ	Flock 4s-6	2021 Jan 24 1500:00	PLABS	US	527	535	97.51	In Earth orbit
S47519	2021-006DK	Astrocast-0104	2021 Jan 24 1500:00	ACAST	CH	524	537	97.51	In Earth orbit
S47520	2021-006DL	Flock 4s-29	2021 Jan 24 1500:00	PLABS	US	527	535	97.51	In Earth orbit
S47521	2021-006DM	Flock 4s-15	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47522	2021-006DN	Flock 4s-37	2021 Jan 24 1500:00	PLABS	US	522	535	97.51	In Earth orbit
S47523	2021-006DP	Flock 4s-10	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47524	2021-006DQ ?	Littlefoot	2021 Jan 24 1500:00	ARC/CMU	US	528	535	97.52	In Earth orbit
S47525	2021-006DR	Lemur-2-JenniferSong	2021 Jan 24 1500:00	SPIRE	US	522	535	97.51	In Earth orbit
S47526	2021-006DS	Stella	2021 Jan 24 1500:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47527	2021-006DT	Flock 4s-7	2021 Jan 24 1500:00	PLABS	US	527	535	97.51	In Earth orbit
S47528	2021-006DU	Flock 4s-14	2021 Jan 24 1500:00	PLABS	US	520	535	97.51	In Earth orbit
S47529	2021-006DV	Lemur-2-Chantal	2021 Jan 24 1500:00	SPIRE	US	521	535	97.51	In Earth orbit
S47530	2021-006DW	Flock 4s-36	2021 Jan 24 1500:00	PLABS	US	526	536	97.52	In Earth orbit
S47531	2021-006DX	Artemis	2021 Jan 24 1500:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47538	2021-006DY	Lemur-2-NoobNoob	2021 Jan 24 1500:00	SPIRE	US	521	535	97.52	In Earth orbit
S47539	2021-006DZ	Flock 4s-24	2021 Jan 24 1500:00	PLABS	US	521	535	97.51	In Earth orbit
S47540	2021-006EA	Flock 4s-20	2021 Jan 24 1500:00	PLABS	US	521	535	97.51	In Earth orbit
S47541	2021-006EB	Hiber 4	2021 Jan 24 1500:00	HIBER	NL	523	535	97.51	In Earth orbit
S47542	2021-006EC	Flock 4s-25	2021 Jan 24 1500:00	PLABS	US	526	536	97.51	In Earth orbit

S47543	2021-006ED	Flock 4s-1	2021 Jan 24 1500:00	PLABS	US	519	535	97.51	In Earth orbit
S47544	2021-006EE	Flock 4s-30	2021 Jan 24 1500:00	PLABS	US	527	535	97.51	In Earth orbit
S47545	2021-006EF	Flock 4s-23	2021 Jan 24 1500:00	PLABS	US	520	536	97.51	In Earth orbit
S47612	2021-006EQ	Flock 4s-42	2021 Jan 24 1500:00	PLABS	US	520	538	97.51	In Earth orbit
S47615	2021-006EG	ARCE 1B	2021 Jan 24 1500:00	USF	US	522	536	97.51	In Earth orbit
S47616	2021-006EH	ARCE 1A	2021 Jan 24 1500:00	USF	US	522	536	97.51	In Earth orbit
S47617	2021-006EJ	Flock 4s-48	2021 Jan 24 1500:00	PLABS	US	524	536	97.51	In Earth orbit
S47684	2021-006EK	Flock 4s-46	2021 Jan 24 1500:00	PLABS	US	521	533	97.51	In Earth orbit
S47685	2021-006EL	Flock 4s-47	2021 Jan 24 1500:00	PLABS	US	526	537	97.51	In Earth orbit
S47686	2021-006EM	Flock 4s-44	2021 Jan 24 1500:00	PLABS	US	519	537	97.51	In Earth orbit
S47687	2021-006EN	Flock 4s-43	2021 Jan 24 1500:00	PLABS	US	521	533	97.51	In Earth orbit
S47688	2021-006EP	Flock 4s-45	2021 Jan 24 1500:00	PLABS	US	523	541	97.51	In Earth orbit
S47698	2021-006ER	Flock 4s-41	2021 Jan 24 1500:00	PLABS	US	522	539	97.51	In Earth orbit
S48626	2021-006ES	SpaceBEE-65	2021 Jan 24 1500:00	SWARM	US	511	533	97.26	In Earth orbit
S48627	2021-006ET	SpaceBEE-64	2021 Jan 24 1500:00	SWARM	US	511	533	97.26	In Earth orbit
S48628	2021-006EU	SpaceBEE-66	2021 Jan 24 1500:00	SWARM	US	511	533	97.26	In Earth orbit
S48629	2021-006EV	SpaceBEE-67	2021 Jan 24 1500:00	SWARM	US	511	534	97.26	In Earth orbit
S48630	2021-006EW	SpaceBEE-68	2021 Jan 24 1500:00	SWARM	US	511	534	97.26	In Earth orbit
S48631	2021-006EX	SpaceBEE-69	2021 Jan 24 1500:00	SWARM	US	511	534	97.26	In Earth orbit
S48632	2021-006EY	SpaceBEE-70	2021 Jan 24 1500:00	SWARM	US	511	534	97.26	In Earth orbit
S48633	2021-006EZ	SpaceBEE-71	2021 Jan 24 1500:00	SWARM	US	511	534	97.26	In Earth orbit
S48634	2021-006FA	SpaceBEE-72	2021 Jan 24 1500:00	SWARM	US	511	534	97.26	In Earth orbit
S48635	2021-006FB	SpaceBEE-73	2021 Jan 24 1500:00	SWARM	US	511	535	97.26	In Earth orbit
S48636	2021-006FC	SpaceBEE-74	2021 Jan 24 1500:00	SWARM	US	511	535	97.26	In Earth orbit
S48637	2021-006FD	SpaceBEE-75	2021 Jan 24 1500:00	SWARM	US	511	536	97.26	In Earth orbit
S47532	2021-007A	Yaogan 31 hao 02 zu 01 xing	2021 Jan 29 0447:00	ZZB	CN	1091	1096	63.41	In Earth orbit
S47533	2021-007B	Yaogan 31 hao 02 zu 02 xing	2021 Jan 29 0447:00	ZZB	CN	1090	1097	63.41	In Earth orbit
S47536	2021-007E	Yaogan 31 hao 02 zu 03 xing	2021 Jan 29 0447:00	ZZB	CN	1091	1095	63.41	In Earth orbit
S47546	2021-008A	Kosmos-2549	2021 Feb 2 2045:28	KVR	RU	901	909	67.15	In Earth orbit
S47548	2021-009A	Starlink 1782	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47549	2021-009B	Starlink 1806	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47550	2021-009C	Starlink 1909	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47551	2021-009D	Starlink 1938	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47552	2021-009E	Starlink 1940	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47553	2021-009F	Starlink 1951	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47554	2021-009G	Starlink 1953	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47555	2021-009H	Starlink 1954	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47556	2021-009J	Starlink 1955	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47557	2021-009K	Starlink 1956	2021 Feb 4 0619:00	SPXS	US	299	303	53.05	In Earth orbit
S47558	2021-009L	Starlink 1957	2021 Feb 4 0619:00	SPXS	US	298	302	53.05	In Earth orbit
S47559	2021-009M	Starlink 1958	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47560	2021-009N	Starlink 1959	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47561	2021-009P	Starlink 1960	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47562	2021-009Q	Starlink 1961	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47563	2021-009R	Starlink 1962	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47564	2021-009S	Starlink 1963	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47565	2021-009T	Starlink 1964	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47566	2021-009U	Starlink 1965	2021 Feb 4 0619:00	SPXS	US	299	300	53.05	In Earth orbit
S47567	2021-009V	Starlink 1966	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47568	2021-009W	Starlink 1967	2021 Feb 4 0619:00	SPXS	US	301	302	53.05	In Earth orbit
S47569	2021-009X	Starlink 1968	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47570	2021-009Y	Starlink 1969	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47571	2021-009Z	Starlink 1970	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47572	2021-009AA	Starlink 1971	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47573	2021-009AB	Starlink 1975	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47574	2021-009AC	Starlink 1976	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47575	2021-009AD	Starlink 1977	2021 Feb 4 0619:00	SPXS	US	298	304	53.05	In Earth orbit
S47576	2021-009AE	Starlink 1978	2021 Feb 4 0619:00	SPXS	US	298	301	53.05	In Earth orbit
S47577	2021-009AF	Starlink 1979	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47578	2021-009AG	Starlink 1980	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47579	2021-009AH	Starlink 1981	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47580	2021-009AJ	Starlink 1982	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47581	2021-009AK	Starlink 1984	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47582	2021-009AL	Starlink 1986	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47583	2021-009AM	Starlink 1987	2021 Feb 4 0619:00	SPXS	US	298	303	53.05	In Earth orbit
S47584	2021-009AN	Starlink 1988	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit

S47585	2021-009AP	Starlink 1989	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47586	2021-009AQ	Starlink 1990	2021 Feb 4 0619:00	SPXS	US	301	302	53.05	In Earth orbit
S47587	2021-009AR	Starlink 1991	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47588	2021-009AS	Starlink 1993	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47589	2021-009AT	Starlink 1994	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47590	2021-009AU	Starlink 1995	2021 Feb 4 0619:00	SPXS	US	300	303	53.05	In Earth orbit
S47591	2021-009AV	Starlink 1996	2021 Feb 4 0619:00	SPXS	US	298	303	53.05	In Earth orbit
S47592	2021-009AW	Starlink 1997	2021 Feb 4 0619:00	SPXS	US	299	303	53.05	In Earth orbit
S47593	2021-009AX	Starlink 1998	2021 Feb 4 0619:00	SPXS	US	299	303	53.05	In Earth orbit
S47594	2021-009AY	Starlink 1999	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47595	2021-009AZ	Starlink 2000	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47596	2021-009BA	Starlink 2001	2021 Feb 4 0619:00	SPXS	US	300	302	53.05	In Earth orbit
S47597	2021-009BB	Starlink 2002	2021 Feb 4 0619:00	SPXS	US	299	303	53.05	In Earth orbit
S47598	2021-009BC	Starlink 2003	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47599	2021-009BD	Starlink 2004	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47600	2021-009BE	Starlink 2005	2021 Feb 4 0619:00	SPXS	US	298	302	53.05	In Earth orbit
S47601	2021-009BF	Starlink 2006	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47602	2021-009BG	Starlink 2007	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47603	2021-009BH	Starlink 2008	2021 Feb 4 0619:00	SPXS	US	299	303	53.05	In Earth orbit
S47604	2021-009BJ	Starlink 2021	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47605	2021-009BK	Starlink 2023	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47606	2021-009BL	Starlink 2024	2021 Feb 4 0619:00	SPXS	US	300	301	53.05	In Earth orbit
S47607	2021-009BM	Starlink 2025	2021 Feb 4 0619:00	SPXS	US	299	301	53.05	In Earth orbit
S47613	2021-010A	Tongxin Jishu Shiyan 6	2021 Feb 4 1536:04	CASC	CN	35774	35797	1.00	In Earth orbit
S47618	2021-011A	Progress MS-16	2021 Feb 15 0445:06	RKKE	RU	418	422	51.64	Reentered Att to Pirs
S47620	2021-012A	Starlink 1528	2021 Feb 16 0359:37	SPXS	US	283	286	53.05	In Earth orbit
S47621	2021-012B	Starlink 1609	2021 Feb 16 0359:37	SPXS	US	281	287	53.05	In Earth orbit
S47622	2021-012C	Starlink 1645	2021 Feb 16 0359:37	SPXS	US	282	286	53.05	In Earth orbit
S47623	2021-012D	Starlink 1655	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47624	2021-012E	Starlink 1669	2021 Feb 16 0359:37	SPXS	US	259	279	53.05	In Earth orbit
S47625	2021-012F	Starlink 1704	2021 Feb 16 0359:37	SPXS	US	282	287	53.05	In Earth orbit
S47626	2021-012G	Starlink 1761	2021 Feb 16 0359:37	SPXS	US	282	286	53.05	In Earth orbit
S47627	2021-012H	Starlink 1972	2021 Feb 16 0359:37	SPXS	US	256	278	53.05	In Earth orbit
S47628	2021-012J	Starlink 1973	2021 Feb 16 0359:37	SPXS	US	281	287	53.05	In Earth orbit
S47629	2021-012K	Starlink 1974	2021 Feb 16 0359:37	SPXS	US	256	278	53.05	In Earth orbit
S47630	2021-012L	Starlink 1983	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47631	2021-012M	Starlink 1985	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47632	2021-012N	Starlink 1992	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47633	2021-012P	Starlink 2009	2021 Feb 16 0359:37	SPXS	US	281	286	53.05	In Earth orbit
S47634	2021-012Q	Starlink 2010	2021 Feb 16 0359:37	SPXS	US	283	286	53.05	In Earth orbit
S47635	2021-012R	Starlink 2012	2021 Feb 16 0359:37	SPXS	US	255	279	53.05	In Earth orbit
S47636	2021-012S	Starlink 2013	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47637	2021-012T	Starlink 2014	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47638	2021-012U	Starlink 2015	2021 Feb 16 0359:37	SPXS	US	257	279	53.05	In Earth orbit
S47639	2021-012V	Starlink 2016	2021 Feb 16 0359:37	SPXS	US	256	280	53.05	In Earth orbit
S47640	2021-012W	Starlink 2018	2021 Feb 16 0359:37	SPXS	US	282	287	53.05	In Earth orbit
S47641	2021-012X	Starlink 2019	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47642	2021-012Y	Starlink 2020	2021 Feb 16 0359:37	SPXS	US	282	285	53.05	In Earth orbit
S47643	2021-012Z	Starlink 2022	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47644	2021-012AA	Starlink 2026	2021 Feb 16 0359:37	SPXS	US	281	287	53.05	In Earth orbit
S47645	2021-012AB	Starlink 2027	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47646	2021-012AC	Starlink 2028	2021 Feb 16 0359:37	SPXS	US	257	279	53.05	In Earth orbit
S47647	2021-012AD	Starlink 2030	2021 Feb 16 0359:37	SPXS	US	281	287	53.05	In Earth orbit
S47648	2021-012AE	Starlink 2031	2021 Feb 16 0359:37	SPXS	US	258	280	53.05	In Earth orbit
S47649	2021-012AF	Starlink 2032	2021 Feb 16 0359:37	SPXS	US	257	279	53.05	In Earth orbit
S47650	2021-012AG	Starlink 2033	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47651	2021-012AH	Starlink 2035	2021 Feb 16 0359:37	SPXS	US	281	286	53.05	In Earth orbit
S47652	2021-012AJ	Starlink 2036	2021 Feb 16 0359:37	SPXS	US	282	285	53.05	In Earth orbit
S47653	2021-012AK	Starlink 2037	2021 Feb 16 0359:37	SPXS	US	258	280	53.05	In Earth orbit
S47654	2021-012AL	Starlink 2038	2021 Feb 16 0359:37	SPXS	US	281	286	53.05	In Earth orbit
S47655	2021-012AM	Starlink 2039	2021 Feb 16 0359:37	SPXS	US	281	286	53.05	In Earth orbit
S47656	2021-012AN	Starlink 2040	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47657	2021-012AP	Starlink 2041	2021 Feb 16 0359:37	SPXS	US	281	287	53.05	In Earth orbit
S47658	2021-012AQ	Starlink 2042	2021 Feb 16 0359:37	SPXS	US	282	285	53.05	In Earth orbit
S47659	2021-012AR	Starlink 2043	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47660	2021-012AS	Starlink 2044	2021 Feb 16 0359:37	SPXS	US	255	278	53.05	In Earth orbit

S47661	2021-012AT	Starlink 2051	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47662	2021-012AU	Starlink 2052	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47663	2021-012AV	Starlink 2053	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47664	2021-012AW	Starlink 2054	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47665	2021-012AX	Starlink 2056	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47666	2021-012AY	Starlink 2057	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47667	2021-012AZ	Starlink 2058	2021 Feb 16 0359:37	SPXS	US	284	285	53.05	In Earth orbit
S47668	2021-012BA	Starlink 2059	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47669	2021-012BB	Starlink 2060	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47670	2021-012BC	Starlink 2062	2021 Feb 16 0359:37	SPXS	US	258	280	53.05	In Earth orbit
S47671	2021-012BD	Starlink 2064	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47672	2021-012BE	Starlink 2065	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47673	2021-012BF	Starlink 2066	2021 Feb 16 0359:37	SPXS	US	258	280	53.05	In Earth orbit
S47674	2021-012BG	Starlink 2067	2021 Feb 16 0359:37	SPXS	US	257	280	53.05	In Earth orbit
S47675	2021-012BH	Starlink 2078	2021 Feb 16 0359:37	SPXS	US	256	280	53.05	In Earth orbit
S47676	2021-012BJ	Starlink 2083	2021 Feb 16 0359:37	SPXS	US	256	279	53.05	In Earth orbit
S47677	2021-012BK	Starlink 2090	2021 Feb 16 0359:37	SPXS	US	281	288	53.05	In Earth orbit
S47678	2021-012BL	Starlink 2091	2021 Feb 16 0359:37	SPXS	US	255	279	53.05	Reentered
S47679	2021-012BM	Starlink 2095	2021 Feb 16 0359:37	SPXS	US	282	287	53.05	In Earth orbit
S47689	2021-013A	S.S. Katherine Johnson	2021 Feb 20 1736:49	NGIS	US	418	422	51.64	Deorbited
S47924	1998-067SA	Nichirin	2021 Feb 20 1736:49	WARP	J	415	419	51.64	In Earth orbit
S47925	1998-067SB	Selfie-sh	2021 Feb 20 1736:49	RSP	J	415	419	51.64	In Earth orbit
S47926	1998-067SC	TAU-Sat-1	2021 Feb 20 1736:49	TAU	IL	413	420	51.64	In Earth orbit
S47927	1998-067SD	Tsuru	2021 Feb 20 1736:49	KYUT	J	415	419	51.64	In Earth orbit
S47928	1998-067SE	Sanko	2021 Feb 20 1736:49	SHIZ	J	413	421	51.64	In Earth orbit
S47929	1998-067SF	Maya-2	2021 Feb 20 1736:49	DOST	PH	415	419	51.64	In Earth orbit
S47930	1998-067SG	Hirogari	2021 Feb 20 1736:49	OPU/MUKD	J	414	421	51.64	In Earth orbit
S47931	1998-067SH	GuaraniSat	2021 Feb 20 1736:49	AEP	PY	415	419	51.64	In Earth orbit
S47976	1998-067SJ	Lawkanat 1	2021 Feb 20 1736:49	MAEU/HOKK	MYM	416	421	51.64	In Earth orbit
S49013	2021-013C	ORCA-7	2021 Feb 20 1736:49	DARPA	US	492	501	51.64	In Earth orbit
S49014	2021-013D	Gunsmoke-J 2	2021 Feb 20 1736:49	SMDC/TSEPT	US	487	503	51.64	In Earth orbit
S49015	2021-013E	ORCA-6	2021 Feb 20 1736:49	DARPA	US	492	501	51.64	In Earth orbit
S49016	2021-013F	DhabiSat	2021 Feb 20 1736:49	MASDAR	UAE	488	502	51.64	In Earth orbit
S49017	2021-013G	IT-SPINS	2021 Feb 20 1736:49	MSU	US	489	503	51.64	In Earth orbit
A09696	2021-013	ThinSat-2A	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09697	2021-013	ThinSat-2B	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09698	2021-013	ThinSat-2C	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09699	2021-013	ThinSat-2D	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09700	2021-013	ThinSat-2E	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09701	2021-013	ThinSat-2F	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09702	2021-013	ThinSat-2G	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09703	2021-013	ThinSat-2H	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09704	2021-013	ThinSat-2I	2021 Feb 20 1736:49	VCSFA	US	182	340	51.64	Reentered
A09713	1998-067SE	STARS-EC Climber	2021 Feb 20 1736:49	SHIZ	J	413	422	51.64	Attached to Sanko
A09714	1998-067SE	STARS-EC HT	2021 Feb 20 1736:49	SHIZ	J	413	422	51.64	Attached to Sanko
S47691	2021-014A	Yaogan 31 hao 03 zu 01 xing	2021 Feb 24 0222:00	ZZB	CN	1090	1100	63.41	In Earth orbit
S47693	2021-014C	Yaogan 31 hao 03 zu 02 xing	2021 Feb 24 0222:00	ZZB	CN	1089	1098	63.41	In Earth orbit
S47695	2021-014E	Yaogan 31 hao 03 zu 03 xing	2021 Feb 24 0222:00	ZZB	CN	1094	1116	63.41	In Earth orbit
S47699	2021-015A	Amazonia-1	2021 Feb 28 0454:00	INPE	BR	741	757	98.51	In Earth orbit
S47701	2021-015C	NanoConnect-2/SAI-1	2021 Feb 28 0454:00	UNAM/SAIUS	MX	492	507	97.47	In Earth orbit
S47702	2021-015D ?	Sindhu Netra	2021 Feb 28 0454:00	PESU/DRDO	IN	491	506	97.47	In Earth orbit
S47703	2021-015E	SpaceBEE-87	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47704	2021-015F	SpaceBEE-86	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47705	2021-015G	SpaceBEE-85	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47706	2021-015H	SpaceBEE-84	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47707	2021-015J	SpaceBEE-83	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47708	2021-015K	SpaceBEE-82	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47709	2021-015L	SpaceBEE-81	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47710	2021-015M	SpaceBEE-78	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47711	2021-015N	SpaceBEE-76	2021 Feb 28 0454:00	SWARM	US	496	508	97.46	In Earth orbit
S47712	2021-015P	SpaceBEE-80	2021 Feb 28 0454:00	SWARM	US	495	509	97.46	In Earth orbit
S47714	2021-015Q	SpaceBEE-77	2021 Feb 28 0454:00	SWARM	US	494	510	97.46	In Earth orbit
S47715	2021-015R	SpaceBEE-79	2021 Feb 28 0454:00	SWARM	US	495	510	97.47	In Earth orbit
S47716	2021-015S ?	Sri Shakthi Sat	2021 Feb 28 0454:00	SIET	IN	496	509	97.47	In Earth orbit
S47717	2021-015T ?	GHRCEsat	2021 Feb 28 0454:00	GHRCE	IN	496	510	97.47	In Earth orbit
S47718	2021-015U ?	JITsat	2021 Feb 28 0454:00	JIT	IN	496	510	97.46	In Earth orbit

S47721	2021-015V	Satish Dhawan SAT	2021 Feb 28 0454:00	SKI	IN	498	511	97.47	In Earth orbit
S47719	2021-016A ?	Arktika-M No. 1	2021 Feb 28 0655:01	RAKA	RU	1025	39754	63.34	In Earth orbit
S47722	2021-017A	Starlink 2068	2021 Mar 4 0824:54	SPXS	US	259	280	53.05	In Earth orbit
S47723	2021-017B	Starlink 2107	2021 Mar 4 0824:54	SPXS	US	259	280	53.05	In Earth orbit
S47724	2021-017C	Starlink 2116	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47725	2021-017D	Starlink 2125	2021 Mar 4 0824:54	SPXS	US	259	280	53.05	In Earth orbit
S47726	2021-017E	Starlink 2126	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47727	2021-017F	Starlink 2129	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47728	2021-017G	Starlink 2131	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47729	2021-017H	Starlink 2132	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47730	2021-017J	Starlink 2140	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47731	2021-017K	Starlink 2141	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47732	2021-017L	Starlink 2142	2021 Mar 4 0824:54	SPXS	US	259	282	53.05	In Earth orbit
S47733	2021-017M	Starlink 2143	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47734	2021-017N	Starlink 2144	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47735	2021-017P	Starlink 2146	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47736	2021-017Q	Starlink 2147	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47737	2021-017R	Starlink 2148	2021 Mar 4 0824:54	SPXS	US	259	280	53.05	In Earth orbit
S47738	2021-017S	Starlink 2149	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47739	2021-017T	Starlink 2150	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47740	2021-017U	Starlink 2152	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47741	2021-017V	Starlink 2154	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47742	2021-017W	Starlink 2156	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47743	2021-017X	Starlink 2157	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47744	2021-017Y	Starlink 2158	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47745	2021-017Z	Starlink 2159	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47746	2021-017AA	Starlink 2160	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47747	2021-017AB	Starlink 2161	2021 Mar 4 0824:54	SPXS	US	259	280	53.05	In Earth orbit
S47748	2021-017AC	Starlink 2162	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47749	2021-017AD	Starlink 2163	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47750	2021-017AE	Starlink 2164	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47751	2021-017AF	Starlink 2168	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47752	2021-017AG	Starlink 2169	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47753	2021-017AH	Starlink 2170	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47754	2021-017AJ	Starlink 2171	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47755	2021-017AK	Starlink 2172	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47756	2021-017AL	Starlink 2174	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47757	2021-017AM	Starlink 2175	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47758	2021-017AN	Starlink 2176	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47759	2021-017AP	Starlink 2177	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47760	2021-017AQ	Starlink 2178	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47761	2021-017AR	Starlink 2179	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47762	2021-017AS	Starlink 2180	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47763	2021-017AT	Starlink 2181	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47764	2021-017AU	Starlink 2182	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47765	2021-017AV	Starlink 2183	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47766	2021-017AW	Starlink 2184	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47767	2021-017AX	Starlink 2185	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47768	2021-017AY	Starlink 2189	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47769	2021-017AZ	Starlink 2192	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47770	2021-017BA	Starlink 2193	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47771	2021-017BB	Starlink 2194	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47772	2021-017BC	Starlink 2195	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47773	2021-017BD	Starlink 2196	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47774	2021-017BE	Starlink 2197	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47775	2021-017BF	Starlink 2198	2021 Mar 4 0824:54	SPXS	US	261	283	53.05	In Earth orbit
S47776	2021-017BG	Starlink 2209	2021 Mar 4 0824:54	SPXS	US	260	281	53.05	In Earth orbit
S47777	2021-017BH	Starlink 2210	2021 Mar 4 0824:54	SPXS	US	261	282	53.05	In Earth orbit
S47778	2021-017BJ	Starlink 2211	2021 Mar 4 0824:54	SPXS	US	240	269	53.05	In Earth orbit
S47779	2021-017BK	Starlink 2212	2021 Mar 4 0824:54	SPXS	US	260	282	53.05	In Earth orbit
S47780	2021-017BL	Starlink 2213	2021 Mar 4 0824:54	SPXS	US	255	282	53.05	In Earth orbit
S47781	2021-017BM	Starlink 2223	2021 Mar 4 0824:54	SPXS	US	259	281	53.05	In Earth orbit
S47787	2021-018A	Starlink 2257	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47788	2021-018B	Starlink 2314	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47789	2021-018C	Starlink 2315	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47790	2021-018D	Starlink 2319	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit

S47791	2021-018E	Starlink 2322	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47792	2021-018F	Starlink 2334	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47793	2021-018G	Starlink 2338	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47794	2021-018H	Starlink 2341	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47795	2021-018J	Starlink 2347	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47796	2021-018K	Starlink 2373	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47797	2021-018L	Starlink 2377	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47798	2021-018M	Starlink 2379	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47799	2021-018N	Starlink 2380	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47800	2021-018P	Starlink 2381	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47801	2021-018Q	Starlink 2382	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47802	2021-018R	Starlink 2383	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47803	2021-018S	Starlink 2384	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47804	2021-018T	Starlink 2385	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47805	2021-018U	Starlink 2386	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47806	2021-018V	Starlink 2387	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47807	2021-018W	Starlink 2388	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47808	2021-018X	Starlink 2389	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47809	2021-018Y	Starlink 2390	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47810	2021-018Z	Starlink 2391	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47811	2021-018AA	Starlink 2392	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47812	2021-018AB	Starlink 2393	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47813	2021-018AC	Starlink 2394	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47814	2021-018AD	Starlink 2395	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47815	2021-018AE	Starlink 2396	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47816	2021-018AF	Starlink 2399	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47817	2021-018AG	Starlink 2400	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47818	2021-018AH	Starlink 2401	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47819	2021-018AJ	Starlink 2402	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47820	2021-018AK	Starlink 2403	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47821	2021-018AL	Starlink 2406	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47822	2021-018AM	Starlink 2407	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47823	2021-018AN	Starlink 2408	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47824	2021-018AP	Starlink 2409	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47825	2021-018AQ	Starlink 2410	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47826	2021-018AR	Starlink 2411	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47827	2021-018AS	Starlink 2413	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47828	2021-018AT	Starlink 2415	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47829	2021-018AU	Starlink 2416	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47830	2021-018AV	Starlink 2419	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47831	2021-018AW	Starlink 2420	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47832	2021-018AX	Starlink 2422	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47833	2021-018AY	Starlink 2423	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47834	2021-018AZ	Starlink 2424	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47835	2021-018BA	Starlink 2425	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47836	2021-018BB	Starlink 2426	2021 Mar 11 0813:29	SPXS	US	258	279	53.05	In Earth orbit
S47837	2021-018BC	Starlink 2427	2021 Mar 11 0813:29	SPXS	US	258	279	53.05	In Earth orbit
S47838	2021-018BD	Starlink 2429	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47839	2021-018BE	Starlink 2431	2021 Mar 11 0813:29	SPXS	US	258	279	53.05	In Earth orbit
S47840	2021-018BF	Starlink 2432	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47841	2021-018BG	Starlink 2433	2021 Mar 11 0813:29	SPXS	US	258	279	53.05	In Earth orbit
S47842	2021-018BH	Starlink 2434	2021 Mar 11 0813:29	SPXS	US	257	278	53.05	In Earth orbit
S47843	2021-018BJ	Starlink 2435	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47844	2021-018BK	Starlink 2446	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47845	2021-018BL	Starlink 2453	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47846	2021-018BM	Starlink 2456	2021 Mar 11 0813:29	SPXS	US	258	278	53.05	In Earth orbit
S47851	2021-019A	Shiyan 9	2021 Mar 11 1751:28	CAST	CN	473	35828	19.57	In Earth orbit
S47854	2021-020A	Yaogan 31 hao 04 zu 01 xing	2021 Mar 13 0219:00	ZZB	CN	1092	1098	63.41	In Earth orbit
S47856	2021-020C	Yaogan 31 hao 04 zu 02 xing	2021 Mar 13 0219:00	ZZB	CN	1090	1095	63.41	In Earth orbit
S47857	2021-020D	Yaogan 31 hao 04 zu 03 xing	2021 Mar 13 0219:00	ZZB	CN	1090	1096	63.41	In Earth orbit
S47860	2021-021A	Starlink 2258	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47861	2021-021B	Starlink 2280	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47862	2021-021C	Starlink 2291	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47863	2021-021D	Starlink 2293	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47864	2021-021E	Starlink 2304	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47865	2021-021F	Starlink 2310	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit

S47866	2021-021G	Starlink 2320	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47867	2021-021H	Starlink 2321	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47868	2021-021J	Starlink 2323	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47869	2021-021K	Starlink 2324	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47870	2021-021L	Starlink 2326	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47871	2021-021M	Starlink 2327	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47872	2021-021N	Starlink 2328	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47873	2021-021P	Starlink 2329	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47874	2021-021Q	Starlink 2330	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47875	2021-021R	Starlink 2331	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47876	2021-021S	Starlink 2332	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47877	2021-021T	Starlink 2333	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47878	2021-021U	Starlink 2335	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47879	2021-021V	Starlink 2336	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47880	2021-021W	Starlink 2337	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47881	2021-021X	Starlink 2339	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47882	2021-021Y	Starlink 2340	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47883	2021-021Z	Starlink 2342	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47884	2021-021AA	Starlink 2343	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47885	2021-021AB	Starlink 2344	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47886	2021-021AC	Starlink 2345	2021 Mar 14 1001:26	SPXS	US	254	285	53.05	In Earth orbit
S47887	2021-021AD	Starlink 2346	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47888	2021-021AE	Starlink 2348	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47889	2021-021AF	Starlink 2349	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47890	2021-021AG	Starlink 2350	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47891	2021-021AH	Starlink 2351	2021 Mar 14 1001:26	SPXS	US	255	284	53.05	In Earth orbit
S47892	2021-021AJ	Starlink 2352	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47893	2021-021AK	Starlink 2353	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	Reentered
S47894	2021-021AL	Starlink 2354	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47895	2021-021AM	Starlink 2355	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47896	2021-021AN	Starlink 2356	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47897	2021-021AP	Starlink 2357	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47898	2021-021AQ	Starlink 2358	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47899	2021-021AR	Starlink 2359	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47900	2021-021AS	Starlink 2360	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47901	2021-021AT	Starlink 2361	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47902	2021-021AU	Starlink 2362	2021 Mar 14 1001:26	SPXS	US	255	284	53.05	In Earth orbit
S47903	2021-021AV	Starlink 2363	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47904	2021-021AW	Starlink 2364	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47905	2021-021AX	Starlink 2365	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47906	2021-021AY	Starlink 2366	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47907	2021-021AZ	Starlink 2367	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47908	2021-021BA	Starlink 2368	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47909	2021-021BB	Starlink 2369	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47910	2021-021BC	Starlink 2370	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47911	2021-021BD	Starlink 2371	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47912	2021-021BE	Starlink 2372	2021 Mar 14 1001:26	SPXS	US	254	285	53.05	In Earth orbit
S47913	2021-021BF	Starlink 2374	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47914	2021-021BG	Starlink 2375	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47915	2021-021BH	Starlink 2376	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47916	2021-021BJ	Starlink 2378	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47917	2021-021BK	Starlink 2397	2021 Mar 14 1001:26	SPXS	US	254	284	53.05	In Earth orbit
S47918	2021-021BL	Starlink 2398	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47919	2021-021BM	Starlink 2405	2021 Mar 14 1001:26	SPXS	US	255	285	53.05	In Earth orbit
S47932	2021-022A	CAS500-1	2021 Mar 22 0607:12	KARI	KR	494	509	97.40	In Earth orbit
S47933	2021-022B	GRUS 1C	2021 Mar 22 0607:12	AXEL	J	578	605	97.74	In Earth orbit
S47934	2021-022C	GRUS 1B	2021 Mar 22 0607:12	AXEL	J	579	604	97.73	In Earth orbit
S47935	2021-022D	GRUS 1E	2021 Mar 22 0607:12	AXEL	J	579	604	97.73	In Earth orbit
S47936	2021-022E	Suisen	2021 Mar 22 0607:12	FUKUI	J	578	604	97.73	In Earth orbit
S47937	2021-022F ?	SAMSON 1	2021 Mar 22 0607:12	TECN	IL	538	561	97.56	In Earth orbit
S47938	2021-022G ?	PUMBAA	2021 Mar 22 0607:12	YONS	KR	535	558	97.56	In Earth orbit
S47939	2021-022H ?	SAMSON 2	2021 Mar 22 0607:12	TECN	IL	539	559	97.57	In Earth orbit
S47940	2021-022J	DMSat-1	2021 Mar 22 0607:12	MBRSC	UAE	536	564	97.59	In Earth orbit
S47941	2021-022K	WildTrackCube-SIMBA	2021 Mar 22 0607:12	ROSAP/NAIR	I	535	564	97.56	In Earth orbit
S47942	2021-022L	Hiber 3	2021 Mar 22 0607:12	HIBER	NL	534	559	97.56	In Earth orbit
S47943	2021-022M ?	SAMSON 3	2021 Mar 22 0607:12	TECN	IL	537	561	97.56	In Earth orbit

S47944	2021-022N	ELSA-d Chaser	2021 Mar 22 0607:12	ASTSC	J	534	557	97.57	In Earth orbit
S47945	2021-022P	Unisat 7	2021 Mar 22 0607:12	GAUSS	I	535	558	97.56	In Earth orbit
S47947	2021-022R ?	Najm-1	2021 Mar 22 0607:12	KACST	SA	534	558	97.56	In Earth orbit
S47948	2021-022S	LacunaSat 2b	2021 Mar 22 0607:12	LACU/OCOS	UK	535	564	97.56	In Earth orbit
S47949	2021-022T	C3PO	2021 Mar 22 0607:12	KEPLER	CA	536	563	97.56	In Earth orbit
S47950	2021-022U	KMSL	2021 Mar 22 0607:12	CHOSU	KR	536	563	97.56	In Earth orbit
S47951	2021-022V	Sirius-DZZ	2021 Mar 22 0607:12	VSHE/SIROTS	RU	535	557	97.56	In Earth orbit
S47952	2021-022W	NIU VsHE-DZZ	2021 Mar 22 0607:12	VSHE	RU	535	563	97.57	In Earth orbit
S47953	2021-022X ?	BEESAT 8	2021 Mar 22 0607:12	TUB	D	535	556	97.56	In Earth orbit
S47954	2021-022Y	KSU-Cubesat	2021 Mar 22 0607:12	KSU	SA	536	562	97.57	In Earth orbit
S47955	2021-022Z	Rocinante	2021 Mar 22 0607:12	KEPLER	CA	534	563	97.56	In Earth orbit
S47956	2021-022AA	ChallengeOne	2021 Mar 22 0607:12	TELTN	TN	535	564	97.57	In Earth orbit
S47957	2021-022AB ?	BEESAT 6	2021 Mar 22 0607:12	TUB	D	535	562	97.57	In Earth orbit
S47959	2021-022AD	GRB-Alpha	2021 Mar 22 0607:12	TUKE	SK	535	562	97.57	In Earth orbit
S47960	2021-022AE	OrbiKraft-Zorkiy	2021 Mar 22 0607:12	SPUT	RU	535	563	97.57	In Earth orbit
S47961	2021-022AF	3B5GSAT	2021 Mar 22 0607:12	OCOS/STIOT	UK	535	563	97.56	In Earth orbit
S47962	2021-022AG	STECCO	2021 Mar 22 0607:12	ROSAP	I	535	564	97.56	In Earth orbit
S47963	2021-022AH	DIY-OSCAR-111	2021 Mar 22 0607:12	DIYS	AR	533	559	97.56	In Earth orbit
S47964	2021-022AJ	Magyar-OSCAR-106	2021 Mar 22 0607:12	BME	HU	533	559	97.56	In Earth orbit
S48041	2021-022AK	BCCSAT-1	2021 Mar 22 0607:12	BCCT/KMUTNB	T	537	558	97.57	In Earth orbit
S48082	2021-022AL	FEES	2021 Mar 22 0607:12	GPAP	I	537	558	97.56	In Earth orbit
S48083	2021-022AM ?	BEESAT 5	2021 Mar 22 0607:12	TUB	D	535	558	97.56	In Earth orbit
S48084	2021-022AN ?	BEESAT 7	2021 Mar 22 0607:12	TUB	D	535	562	97.56	In Earth orbit
S48085	2021-022AP	NanoSatC-Br 2	2021 Mar 22 0607:12	INPE	BR	534	557	97.56	In Earth orbit
A09852	2021-022	ELSA-d Target	2021 Mar 22 0607:12	SSTL	UK	533	560	97.55	Attached to ELSA-d Chaser
A09868	2021-022	TIMON	2021 Mar 22 0607:12	YONS	KR	535	565	97.56	Attached to PUMBAA
S47965	2021-023A	Veery Hatchling v0.2	2021 Mar 22 2230:00	CAREWX	US	538	558	45.00	In Earth orbit
S47966	2021-023B	Centauri 3	2021 Mar 22 2230:00	FLEET	AU	542	558	45.00	In Earth orbit
S47967	2021-023C	RAAF M2 A	2021 Mar 22 2230:00	RAAF/UNSW	AU	544	559	45.00	In Earth orbit
S47968	2021-023D	Myriota 7	2021 Mar 22 2230:00	MYRI	AU	543	558	45.00	In Earth orbit
S47969	2021-023E	Gunsmoke-J 3	2021 Mar 22 2230:00	SMDC/TSEPT	US	547	558	45.00	In Earth orbit
S47971	2021-023G	Global-9	2021 Mar 22 2230:00	BSKG	US	448	460	45.00	In Earth orbit
S47972	2021-023H	Photon Pathstone	2021 Mar 22 2230:00	RLABN	NZ	448	457	45.00	Attached to Electron 19 Kick Stage
S47973	2021-023J	RAAF M2 B	2021 Mar 22 2230:00	RAAF/UNSW	AU	545	558	45.00	In Earth orbit
S47977	2021-024A	Starlink 2087	2021 Mar 24 0828:00	SPXS	US	290	294	53.05	In Earth orbit
S47978	2021-024B	Starlink 1647	2021 Mar 24 0828:00	SPXS	US	291	293	53.05	In Earth orbit
S47979	2021-024C	Starlink 2325	2021 Mar 24 0828:00	SPXS	US	291	293	53.05	In Earth orbit
S47980	2021-024D	Starlink 2312	2021 Mar 24 0828:00	SPXS	US	290	294	53.05	In Earth orbit
S47981	2021-024E	Starlink 2303	2021 Mar 24 0828:00	SPXS	US	290	294	53.05	In Earth orbit
S47982	2021-024F	Starlink 2317	2021 Mar 24 0828:00	SPXS	US	291	293	53.05	In Earth orbit
S47983	2021-024G	Starlink 2289	2021 Mar 24 0828:00	SPXS	US	291	293	53.05	In Earth orbit
S47984	2021-024H	Starlink 2316	2021 Mar 24 0828:00	SPXS	US	289	294	53.05	In Earth orbit
S47985	2021-024J	Starlink 2308	2021 Mar 24 0828:00	SPXS	US	289	294	53.05	In Earth orbit
S47986	2021-024K	Starlink 2313	2021 Mar 24 0828:00	SPXS	US	290	293	53.05	In Earth orbit
S47987	2021-024L	Starlink 2311	2021 Mar 24 0828:00	SPXS	US	291	293	53.05	Reentered
S47988	2021-024M	Starlink 2306	2021 Mar 24 0828:00	SPXS	US	288	295	53.05	In Earth orbit
S47989	2021-024N	Starlink 2305	2021 Mar 24 0828:00	SPXS	US	289	294	53.05	In Earth orbit
S47990	2021-024P	Starlink 2307	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S47991	2021-024Q	Starlink 2279	2021 Mar 24 0828:00	SPXS	US	290	293	53.05	In Earth orbit
S47992	2021-024R	Starlink 2229	2021 Mar 24 0828:00	SPXS	US	290	293	53.05	In Earth orbit
S47993	2021-024S	Starlink 2273	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S47994	2021-024T	Starlink 2290	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S47995	2021-024U	Starlink 2309	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S47996	2021-024V	Starlink 2260	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S47997	2021-024W	Starlink 2266	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S47998	2021-024X	Starlink 2296	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S47999	2021-024Y	Starlink 2218	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S48000	2021-024Z	Starlink 2270	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S48001	2021-024AA	Starlink 2262	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	Reentered
S48002	2021-024AB	Starlink 2265	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48003	2021-024AC	Starlink 2263	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48004	2021-024AD	Starlink 2261	2021 Mar 24 0828:00	SPXS	US	291	292	53.05	In Earth orbit
S48005	2021-024AE	Starlink 2254	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48006	2021-024AF	Starlink 2277	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	Reentered
S48007	2021-024AG	Starlink 2259	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	Reentered
S48008	2021-024AH	Starlink 2271	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit

S48009	2021-024AJ	Starlink 2153	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48010	2021-024AK	Starlink 2226	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48011	2021-024AL	Starlink 2272	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48012	2021-024AM	Starlink 2216	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48013	2021-024AN	Starlink 2243	2021 Mar 24 0828:00	SPXS	US	289	293	53.05	In Earth orbit
S48014	2021-024AP	Starlink 2283	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48015	2021-024AQ	Starlink 2281	2021 Mar 24 0828:00	SPXS	US	288	293	53.05	In Earth orbit
S48016	2021-024AR	Starlink 2284	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48017	2021-024AS	Starlink 2239	2021 Mar 24 0828:00	SPXS	US	290	292	53.05	In Earth orbit
S48018	2021-024AT	Starlink 2282	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48019	2021-024AU	Starlink 2285	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48020	2021-024AV	Starlink 2294	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48021	2021-024AW	Starlink 2301	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48022	2021-024AX	Starlink 2298	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48023	2021-024AY	Starlink 2292	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48024	2021-024AZ	Starlink 2302	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48025	2021-024BA	Starlink 2318	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48026	2021-024BB	Starlink 2278	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48027	2021-024BC	Starlink 2300	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48028	2021-024BD	Starlink 2264	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48029	2021-024BE	Starlink 2299	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48030	2021-024BF	Starlink 2268	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48031	2021-024BG	Starlink 2267	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48032	2021-024BH	Starlink 2297	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48033	2021-024BJ	Starlink 2286	2021 Mar 24 0828:00	SPXS	US	289	291	53.05	In Earth orbit
S48034	2021-024BK	Starlink 2288	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48035	2021-024BL	Starlink 2287	2021 Mar 24 0828:00	SPXS	US	290	291	53.05	In Earth orbit
S48036	2021-024BM	Starlink 2295	2021 Mar 24 0828:00	SPXS	US	289	291	53.05	In Earth orbit
S48042	2021-025A	OneWeb SL0115	2021 Mar 25 0247:33	ONEWEB	UK	440	446	87.40	In Earth orbit
S48043	2021-025B	OneWeb SL0152	2021 Mar 25 0247:33	ONEWEB	UK	442	451	87.40	In Earth orbit
S48044	2021-025C	OneWeb SL0153	2021 Mar 25 0247:33	ONEWEB	UK	445	454	87.40	In Earth orbit
S48045	2021-025D	OneWeb SL0154	2021 Mar 25 0247:33	ONEWEB	UK	449	454	87.40	In Earth orbit
S48046	2021-025E	OneWeb SL0116	2021 Mar 25 0247:33	ONEWEB	UK	441	446	87.40	In Earth orbit
S48047	2021-025F	OneWeb SL0150	2021 Mar 25 0247:33	ONEWEB	UK	442	448	87.40	In Earth orbit
S48048	2021-025G	OneWeb SL0107	2021 Mar 25 0247:33	ONEWEB	UK	444	454	87.40	In Earth orbit
S48049	2021-025H	OneWeb SL0101	2021 Mar 25 0247:33	ONEWEB	UK	450	456	87.40	In Earth orbit
S48050	2021-025J	OneWeb SL0113	2021 Mar 25 0247:33	ONEWEB	UK	442	450	87.40	In Earth orbit
S48051	2021-025K	OneWeb SL0112	2021 Mar 25 0247:33	ONEWEB	UK	442	446	87.40	In Earth orbit
S48052	2021-025L	OneWeb SL0156	2021 Mar 25 0247:33	ONEWEB	UK	444	453	87.40	In Earth orbit
S48053	2021-025M	OneWeb SL0161	2021 Mar 25 0247:33	ONEWEB	UK	449	454	87.40	In Earth orbit
S48054	2021-025N	OneWeb SL0158	2021 Mar 25 0247:33	ONEWEB	UK	440	446	87.40	In Earth orbit
S48055	2021-025P	OneWeb SL0157	2021 Mar 25 0247:33	ONEWEB	UK	442	449	87.40	In Earth orbit
S48056	2021-025Q	OneWeb SL0162	2021 Mar 25 0247:33	ONEWEB	UK	449	455	87.40	In Earth orbit
S48057	2021-025R	OneWeb SL0155	2021 Mar 25 0247:33	ONEWEB	UK	437	446	87.40	In Earth orbit
S48058	2021-025S	OneWeb SL0149	2021 Mar 25 0247:33	ONEWEB	UK	445	454	87.40	In Earth orbit
S48059	2021-025T	OneWeb SL0148	2021 Mar 25 0247:33	ONEWEB	UK	442	452	87.39	In Earth orbit
S48060	2021-025U	OneWeb SL0160	2021 Mar 25 0247:33	ONEWEB	UK	449	454	87.40	In Earth orbit
S48061	2021-025V	OneWeb SL0163	2021 Mar 25 0247:33	ONEWEB	UK	436	446	87.40	In Earth orbit
S48062	2021-025W	OneWeb SL0159	2021 Mar 25 0247:33	ONEWEB	UK	442	447	87.40	In Earth orbit
S48063	2021-025X	OneWeb SL0164	2021 Mar 25 0247:33	ONEWEB	UK	443	453	87.40	In Earth orbit
S48064	2021-025Y	OneWeb SL0167	2021 Mar 25 0247:33	ONEWEB	UK	447	454	87.40	In Earth orbit
S48065	2021-025Z	OneWeb SL0166	2021 Mar 25 0247:33	ONEWEB	UK	435	446	87.40	In Earth orbit
S48066	2021-025AA	OneWeb SL0151	2021 Mar 25 0247:33	ONEWEB	UK	442	446	87.40	In Earth orbit
S48067	2021-025AB	OneWeb SL0170	2021 Mar 25 0247:33	ONEWEB	UK	443	453	87.40	In Earth orbit
S48068	2021-025AC	OneWeb SL0168	2021 Mar 25 0247:33	ONEWEB	UK	448	454	87.40	In Earth orbit
S48069	2021-025AD	OneWeb SL0173	2021 Mar 25 0247:33	ONEWEB	UK	442	446	87.40	In Earth orbit
S48070	2021-025AE	OneWeb SL0171	2021 Mar 25 0247:33	ONEWEB	UK	437	446	87.40	In Earth orbit
S48071	2021-025AF	OneWeb SL0172	2021 Mar 25 0247:33	ONEWEB	UK	442	447	87.40	In Earth orbit
S48072	2021-025AG	OneWeb SL0174	2021 Mar 25 0247:33	ONEWEB	UK	433	444	87.40	In Earth orbit
S48073	2021-025AH	OneWeb SL0175	2021 Mar 25 0247:33	ONEWEB	UK	447	454	87.40	In Earth orbit
S48074	2021-025AJ	OneWeb SL0177	2021 Mar 25 0247:33	ONEWEB	UK	433	444	87.40	In Earth orbit
S48075	2021-025AK	OneWeb SL0178	2021 Mar 25 0247:33	ONEWEB	UK	434	445	87.40	In Earth orbit
S48076	2021-025AL	OneWeb SL0108	2021 Mar 25 0247:33	ONEWEB	UK	433	444	87.40	In Earth orbit
S48077	2021-025AM	OneWeb SL0169	2021 Mar 25 0247:33	ONEWEB	UK	442	452	87.40	In Earth orbit
S48079	2021-026A	Gao Fen 12-02	2021 Mar 30 2245:00	ZZB	CN	593	599	97.84	In Earth orbit
S48092	2021-027A	Starlink 2048	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit

S48093	2021-027B	Starlink 2404	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48094	2021-027C	Starlink 2412	2021 Apr 7 1634:00	SPXS	US	268	275	53.05	In Earth orbit
S48095	2021-027D	Starlink 2414	2021 Apr 7 1634:00	SPXS	US	269	275	53.05	In Earth orbit
S48096	2021-027E	Starlink 2417	2021 Apr 7 1634:00	SPXS	US	269	275	53.05	In Earth orbit
S48097	2021-027F	Starlink 2418	2021 Apr 7 1634:00	SPXS	US	271	278	53.05	In Earth orbit
S48098	2021-027G	Starlink 2421	2021 Apr 7 1634:00	SPXS	US	269	276	53.05	In Earth orbit
S48099	2021-027H	Starlink 2428	2021 Apr 7 1634:00	SPXS	US	269	276	53.05	In Earth orbit
S48100	2021-027J	Starlink 2430	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48101	2021-027K	Starlink 2436	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48102	2021-027L	Starlink 2437	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48103	2021-027M	Starlink 2438	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48104	2021-027N	Starlink 2439	2021 Apr 7 1634:00	SPXS	US	272	279	53.05	In Earth orbit
S48105	2021-027P	Starlink 2440	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48106	2021-027Q	Starlink 2442	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48107	2021-027R	Starlink 2443	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48108	2021-027S	Starlink 2444	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48109	2021-027T	Starlink 2445	2021 Apr 7 1634:00	SPXS	US	270	277	53.05	In Earth orbit
S48110	2021-027U	Starlink 2447	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48111	2021-027V	Starlink 2448	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48112	2021-027W	Starlink 2449	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48113	2021-027X	Starlink 2450	2021 Apr 7 1634:00	SPXS	US	269	276	53.05	In Earth orbit
S48114	2021-027Y	Starlink 2451	2021 Apr 7 1634:00	SPXS	US	269	276	53.05	In Earth orbit
S48115	2021-027Z	Starlink 2452	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48116	2021-027AA	Starlink 2454	2021 Apr 7 1634:00	SPXS	US	269	275	53.05	In Earth orbit
S48117	2021-027AB	Starlink 2455	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48118	2021-027AC	Starlink 2458	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48119	2021-027AD	Starlink 2459	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48120	2021-027AE	Starlink 2460	2021 Apr 7 1634:00	SPXS	US	268	275	53.05	In Earth orbit
S48121	2021-027AF	Starlink 2462	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48122	2021-027AG	Starlink 2463	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48123	2021-027AH	Starlink 2464	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48124	2021-027AJ	Starlink 2465	2021 Apr 7 1634:00	SPXS	US	271	278	53.05	In Earth orbit
S48125	2021-027AK	Starlink 2466	2021 Apr 7 1634:00	SPXS	US	269	276	53.05	In Earth orbit
S48126	2021-027AL	Starlink 2467	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48127	2021-027AM	Starlink 2468	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48128	2021-027AN	Starlink 2469	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48129	2021-027AP	Starlink 2471	2021 Apr 7 1634:00	SPXS	US	269	275	53.05	In Earth orbit
S48130	2021-027AQ	Starlink 2472	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48131	2021-027AR	Starlink 2473	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48132	2021-027AS	Starlink 2474	2021 Apr 7 1634:00	SPXS	US	269	275	53.05	In Earth orbit
S48133	2021-027AT	Starlink 2475	2021 Apr 7 1634:00	SPXS	US	270	277	53.05	In Earth orbit
S48134	2021-027AU	Starlink 2476	2021 Apr 7 1634:00	SPXS	US	268	275	53.05	In Earth orbit
S48135	2021-027AV	Starlink 2478	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48136	2021-027AW	Starlink 2479	2021 Apr 7 1634:00	SPXS	US	270	277	53.05	In Earth orbit
S48137	2021-027AX	Starlink 2480	2021 Apr 7 1634:00	SPXS	US	272	278	53.05	In Earth orbit
S48138	2021-027AY	Starlink 2481	2021 Apr 7 1634:00	SPXS	US	270	277	53.05	In Earth orbit
S48139	2021-027AZ	Starlink 2482	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48140	2021-027BA	Starlink 2483	2021 Apr 7 1634:00	SPXS	US	269	275	53.05	In Earth orbit
S48141	2021-027BB	Starlink 2484	2021 Apr 7 1634:00	SPXS	US	270	277	53.05	In Earth orbit
S48142	2021-027BC	Starlink 2485	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48143	2021-027BD	Starlink 2486	2021 Apr 7 1634:00	SPXS	US	272	279	53.05	In Earth orbit
S48144	2021-027BE	Starlink 2487	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48145	2021-027BF	Starlink 2488	2021 Apr 7 1634:00	SPXS	US	271	277	53.05	In Earth orbit
S48146	2021-027BG	Starlink 2489	2021 Apr 7 1634:00	SPXS	US	270	277	53.05	In Earth orbit
S48147	2021-027BH	Starlink 2490	2021 Apr 7 1634:00	SPXS	US	268	275	53.05	In Earth orbit
S48148	2021-027BJ	Starlink 2491	2021 Apr 7 1634:00	SPXS	US	269	275	53.05	In Earth orbit
S48149	2021-027BK	Starlink 2492	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48150	2021-027BL	Starlink 2493	2021 Apr 7 1634:00	SPXS	US	272	279	53.05	In Earth orbit
S48151	2021-027BM	Starlink 2503	2021 Apr 7 1634:00	SPXS	US	270	276	53.05	In Earth orbit
S48157	2021-028A	Shiyan 6-03	2021 Apr 8 2301:00	CNSA	CN	989	1001	99.51	In Earth orbit
S48159	2021-029A	Soyuz MS-18	2021 Apr 9 0742:41	RKKE	RU	192	228	51.65	Landed
S48209	2021-030A	Endeavour (SpX Crew-2)	2021 Apr 23 0949:02	SPX	US	414	420	51.64	Landed
S48210	2021-031A	OneWeb SL0176	2021 Apr 25 2214:08	ONEWEB	UK	440	446	87.40	In Earth orbit
S48211	2021-031B	OneWeb SL0184	2021 Apr 25 2214:08	ONEWEB	UK	442	451	87.40	In Earth orbit
S48212	2021-031C	OneWeb SL0179	2021 Apr 25 2214:08	ONEWEB	UK	444	454	87.40	In Earth orbit
S48213	2021-031D	OneWeb SL0180	2021 Apr 25 2214:08	ONEWEB	UK	449	454	87.40	In Earth orbit

S48214	2021-031E	OneWeb SL0218	2021 Apr 25 2214:08	ONEWEB	UK	433	444	87.40	In Earth orbit
S48215	2021-031F	OneWeb SL0209	2021 Apr 25 2214:08	ONEWEB	UK	436	446	87.40	In Earth orbit
S48216	2021-031G	OneWeb SL0198	2021 Apr 25 2214:08	ONEWEB	UK	441	446	87.40	In Earth orbit
S48217	2021-031H	OneWeb SL0189	2021 Apr 25 2214:08	ONEWEB	UK	442	452	87.39	In Earth orbit
S48218	2021-031J	OneWeb SL0196	2021 Apr 25 2214:08	ONEWEB	UK	448	454	87.40	In Earth orbit
S48219	2021-031K	OneWeb SL0183	2021 Apr 25 2214:08	ONEWEB	UK	441	446	87.40	In Earth orbit
S48220	2021-031L	OneWeb SL0185	2021 Apr 25 2214:08	ONEWEB	UK	442	450	87.40	In Earth orbit
S48221	2021-031M	OneWeb SL0187	2021 Apr 25 2214:08	ONEWEB	UK	443	453	87.40	In Earth orbit
S48222	2021-031N	OneWeb SL0192	2021 Apr 25 2214:08	ONEWEB	UK	449	455	87.40	In Earth orbit
S48223	2021-031P	OneWeb SL0219	2021 Apr 25 2214:08	ONEWEB	UK	433	444	87.40	In Earth orbit
S48224	2021-031Q	OneWeb SL0202	2021 Apr 25 2214:08	ONEWEB	UK	435	446	87.40	In Earth orbit
S48225	2021-031R	OneWeb SL0204	2021 Apr 25 2214:08	ONEWEB	UK	442	446	87.40	In Earth orbit
S48226	2021-031S	OneWeb SL0205	2021 Apr 25 2214:08	ONEWEB	UK	443	453	87.40	In Earth orbit
S48227	2021-031T	OneWeb SL0206	2021 Apr 25 2214:08	ONEWEB	UK	448	454	87.40	In Earth orbit
S48228	2021-031U	OneWeb SL0182	2021 Apr 25 2214:08	ONEWEB	UK	441	446	87.40	In Earth orbit
S48229	2021-031V	OneWeb SL0186	2021 Apr 25 2214:08	ONEWEB	UK	442	449	87.40	In Earth orbit
S48230	2021-031W	OneWeb SL0181	2021 Apr 25 2214:08	ONEWEB	UK	444	454	87.40	In Earth orbit
S48231	2021-031X	OneWeb SL0188	2021 Apr 25 2214:08	ONEWEB	UK	449	456	87.40	In Earth orbit
S48232	2021-031Y	OneWeb SL0220	2021 Apr 25 2214:08	ONEWEB	UK	433	445	87.40	In Earth orbit
S48233	2021-031Z	OneWeb SL0165	2021 Apr 25 2214:08	ONEWEB	UK	436	446	87.40	In Earth orbit
S48234	2021-031AA	OneWeb SL0199	2021 Apr 25 2214:08	ONEWEB	UK	442	447	87.40	In Earth orbit
S48235	2021-031AB	OneWeb SL0203	2021 Apr 25 2214:08	ONEWEB	UK	442	453	87.40	In Earth orbit
S48236	2021-031AC	OneWeb SL0197	2021 Apr 25 2214:08	ONEWEB	UK	446	454	87.40	In Earth orbit
S48237	2021-031AD	OneWeb SL0194	2021 Apr 25 2214:08	ONEWEB	UK	439	446	87.40	In Earth orbit
S48238	2021-031AE	OneWeb SL0193	2021 Apr 25 2214:08	ONEWEB	UK	442	449	87.40	In Earth orbit
S48239	2021-031AF	OneWeb SL0191	2021 Apr 25 2214:08	ONEWEB	UK	445	454	87.40	In Earth orbit
S48240	2021-031AG	OneWeb SL0195	2021 Apr 25 2214:08	ONEWEB	UK	449	455	87.40	In Earth orbit
S48241	2021-031AH	OneWeb SL0201	2021 Apr 25 2214:08	ONEWEB	UK	433	444	87.40	In Earth orbit
S48242	2021-031AJ	OneWeb SL0207	2021 Apr 25 2214:08	ONEWEB	UK	437	446	87.40	In Earth orbit
S48243	2021-031AK	OneWeb SL0208	2021 Apr 25 2214:08	ONEWEB	UK	442	447	87.40	In Earth orbit
S48244	2021-031AL	OneWeb SL0200	2021 Apr 25 2214:08	ONEWEB	UK	442	452	87.40	In Earth orbit
S48245	2021-031AM	OneWeb SL0217	2021 Apr 25 2214:08	ONEWEB	UK	447	454	87.40	In Earth orbit
S48247	2021-032A	USA 314	2021 Apr 26 2047:00	NROC	US	524	758	98.02	In Earth orbit
S48248	2021-033A ?	Qilu-1	2021 Apr 27 0320:00	SDIIT/SHANDZ	CN	496	510	97.40	In Earth orbit
S48249	2021-033B ?	Qilu-4	2021 Apr 27 0320:00	SDIIT/SHANDZ	CN	495	510	97.40	In Earth orbit
S48250	2021-033C ?	Foshan 1	2021 Apr 27 0320:00	JIHUA	CN	494	511	97.40	In Earth orbit
S48251	2021-033D ?	Zhongan Guotong 1	2021 Apr 27 0320:00	ZGWK	CN	495	508	97.40	In Earth orbit
S48252	2021-033E ?	Tianqi Xingzuo 09	2021 Apr 27 0320:00	GUOG	CN	495	508	97.40	In Earth orbit
S48253	2021-033F ?	NEO-1	2021 Apr 27 0320:00	QTK	CN	494	509	97.39	In Earth orbit
S48254	2021-033G ?	Jin Zijing 1-01	2021 Apr 27 0320:00	LINGZ/HKATG	CN	494	508	97.39	In Earth orbit
S48255	2021-033H ?	Jin Zijing 1-02	2021 Apr 27 0320:00	LINGZ/HKATG	CN	494	509	97.39	In Earth orbit
S48256	2021-033J ?	Taijing 2-01	2021 Apr 27 0320:00	WEINA	CN	494	505	97.39	In Earth orbit
S48268	2021-034A	Pleiades Neo 3	2021 Apr 29 0150:00	ADSTI	F	623	626	97.90	In Earth orbit
S48269	2021-034B	Lemur-2-Amanda-Svante	2021 Apr 29 0150:00	SPIRE	US	607	610	97.79	In Earth orbit
S48270	2021-034C	AII-Bravo	2021 Apr 29 0150:00	AUINS/NANAV	US	609	613	97.79	In Earth orbit
S48271	2021-034D	ELO Alpha	2021 Apr 29 0150:00	EUTSA	F	607	614	97.79	In Earth orbit
S48272	2021-034E	NorSat-3	2021 Apr 29 0150:00	NSC	N	609	613	97.79	In Earth orbit
S48273	2021-034F	Lemur-2-SpecialK	2021 Apr 29 0150:00	SPIRE	US	608	612	97.79	In Earth orbit
S48274	2021-035A	Tianhe	2021 Apr 29 0323:16	CMSEO	CN	170	381	41.47	In Earth orbit
S48276	2021-036A	Starlink 2567	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48277	2021-036B	Starlink 2569	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48278	2021-036C	Starlink 2543	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48279	2021-036D	Starlink 2580	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48280	2021-036E	Starlink 2565	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48281	2021-036F	Starlink 2520	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48282	2021-036G	Starlink 2558	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48283	2021-036H	Starlink 2516	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48284	2021-036J	Starlink 2564	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48285	2021-036K	Starlink 2548	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48286	2021-036L	Starlink 2547	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48287	2021-036M	Starlink 2566	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48288	2021-036N	Starlink 2562	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48289	2021-036P	Starlink 2545	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48290	2021-036Q	Starlink 2540	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48291	2021-036R	Starlink 2555	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48292	2021-036S	Starlink 2542	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit

S48293	2021-036T	Starlink 2550	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48294	2021-036U	Starlink 2533	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48295	2021-036V	Starlink 2535	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48296	2021-036W	Starlink 2546	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48297	2021-036X	Starlink 2544	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48298	2021-036Y	Starlink 2559	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48299	2021-036Z	Starlink 2557	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48300	2021-036AA	Starlink 2538	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48301	2021-036AB	Starlink 2537	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48302	2021-036AC	Starlink 2556	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48303	2021-036AD	Starlink 2530	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48304	2021-036AE	Starlink 2524	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48305	2021-036AF	Starlink 2519	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48306	2021-036AG	Starlink 2523	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48307	2021-036AH	Starlink 2528	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48308	2021-036AJ	Starlink 2532	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48309	2021-036AK	Starlink 2517	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48310	2021-036AL	Starlink 2536	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48311	2021-036AM	Starlink 2534	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48312	2021-036AN	Starlink 2061	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48313	2021-036AP	Starlink 2541	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48314	2021-036AQ	Starlink 2549	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48315	2021-036AR	Starlink 2506	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48316	2021-036AS	Starlink 2507	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48317	2021-036AT	Starlink 2513	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48318	2021-036AU	Starlink 2509	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48319	2021-036AV	Starlink 2512	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48320	2021-036AW	Starlink 2029	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48321	2021-036AX	Starlink 2457	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48322	2021-036AY	Starlink 2477	2021 Apr 29 0344:30	SPXS	US	257	282	53.05	In Earth orbit
S48323	2021-036AZ	Starlink 2515	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48324	2021-036BA	Starlink 2527	2021 Apr 29 0344:30	SPXS	US	256	279	53.05	In Earth orbit
S48325	2021-036BB	Starlink 2495	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48326	2021-036BC	Starlink 2498	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48327	2021-036BD	Starlink 2502	2021 Apr 29 0344:30	SPXS	US	257	281	53.05	In Earth orbit
S48328	2021-036BE	Starlink 2504	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48329	2021-036BF	Starlink 2510	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48330	2021-036BG	Starlink 2501	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48331	2021-036BH	Starlink 2514	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48332	2021-036BJ	Starlink 2511	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48333	2021-036BK	Starlink 2518	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48334	2021-036BL	Starlink 2470	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48335	2021-036BM	Starlink 2441	2021 Apr 29 0344:30	SPXS	US	256	281	53.05	In Earth orbit
S48340	2021-037A	Yaogan 34	2021 Apr 30 0727:00	ZZB	CN	1092	1095	63.41	In Earth orbit
S48353	2021-038A	Starlink 2613	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48354	2021-038B	Starlink 2674	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48355	2021-038C	Starlink 2635	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48356	2021-038D	Starlink 2637	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48357	2021-038E	Starlink 2636	2021 May 4 1901:00	SPXS	US	266	278	53.05	In Earth orbit
S48358	2021-038F	Starlink 2624	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48359	2021-038G	Starlink 2628	2021 May 4 1901:00	SPXS	US	266	278	53.05	In Earth orbit
S48360	2021-038H	Starlink 2622	2021 May 4 1901:00	SPXS	US	266	278	53.05	In Earth orbit
S48361	2021-038J	Starlink 2591	2021 May 4 1901:00	SPXS	US	266	278	53.05	In Earth orbit
S48362	2021-038K	Starlink 2578	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48363	2021-038L	Starlink 2626	2021 May 4 1901:00	SPXS	US	265	277	53.05	In Earth orbit
S48364	2021-038M	Starlink 2611	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48365	2021-038N	Starlink 2608	2021 May 4 1901:00	SPXS	US	265	277	53.05	In Earth orbit
S48366	2021-038P	Starlink 2631	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48367	2021-038Q	Starlink 2643	2021 May 4 1901:00	SPXS	US	260	280	53.05	In Earth orbit
S48368	2021-038R	Starlink 2623	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48369	2021-038S	Starlink 2641	2021 May 4 1901:00	SPXS	US	260	280	53.05	In Earth orbit
S48370	2021-038T	Starlink 2621	2021 May 4 1901:00	SPXS	US	260	280	53.05	In Earth orbit
S48371	2021-038U	Starlink 2589	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48372	2021-038V	Starlink 2572	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48373	2021-038W	Starlink 2609	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48374	2021-038X	Starlink 2604	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit

S48375	2021-038Y	Starlink 2603	2021 May 4 1901:00	SPXS	US	265	277	53.05	In Earth orbit
S48376	2021-038Z	Starlink 2610	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48377	2021-038AA	Starlink 2499	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48378	2021-038AB	Starlink 2526	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48379	2021-038AC	Starlink 2612	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48380	2021-038AD	Starlink 2614	2021 May 4 1901:00	SPXS	US	261	276	53.05	In Earth orbit
S48381	2021-038AE	Starlink 2630	2021 May 4 1901:00	SPXS	US	260	276	53.05	In Earth orbit
S48382	2021-038AF	Starlink 2585	2021 May 4 1901:00	SPXS	US	260	276	53.05	In Earth orbit
S48383	2021-038AG	Starlink 2599	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48384	2021-038AH	Starlink 2601	2021 May 4 1901:00	SPXS	US	265	277	53.05	In Earth orbit
S48385	2021-038AJ	Starlink 2598	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48386	2021-038AK	Starlink 2606	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48387	2021-038AL	Starlink 2600	2021 May 4 1901:00	SPXS	US	265	277	53.05	In Earth orbit
S48388	2021-038AM	Starlink 2594	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48389	2021-038AN	Starlink 1904	2021 May 4 1901:00	SPXS	US	265	277	53.05	In Earth orbit
S48390	2021-038AP	Starlink 2586	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48391	2021-038AQ	Starlink 2607	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48392	2021-038AR	Starlink 2605	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48393	2021-038AS	Starlink 2602	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48394	2021-038AT	Starlink 2573	2021 May 4 1901:00	SPXS	US	264	277	53.05	In Earth orbit
S48395	2021-038AU	Starlink 2574	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48396	2021-038AV	Starlink 2575	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48397	2021-038AW	Starlink 2590	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48398	2021-038AX	Starlink 2588	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48399	2021-038AY	Starlink 2587	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48400	2021-038AZ	Starlink 2576	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48401	2021-038BA	Starlink 2571	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48402	2021-038BB	Starlink 2560	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48403	2021-038BC	Starlink 2561	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48404	2021-038BD	Starlink 2593	2021 May 4 1901:00	SPXS	US	259	280	53.05	In Earth orbit
S48405	2021-038BE	Starlink 2570	2021 May 4 1901:00	SPXS	US	262	276	53.05	In Earth orbit
S48406	2021-038BF	Starlink 2568	2021 May 4 1901:00	SPXS	US	262	276	53.05	In Earth orbit
S48407	2021-038BG	Starlink 2595	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48408	2021-038BH	Starlink 2592	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48409	2021-038BJ	Starlink 2596	2021 May 4 1901:00	SPXS	US	262	276	53.05	In Earth orbit
S48410	2021-038BK	Starlink 2563	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48411	2021-038BL	Starlink 2505	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48412	2021-038BM	Starlink 2581	2021 May 4 1901:00	SPXS	US	263	276	53.05	In Earth orbit
S48423	2021-039A	Yaogan 30 hao 08 zu 01 xing	2021 May 6 1811:05	ZZB	CN	591	601	34.99	In Earth orbit
S48424	2021-039B	Yaogan 30 hao 08 zu 02 xing	2021 May 6 1811:05	ZZB	CN	591	601	35.00	In Earth orbit
S48425	2021-039C	Yaogan 30 hao 08 zu 03 xing	2021 May 6 1811:05	ZZB	CN	591	601	35.00	In Earth orbit
S48426	2021-039D	Tianqi Xingzuo 12	2021 May 6 1811:05	GUOG	CN	589	597	35.01	In Earth orbit
S48428	2021-040A	Starlink 2461	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48429	2021-040B	Starlink 2749	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48430	2021-040C	Starlink 2729	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48431	2021-040D	Starlink 2700	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48432	2021-040E	Starlink 2680	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48433	2021-040F	Starlink 2699	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48434	2021-040G	Starlink 2692	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48435	2021-040H	Starlink 2633	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48436	2021-040J	Starlink 2639	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48437	2021-040K	Starlink 2642	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48438	2021-040L	Starlink 2640	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48439	2021-040M	Starlink 2583	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48440	2021-040N	Starlink 2682	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48441	2021-040P	Starlink 2702	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48442	2021-040Q	Starlink 2644	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48443	2021-040R	Starlink 2663	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48444	2021-040S	Starlink 2645	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48445	2021-040T	Starlink 2634	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48446	2021-040U	Starlink 2247	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48447	2021-040V	Starlink 2269	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48448	2021-040W	Starlink 2632	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48449	2021-040X	Starlink 2655	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48450	2021-040Y	Starlink 2660	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48451	2021-040Z	Starlink 2652	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit

S48452	2021-040AA	Starlink 2703	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48453	2021-040AB	Starlink 2620	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48454	2021-040AC	Starlink 2654	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48455	2021-040AD	Starlink 2497	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48456	2021-040AE	Starlink 2508	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48457	2021-040AF	Starlink 2529	2021 May 9 0642:00	SPXS	US	260	279	53.05	Reentered
S48458	2021-040AG	Starlink 2698	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48459	2021-040AH	Starlink 2579	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48460	2021-040AJ	Starlink 2582	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48461	2021-040AK	Starlink 2693	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48462	2021-040AL	Starlink 2683	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48463	2021-040AM	Starlink 2689	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48464	2021-040AN	Starlink 2686	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48465	2021-040AP	Starlink 2681	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48466	2021-040AQ	Starlink 2687	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48467	2021-040AR	Starlink 2659	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48468	2021-040AS	Starlink 2685	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48469	2021-040AT	Starlink 2661	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48470	2021-040AU	Starlink 2675	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48471	2021-040AV	Starlink 2684	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48472	2021-040AW	Starlink 2722	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48473	2021-040AX	Starlink 2658	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48474	2021-040AY	Starlink 2697	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48475	2021-040AZ	Starlink 2619	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48476	2021-040BA	Starlink 2723	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48477	2021-040BB	Starlink 2638	2021 May 9 0642:00	SPXS	US	260	279	53.05	Reentered
S48478	2021-040BC	Starlink 2728	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48479	2021-040BD	Starlink 2755	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48480	2021-040BE	Starlink 2690	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48481	2021-040BF	Starlink 2706	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48482	2021-040BG	Starlink 2525	2021 May 9 0642:00	SPXS	US	259	279	53.05	In Earth orbit
S48483	2021-040BH	Starlink 2531	2021 May 9 0642:00	SPXS	US	259	279	53.05	In Earth orbit
S48484	2021-040BJ	Starlink 2696	2021 May 9 0642:00	SPXS	US	259	279	53.05	In Earth orbit
S48485	2021-040BK	Starlink 2500	2021 May 9 0642:00	SPXS	US	260	279	53.05	In Earth orbit
S48486	2021-040BL	Starlink 2496	2021 May 9 0642:00	SPXS	US	259	279	53.05	In Earth orbit
S48487	2021-040BM	Starlink 2494	2021 May 9 0642:00	SPXS	US	259	279	53.05	In Earth orbit
S48553	2021-041A	Starlink 2063	2021 May 15 2256:00	SPXS	US	565	583	53.04	In Earth orbit
S48554	2021-041B	Starlink 2139	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48555	2021-041C	Starlink 2145	2021 May 15 2256:00	SPXS	US	566	584	53.04	In Earth orbit
S48556	2021-041D	Starlink 2151	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48557	2021-041E	Starlink 2155	2021 May 15 2256:00	SPXS	US	565	583	53.04	In Earth orbit
S48558	2021-041F	Starlink 2166	2021 May 15 2256:00	SPXS	US	565	583	53.04	In Earth orbit
S48559	2021-041G	Starlink 2167	2021 May 15 2256:00	SPXS	US	565	583	53.04	In Earth orbit
S48560	2021-041H	Starlink 2173	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48561	2021-041J	Starlink 2186	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48562	2021-041K	Starlink 2187	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48563	2021-041L	Starlink 2188	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48564	2021-041M	Starlink 2190	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48565	2021-041N	Starlink 2191	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48566	2021-041P	Starlink 2214	2021 May 15 2256:00	SPXS	US	566	585	53.04	In Earth orbit
S48567	2021-041Q	Starlink 2215	2021 May 15 2256:00	SPXS	US	566	584	53.04	In Earth orbit
S48568	2021-041R	Starlink 2217	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48569	2021-041S	Starlink 2219	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48570	2021-041T	Starlink 2220	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48571	2021-041U	Starlink 2221	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48572	2021-041V	Starlink 2222	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48573	2021-041W	Starlink 2224	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48574	2021-041X	Starlink 2225	2021 May 15 2256:00	SPXS	US	564	581	53.04	In Earth orbit
S48575	2021-041Y	Starlink 2227	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48576	2021-041Z	Starlink 2228	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48577	2021-041AA	Starlink 2231	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48578	2021-041AB	Starlink 2232	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48579	2021-041AC	Starlink 2233	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48580	2021-041AD	Starlink 2234	2021 May 15 2256:00	SPXS	US	563	581	53.04	In Earth orbit
S48581	2021-041AE	Starlink 2235	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48582	2021-041AF	Starlink 2236	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit

S48583	2021-041AG	Starlink 2237	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48584	2021-041AH	Starlink 2238	2021 May 15 2256:00	SPXS	US	566	584	53.04	In Earth orbit
S48585	2021-041AJ	Starlink 2240	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48586	2021-041AK	Starlink 2241	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48587	2021-041AL	Starlink 2242	2021 May 15 2256:00	SPXS	US	566	585	53.04	In Earth orbit
S48588	2021-041AM	Starlink 2244	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48589	2021-041AN	Starlink 2245	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48590	2021-041AP	Starlink 2246	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48591	2021-041AQ	Starlink 2248	2021 May 15 2256:00	SPXS	US	565	583	53.04	In Earth orbit
S48592	2021-041AR	Starlink 2249	2021 May 15 2256:00	SPXS	US	566	584	53.04	In Earth orbit
S48593	2021-041AS	Starlink 2250	2021 May 15 2256:00	SPXS	US	566	584	53.04	In Earth orbit
S48594	2021-041AT	Starlink 2251	2021 May 15 2256:00	SPXS	US	563	581	53.04	In Earth orbit
S48595	2021-041AU	Starlink 2252	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48596	2021-041AV	Starlink 2253	2021 May 15 2256:00	SPXS	US	566	584	53.04	In Earth orbit
S48597	2021-041AW	Starlink 2255	2021 May 15 2256:00	SPXS	US	566	584	53.04	In Earth orbit
S48598	2021-041AX	Starlink 2256	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48599	2021-041AY	Starlink 2274	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48600	2021-041AZ	Starlink 2275	2021 May 15 2256:00	SPXS	US	564	582	53.04	In Earth orbit
S48601	2021-041BA	Starlink 2276	2021 May 15 2256:00	SPXS	US	564	582	53.04	Reentered
S48602	2021-041BB	Starlink 2713	2021 May 15 2256:00	SPXS	US	564	581	53.04	In Earth orbit
S48603	2021-041BC	Starlink 2714	2021 May 15 2256:00	SPXS	US	564	581	53.04	In Earth orbit
S48604	2021-041BD	Starlink 2757	2021 May 15 2256:00	SPXS	US	566	583	53.04	In Earth orbit
S48605	2021-041BE	Capella 6	2021 May 15 2256:00	CAPSP	US	566	587	53.04	In Earth orbit
S48606	2021-041BF	Tyvak-0130	2021 May 15 2256:00	TYVAK/LLNL	US	568	586	53.04	In Earth orbit
S48618	2021-042A C	SBIRS GEO-5	2021 May 18 1737:00	USSF	US	896	35733	21.15	In Earth orbit
S48619	2021-042B	TDO 3	2021 May 18 1737:00	SMC/USAFA	US	179	4518	26.16	In Earth orbit
S48620	2021-042C	TDO 4	2021 May 18 1737:00	SMC/USAFA	US	180	4516	26.15	In Earth orbit
S48621	2021-043A	Hai Yang 2-04	2021 May 19 0403:00	GYZ/CASC	CN	927	951	65.90	In Earth orbit
S48638	2021-044A	Starlink 2758	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48639	2021-044B	Starlink 2739	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48640	2021-044C	Starlink 2736	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48641	2021-044D	Starlink 2754	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48642	2021-044E	Starlink 2646	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48643	2021-044F	Starlink 2704	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48644	2021-044G	Starlink 2695	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48645	2021-044H	Starlink 2733	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48646	2021-044J	Starlink 2732	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48647	2021-044K	Starlink 2691	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48648	2021-044L	Starlink 2521	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48649	2021-044M	Starlink 2673	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48650	2021-044N	Starlink 2672	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48651	2021-044P	Starlink 2731	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48652	2021-044Q	Starlink 2727	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48653	2021-044R	Starlink 2720	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48654	2021-044S	Starlink 2651	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48655	2021-044T	Starlink 2657	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48656	2021-044U	Starlink 2701	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48657	2021-044V	Starlink 2734	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48658	2021-044W	Starlink 2647	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48659	2021-044X	Starlink 2717	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48660	2021-044Y	Starlink 2688	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48661	2021-044Z	Starlink 2708	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48662	2021-044AA	Starlink 2726	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48663	2021-044AB	Starlink 2667	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48664	2021-044AC	Starlink 2709	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48665	2021-044AD	Starlink 2653	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48666	2021-044AE	Starlink 2666	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48667	2021-044AF	Starlink 2735	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48668	2021-044AG	Starlink 2738	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48669	2021-044AH	Starlink 2707	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48670	2021-044AJ	Starlink 2763	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48671	2021-044AK	Starlink 2745	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48672	2021-044AL	Starlink 2705	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48673	2021-044AM	Starlink 2711	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48674	2021-044AN	Starlink 2712	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48675	2021-044AP	Starlink 2737	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit

S48676	2021-044AQ	Starlink 2746	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48677	2021-044AR	Starlink 2719	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48678	2021-044AS	Starlink 2615	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48679	2021-044AT	Starlink 2648	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48680	2021-044AU	Starlink 2649	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48681	2021-044AV	Starlink 2725	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48682	2021-044AW	Starlink 2743	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48683	2021-044AX	Starlink 2756	2021 May 26 1859:00	SPXS	US	258	281	53.05	In Earth orbit
S48684	2021-044AY	Starlink 2741	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48685	2021-044AZ	Starlink 2751	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48686	2021-044BA	Starlink 2629	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48687	2021-044BB	Starlink 2627	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48688	2021-044BC	Starlink 2742	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48689	2021-044BD	Starlink 2617	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48690	2021-044BE	Starlink 2740	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48691	2021-044BF	Starlink 2750	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48692	2021-044BG	Starlink 2752	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48693	2021-044BH	Starlink 2618	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48694	2021-044BJ	Starlink 2748	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48695	2021-044BK	Starlink 2616	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48696	2021-044BL	Starlink 2753	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48697	2021-044BM	Starlink 2715	2021 May 26 1859:00	SPXS	US	257	281	53.05	In Earth orbit
S48767	2021-045A	OneWeb SL0211	2021 May 28 1738:39	ONEWEB	UK	440	446	87.40	In Earth orbit
S48768	2021-045B	OneWeb SL0223	2021 May 28 1738:39	ONEWEB	UK	433	444	87.40	In Earth orbit
S48769	2021-045C	OneWeb SL0230	2021 May 28 1738:39	ONEWEB	UK	444	451	87.40	In Earth orbit
S48770	2021-045D	OneWeb SL0237	2021 May 28 1738:39	ONEWEB	UK	438	449	87.40	In Earth orbit
S48771	2021-045E	OneWeb SL0235	2021 May 28 1738:39	ONEWEB	UK	444	450	87.40	In Earth orbit
S48772	2021-045F	OneWeb SL0242	2021 May 28 1738:39	ONEWEB	UK	436	446	87.40	In Earth orbit
S48773	2021-045G	OneWeb SL0241	2021 May 28 1738:39	ONEWEB	UK	442	447	87.40	In Earth orbit
S48774	2021-045H	OneWeb SL0243	2021 May 28 1738:39	ONEWEB	UK	439	449	87.40	In Earth orbit
S48775	2021-045J	OneWeb SL0222	2021 May 28 1738:39	ONEWEB	UK	435	445	87.40	In Earth orbit
S48776	2021-045K	OneWeb SL0244	2021 May 28 1738:39	ONEWEB	UK	442	446	87.40	In Earth orbit
S48777	2021-045L	OneWeb SL0247	2021 May 28 1738:39	ONEWEB	UK	442	447	87.40	In Earth orbit
S48778	2021-045M	OneWeb SL0245	2021 May 28 1738:39	ONEWEB	UK	438	449	87.40	In Earth orbit
S48779	2021-045N	OneWeb SL0229	2021 May 28 1738:39	ONEWEB	UK	441	446	87.40	In Earth orbit
S48780	2021-045P	OneWeb SL0228	2021 May 28 1738:39	ONEWEB	UK	442	450	87.40	In Earth orbit
S48781	2021-045Q	OneWeb SL0232	2021 May 28 1738:39	ONEWEB	UK	443	453	87.40	In Earth orbit
S48782	2021-045R	OneWeb SL0231	2021 May 28 1738:39	ONEWEB	UK	439	446	87.40	In Earth orbit
S48783	2021-045S	OneWeb SL0234	2021 May 28 1738:39	ONEWEB	UK	442	449	87.40	In Earth orbit
S48784	2021-045T	OneWeb SL0238	2021 May 28 1738:39	ONEWEB	UK	436	446	87.40	In Earth orbit
S48785	2021-045U	OneWeb SL0240	2021 May 28 1738:39	ONEWEB	UK	441	446	87.40	In Earth orbit
S48786	2021-045V	OneWeb SL0246	2021 May 28 1738:39	ONEWEB	UK	443	449	87.40	In Earth orbit
S48787	2021-045W	OneWeb SL0210	2021 May 28 1738:39	ONEWEB	UK	442	450	87.40	In Earth orbit
S48788	2021-045X	OneWeb SL0214	2021 May 28 1738:39	ONEWEB	UK	444	450	87.40	In Earth orbit
S48789	2021-045Y	OneWeb SL0221	2021 May 28 1738:39	ONEWEB	UK	433	444	87.40	In Earth orbit
S48790	2021-045Z	OneWeb SL0213	2021 May 28 1738:39	ONEWEB	UK	434	445	87.40	In Earth orbit
S48791	2021-045AA	OneWeb SL0212	2021 May 28 1738:39	ONEWEB	UK	433	445	87.40	In Earth orbit
S48792	2021-045AB	OneWeb SL0227	2021 May 28 1738:39	ONEWEB	UK	442	448	87.40	In Earth orbit
S48793	2021-045AC	OneWeb SL0226	2021 May 28 1738:39	ONEWEB	UK	444	453	87.40	In Earth orbit
S48794	2021-045AD	OneWeb SL0224	2021 May 28 1738:39	ONEWEB	UK	444	452	87.40	In Earth orbit
S48795	2021-045AE	OneWeb SL0233	2021 May 28 1738:39	ONEWEB	UK	444	451	87.40	In Earth orbit
S48796	2021-045AF	OneWeb SL0190	2021 May 28 1738:39	ONEWEB	UK	445	453	87.40	In Earth orbit
S48797	2021-045AG	OneWeb SL0236	2021 May 28 1738:39	ONEWEB	UK	443	450	87.40	In Earth orbit
S48798	2021-045AH	OneWeb SL0248	2021 May 28 1738:39	ONEWEB	UK	437	446	87.40	In Earth orbit
S48799	2021-045AJ	OneWeb SL0225	2021 May 28 1738:39	ONEWEB	UK	440	446	87.40	In Earth orbit
S48800	2021-045AK	OneWeb SL0215	2021 May 28 1738:39	ONEWEB	UK	445	454	87.40	In Earth orbit
S48801	2021-045AL	OneWeb SL0216	2021 May 28 1738:39	ONEWEB	UK	442	449	87.40	In Earth orbit
S48802	2021-045AM	OneWeb SL0239	2021 May 28 1738:39	ONEWEB	UK	439	450	87.40	In Earth orbit
S48803	2021-046A	Tianzhou-2	2021 May 29 1255:29	CMSEO	CN	387	377	41.47	Attached to Tianhe
S48808	2021-047A	Feng Yun 4B	2021 Jun 2 1617:00	NSMC	CN	35780	35782	0.08	In Earth orbit
S48831	2021-048A	Dragon CRS-22	2021 Jun 3 1729:15	SPX	US	192	211	51.64	Landed
S48850	1998-067SL	RamSat	2021 Jun 3 1729:15	ROBMS	US	414	421	51.64	In Earth orbit
S48851	1998-067SM	SOAR	2021 Jun 3 1729:15	MANU	UK	414	421	51.64	In Earth orbit
S48867	1998-067SN	G-SATELLITE 2	2021 Jun 3 1729:15	OTEAM/TOK	J	415	419	51.64	In Earth orbit
S48868	1998-067SP	MirSat-OSCAR-112	2021 Jun 3 1729:15	MRIC	MU	415	419	51.64	In Earth orbit
S48838	2021-049A	SXM-8	2021 Jun 6 0426:00	SIRX	US	18449	35759	4.20	In Earth orbit

S48840	2021-050A ?	Beijing-3	2021 Jun 11 0303:00	21AT	CN	487	502	97.51	In Earth orbit
S48841	2021-050B ?	Yangwang 1	2021 Jun 11 0303:00	QTK	CN	487	502	97.51	In Earth orbit
S48842	2021-050C ?	Haisi-2	2021 Jun 11 0303:00	XIAM	CN	487	502	97.51	In Earth orbit
S48843	2021-050D ?	Tianjian	2021 Jun 11 0303:00	HTGC	CN	488	503	97.51	In Earth orbit
S48844	2021-051A	Odyssey	2021 Jun 13 0811:00	SMC	US	405	450	97.48	In Earth orbit
S48846	2021-052A C	USA 316	2021 Jun 15 1335:00	NROC	US	589	604	55.00	In Earth orbit
S48847	2021-052B C	USA 317	2021 Jun 15 1335:00	NROC	US	589	602	55.00	In Earth orbit
S48848	2021-052C C	USA 318	2021 Jun 15 1335:00	NROC	US	589	603	55.00	In Earth orbit
S48852	2021-053A	Shenzhou 12	2021 Jun 17 0122:32	CMSEO	CN	193	486	41.35	Landed
S48859	2021-054A	GPS III SV05	2021 Jun 17 1609:35	SMC	US	20168	20198	54.99	In Earth orbit
S48860	2021-055A	Yaogan 30 hao 09 zu 01 xing	2021 Jun 18 0630:00	ZZB	CN	592	601	35.00	In Earth orbit
S48861	2021-055B	Yaogan 30 hao 09 zu 02 xing	2021 Jun 18 0630:00	ZZB	CN	591	602	34.99	In Earth orbit
S48863	2021-055D	Yaogan 30 hao 09 zu 03 xing	2021 Jun 18 0630:00	ZZB	CN	590	601	35.00	In Earth orbit
S48864	2021-055E	Jiaxing	2021 Jun 18 0630:00	GUOG	CN	587	599	35.01	In Earth orbit
S48865	2021-056A	Kosmos-2550	2021 Jun 25 1950:00	VKSR	RU	194	465	67.14	In Earth orbit
S48869	2021-057A	Progress MS-17	2021 Jun 29 2327:20	RKKE	RU	282	382	51.65	Deorbited
S48872	2021-058B	MARTA	2021 Jun 30 1447:00	SATRV	PL	495	525	60.69	In Earth orbit
S48873	2021-058C	STORK 4	2021 Jun 30 1447:00	SATRV	PL	495	522	60.69	In Earth orbit
S48874	2021-058D	CNCE 3	2021 Jun 30 1447:00	MDA	US	494	521	60.69	In Earth orbit
S48875	2021-058E	CNCE 1	2021 Jun 30 1447:00	MDA	US	494	521	60.69	In Earth orbit
S48876	2021-058F	Brik-II	2021 Jun 30 1447:00	RNAF	NL	495	521	60.70	In Earth orbit
S48877	2021-058G	Halo-NET Free Flyer	2021 Jun 30 1447:00	SPAWAR	US	494	521	60.69	In Earth orbit
S48878	2021-058H	Gunsmoke-J 4	2021 Jun 30 1447:00	SMDC/TSEPT	US	494	521	60.69	In Earth orbit
S48879	2021-059A	Starlink 3003	2021 Jun 30 1931:00	SPXS	US	515	536	97.51	In Earth orbit
S48880	2021-059B	Starlink 3004	2021 Jun 30 1931:00	SPXS	US	514	535	97.51	In Earth orbit
S48881	2021-059C	Starlink 3005	2021 Jun 30 1931:00	SPXS	US	514	535	97.51	In Earth orbit
S48882	2021-059D	SpaceBEE NZ-10	2021 Jun 30 1931:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48883	2021-059E	SpaceBEE-100	2021 Jun 30 1931:00	SWARM	US	517	535	97.51	In Earth orbit
S48884	2021-059F	SpaceBEE-101	2021 Jun 30 1931:00	SWARM	US	519	535	97.51	In Earth orbit
S48885	2021-059G	Lemur-2 Jackson	2021 Jun 30 1931:00	SPIRE	US	512	536	97.51	In Earth orbit
S48886	2021-059H	SpaceBEE-102	2021 Jun 30 1931:00	SWARM	US	513	539	97.51	In Earth orbit
S48887	2021-059J	SpaceBEE NZ-9	2021 Jun 30 1931:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48888	2021-059K	SpaceBEE-103	2021 Jun 30 1931:00	SWARM	US	515	536	97.51	In Earth orbit
S48889	2021-059L	SpaceBEE NZ-7	2021 Jun 30 1931:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48890	2021-059M	SpaceBEE-104	2021 Jun 30 1931:00	SWARM	US	514	536	97.51	In Earth orbit
S48891	2021-059N	SpaceBEE NZ-8	2021 Jun 30 1931:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48892	2021-059P	EG-3	2021 Jun 30 1931:00	ECHOAU	AU	521	535	97.50	In Earth orbit
S48893	2021-059Q	SpaceBEE-106	2021 Jun 30 1931:00	SWARM	US	514	535	97.52	In Earth orbit
S48894	2021-059R	SpaceBEE-107	2021 Jun 30 1931:00	SWARM	US	513	537	97.51	In Earth orbit
S48895	2021-059S	SpaceBEE-108	2021 Jun 30 1931:00	SWARM	US	514	535	97.51	In Earth orbit
S48896	2021-059T	SpaceBEE-105	2021 Jun 30 1931:00	SWARM	US	513	537	97.51	In Earth orbit
S48897	2021-059U	SpaceBEE-109	2021 Jun 30 1931:00	SWARM	US	514	536	97.51	In Earth orbit
S48898	2021-059V	Centauri 4	2021 Jun 30 1931:00	FLEET	AU	521	536	97.51	In Earth orbit
S48899	2021-059W	SpaceBEE-110	2021 Jun 30 1931:00	SWARM	US	512	536	97.51	In Earth orbit
S48900	2021-059X	TUBIN	2021 Jun 30 1931:00	TUB	D	522	536	97.52	In Earth orbit
S48901	2021-059Y	TROPICS Pathfinder	2021 Jun 30 1931:00	MIT/GSFC	US	524	536	97.51	In Earth orbit
S48902	2021-059Z	LINCS 1	2021 Jun 30 1931:00	GACO/SDA	US	521	536	97.51	In Earth orbit
S48903	2021-059AA	LINCS 2	2021 Jun 30 1931:00	GACO/SDA	US	521	536	97.51	In Earth orbit
S48904	2021-059AB	SpaceBEE-111	2021 Jun 30 1931:00	SWARM	US	512	536	97.51	In Earth orbit
S48905	2021-059AC	Rosalind	2021 Jun 30 1931:00	URUGUS	UY	524	536	97.51	In Earth orbit
S48906	2021-059AD	Umbra-SAR 2001	2021 Jun 30 1931:00	UMBRA	US	522	535	97.51	In Earth orbit
S48907	2021-059AE	Mandrake 2A	2021 Jun 30 1931:00	SDA/DARPA	US	522	536	97.51	In Earth orbit
S48908	2021-059AF	Mandrake 2B	2021 Jun 30 1931:00	SDA/DARPA	US	522	536	97.51	In Earth orbit
S48909	2021-059AG	PACE-1	2021 Jun 30 1931:00	ARC	US	524	536	97.51	In Earth orbit
S48910	2021-059AH	GNOMES-2	2021 Jun 30 1931:00	PLANQ	US	522	536	97.51	In Earth orbit
S48911	2021-059AJ	YAM-2	2021 Jun 30 1931:00	LOFT	US	523	536	97.52	In Earth orbit
S48912	2021-059AK	ION SVC03 Dauntless David	2021 Jun 30 1931:00	DORBIT	I	524	536	97.51	In Earth orbit
S48913	2021-059AL	Capella 5	2021 Jun 30 1931:00	CAPSP	US	521	536	97.52	In Earth orbit
S48914	2021-059AM	ICEYE-X12	2021 Jun 30 1931:00	ICEYE	FI	523	536	97.52	In Earth orbit
S48915	2021-059AN	YAM-3	2021 Jun 30 1931:00	LOFT	US	522	536	97.51	In Earth orbit
S48916	2021-059AP	ICEYE-X13	2021 Jun 30 1931:00	ICEYE	FI	523	536	97.51	In Earth orbit
S48917	2021-059AQ	ICEYE-X15	2021 Jun 30 1931:00	ICEYE	FI	523	536	97.52	In Earth orbit
S48918	2021-059AR	ICEYE-X11	2021 Jun 30 1931:00	ICEYE	FI	523	536	97.52	In Earth orbit
S48919	2021-059AS	Sofya	2021 Jun 30 1931:00	URUGUS	UY	523	536	97.52	In Earth orbit
S48920	2021-059AT	Elisa	2021 Jun 30 1931:00	URUGUS	UY	523	536	97.51	In Earth orbit
S48921	2021-059AU	Grace	2021 Jun 30 1931:00	URUGUS	UY	523	536	97.52	In Earth orbit

S48922	2021-059AV	D2/AtlaCom-1	2021 Jun 30 1931:00	NANAV	LT	524	536	97.51	In Earth orbit
S48923	2021-059AW	Lemur-2 AnnaBanana	2021 Jun 30 1931:00	SPIRE	US	512	535	97.51	In Earth orbit
S48924	2021-059AX	Faraday Phoenix	2021 Jun 30 1931:00	INSPM	UK	513	532	97.51	In Earth orbit
S48925	2021-059AY	Lemur-2 John-Treires	2021 Jun 30 1931:00	SPIRE	US	524	536	97.51	In Earth orbit
S48926	2021-059AZ	KSF1-B	2021 Jun 30 1931:00	KLEOS	L	513	535	97.51	In Earth orbit
S48927	2021-059BA	Lemur-2 AC-Cubed	2021 Jun 30 1931:00	SPIRE	US	512	533	97.51	In Earth orbit
S48928	2021-059BB	PAINANI-2	2021 Jun 30 1931:00	SEDENA	MX	532	537	97.49	In Earth orbit
S48929	2021-059BC	Lemur-2 Merima	2021 Jun 30 1931:00	SPIRE	US	524	536	97.52	In Earth orbit
S48930	2021-059BD	KSF1-A	2021 Jun 30 1931:00	KLEOS	L	513	534	97.51	In Earth orbit
S48931	2021-059BE	Hawk 3B	2021 Jun 30 1931:00	HE360	US	512	535	97.51	In Earth orbit
S48932	2021-059BF	SpaceBEE-92	2021 Jun 30 1931:00	SWARM	US	519	536	97.51	In Earth orbit
S48933	2021-059BG	SpaceBEE-89	2021 Jun 30 1931:00	SWARM	US	520	536	97.51	In Earth orbit
S48934	2021-059BH	SpaceBEE-96	2021 Jun 30 1931:00	SWARM	US	519	536	97.51	In Earth orbit
S48935	2021-059BJ	SpaceBEE-88	2021 Jun 30 1931:00	SWARM	US	520	536	97.52	In Earth orbit
S48936	2021-059BK	SpaceBEE-97	2021 Jun 30 1931:00	SWARM	US	519	536	97.51	In Earth orbit
S48937	2021-059BL	SpaceBEE-94	2021 Jun 30 1931:00	SWARM	US	519	536	97.51	In Earth orbit
S48938	2021-059BM	Shannon	2021 Jun 30 1931:00	LYNK	US	512	536	97.51	In Earth orbit
S48939	2021-059BN	SpaceBEE-93	2021 Jun 30 1931:00	SWARM	US	520	535	97.51	In Earth orbit
S48940	2021-059BP	SpaceBEE-91	2021 Jun 30 1931:00	SWARM	US	520	535	97.51	In Earth orbit
S48941	2021-059BQ	SHERPA-LTE 1	2021 Jun 30 1931:00	SFLIN	US	524	536	97.51	In Earth orbit
S48942	2021-059BR	KSF1-C	2021 Jun 30 1931:00	KLEOS	L	512	534	97.51	In Earth orbit
S48943	2021-059BS	QMR-KWT	2021 Jun 30 1931:00	ORBSKW	KW	519	533	97.51	In Earth orbit
S48944	2021-059BT	Ayan-21	2021 Jun 30 1931:00	OQTR	RW	513	535	97.51	In Earth orbit
S48945	2021-059BU	SpaceBEE-95	2021 Jun 30 1931:00	SWARM	US	519	536	97.51	In Earth orbit
S48946	2021-059BV	SpaceBEE-99	2021 Jun 30 1931:00	SWARM	US	518	535	97.51	In Earth orbit
S48947	2021-059BW	SpaceBEE-90	2021 Jun 30 1931:00	SWARM	US	520	535	97.51	In Earth orbit
S48948	2021-059BX	Hawk 3C	2021 Jun 30 1931:00	HE360	US	512	535	97.51	In Earth orbit
S48949	2021-059BY	SpaceBEE-98	2021 Jun 30 1931:00	SWARM	US	519	535	97.51	In Earth orbit
S48950	2021-059BZ	KSF1-D	2021 Jun 30 1931:00	KLEOS	L	513	533	97.51	In Earth orbit
S48951	2021-059CA	Tanker-001 Tenzing	2021 Jun 30 1931:00	ADIG/OFAB	US	512	536	97.51	In Earth orbit
S48952	2021-059CB	Astrocast-0204	2021 Jun 30 1931:00	ACAST	CH	513	536	97.51	In Earth orbit
S48953	2021-059CC	Arthur	2021 Jun 30 1931:00	ASPLB	B	512	535	97.52	In Earth orbit
S48954	2021-059CD	Astrocast-0201	2021 Jun 30 1931:00	ACAST	CH	512	535	97.52	In Earth orbit
S48955	2021-059CE	Astrocast-0203	2021 Jun 30 1931:00	ACAST	CH	511	536	97.51	In Earth orbit
S48956	2021-059CF	Shasta	2021 Jun 30 1931:00	ADIG/ORBSK	US	514	535	97.51	In Earth orbit
S48957	2021-059CG	Hawk 3A	2021 Jun 30 1931:00	HE360	US	513	534	97.51	In Earth orbit
S48958	2021-059CH	SHERPA-FX 2	2021 Jun 30 1931:00	SFLIN	US	524	536	97.51	In Earth orbit
S48959	2021-059CJ	Lemur-2 CarlSantaMari	2021 Jun 30 1931:00	SPIRE	US	512	535	97.51	In Earth orbit
S48960	2021-059CK	Astrocast-0205	2021 Jun 30 1931:00	ACAST	CH	513	535	97.51	In Earth orbit
S48961	2021-059CL	Astrocast-0202	2021 Jun 30 1931:00	ACAST	CH	511	536	97.51	In Earth orbit
S48962	2021-059CM	Ghalib	2021 Jun 30 1931:00	MARINT	UAE	520	533	97.51	In Earth orbit
S48963	2021-059CN	NAPA-2	2021 Jun 30 1931:00	RTAF	T	519	540	97.51	In Earth orbit
S48964	2021-059CP	SPARTAN	2021 Jun 30 1931:00	ENDUR	BGN	519	532	97.51	In Earth orbit
S48965	2021-059CQ	W-Cube	2021 Jun 30 1931:00	REAKT	FI	519	539	97.51	In Earth orbit
S48966	2021-059CR	Neptuno	2021 Jun 30 1931:00	ELDEC	E	519	533	97.50	In Earth orbit
S48967	2021-060A	OneWeb SL0249	2021 Jul 1 1248:33	ONEWEB	UK	441	447	87.40	In Earth orbit
S48968	2021-060B	OneWeb SL0250	2021 Jul 1 1248:33	ONEWEB	UK	442	449	87.40	In Earth orbit
S48969	2021-060C	OneWeb SL0251	2021 Jul 1 1248:33	ONEWEB	UK	444	454	87.40	In Earth orbit
S48970	2021-060D	OneWeb SL0252	2021 Jul 1 1248:33	ONEWEB	UK	436	446	87.40	In Earth orbit
S48971	2021-060E	OneWeb SL0253	2021 Jul 1 1248:33	ONEWEB	UK	450	456	87.40	In Earth orbit
S48972	2021-060F	OneWeb SL0254	2021 Jul 1 1248:33	ONEWEB	UK	444	454	87.40	In Earth orbit
S48973	2021-060G	OneWeb SL0255	2021 Jul 1 1248:33	ONEWEB	UK	442	447	87.40	In Earth orbit
S48974	2021-060H	OneWeb SL0256	2021 Jul 1 1248:33	ONEWEB	UK	443	453	87.40	In Earth orbit
S48975	2021-060J	OneWeb SL0257	2021 Jul 1 1248:33	ONEWEB	UK	442	450	87.40	In Earth orbit
S48976	2021-060K	OneWeb SL0258	2021 Jul 1 1248:33	ONEWEB	UK	449	455	87.40	In Earth orbit
S48977	2021-060L	OneWeb SL0259	2021 Jul 1 1248:33	ONEWEB	UK	435	446	87.40	In Earth orbit
S48978	2021-060M	OneWeb SL0260	2021 Jul 1 1248:33	ONEWEB	UK	450	455	87.40	In Earth orbit
S48979	2021-060N	OneWeb SL0261	2021 Jul 1 1248:33	ONEWEB	UK	436	446	87.40	In Earth orbit
S48980	2021-060P	OneWeb SL0262	2021 Jul 1 1248:33	ONEWEB	UK	439	447	87.40	In Earth orbit
S48981	2021-060Q	OneWeb SL0263	2021 Jul 1 1248:33	ONEWEB	UK	442	450	87.40	In Earth orbit
S48982	2021-060R	OneWeb SL0264	2021 Jul 1 1248:33	ONEWEB	UK	445	455	87.40	In Earth orbit
S48983	2021-060S	OneWeb SL0265	2021 Jul 1 1248:33	ONEWEB	UK	442	446	87.40	In Earth orbit
S48984	2021-060T	OneWeb SL0266	2021 Jul 1 1248:33	ONEWEB	UK	443	453	87.40	In Earth orbit
S48985	2021-060U	OneWeb SL0267	2021 Jul 1 1248:33	ONEWEB	UK	448	455	87.40	In Earth orbit
S48986	2021-060V	OneWeb SL0268	2021 Jul 1 1248:33	ONEWEB	UK	448	455	87.40	In Earth orbit
S48987	2021-060W	OneWeb SL0269	2021 Jul 1 1248:33	ONEWEB	UK	442	448	87.40	In Earth orbit

S48988	2021-060X	OneWeb SL0270	2021 Jul 1 1248:33	ONEWEB	UK	433	444	87.40	In Earth orbit
S48989	2021-060Y	OneWeb SL0271	2021 Jul 1 1248:33	ONEWEB	UK	446	455	87.40	In Earth orbit
S48990	2021-060Z	OneWeb SL0272	2021 Jul 1 1248:33	ONEWEB	UK	442	447	87.40	In Earth orbit
S48991	2021-060AA	OneWeb SL0273	2021 Jul 1 1248:33	ONEWEB	UK	443	454	87.40	In Earth orbit
S48992	2021-060AB	OneWeb SL0274	2021 Jul 1 1248:33	ONEWEB	UK	440	447	87.40	In Earth orbit
S48993	2021-060AC	OneWeb SL0275	2021 Jul 1 1248:33	ONEWEB	UK	447	455	87.40	In Earth orbit
S48994	2021-060AD	OneWeb SL0276	2021 Jul 1 1248:33	ONEWEB	UK	442	451	87.40	In Earth orbit
S48995	2021-060AE	OneWeb SL0277	2021 Jul 1 1248:33	ONEWEB	UK	445	454	87.40	In Earth orbit
S48996	2021-060AF	OneWeb SL0278	2021 Jul 1 1248:33	ONEWEB	UK	433	445	87.40	In Earth orbit
S48997	2021-060AG	OneWeb SL0279	2021 Jul 1 1248:33	ONEWEB	UK	442	452	87.40	In Earth orbit
S48998	2021-060AH	OneWeb SL0280	2021 Jul 1 1248:33	ONEWEB	UK	449	454	87.40	In Earth orbit
S48999	2021-060AJ	OneWeb SL0281	2021 Jul 1 1248:33	ONEWEB	UK	437	447	87.40	In Earth orbit
S49000	2021-060AK	OneWeb SL0282	2021 Jul 1 1248:33	ONEWEB	UK	434	445	87.40	In Earth orbit
S49001	2021-060AL	OneWeb SL0283	2021 Jul 1 1248:33	ONEWEB	UK	434	445	87.40	In Earth orbit
S49002	2021-060AM	OneWeb SL0284	2021 Jul 1 1248:33	ONEWEB	UK	442	447	87.40	In Earth orbit
S49003	2021-061A ?	Neimenggu 1	2021 Jul 3 0251:00	CGSTL	CN	530	545	97.54	In Earth orbit
S49004	2021-061B ?	Jilin-1 GaoFen 03D 01 xing	2021 Jul 3 0251:00	CGSTL	CN	528	543	97.54	In Earth orbit
S49005	2021-061C ?	Jilin-1 GaoFen 03D 02 xing	2021 Jul 3 0251:00	CGSTL	CN	529	544	97.54	In Earth orbit
S49006	2021-061D ?	Jilin-1 GaoFen 03D 03 xing	2021 Jul 3 0251:00	CGSTL	CN	528	544	97.54	In Earth orbit
S49007	2021-061E ?	Guangdong Hengjian	2021 Jul 3 0251:00	GUOX	CN	528	544	97.54	In Earth orbit
S49008	2021-062A	Feng Yun 3E	2021 Jul 4 2328:00	NSMC	CN	781	820	98.69	In Earth orbit
S49011	2021-063A	Tian Lian 1-05	2021 Jul 6 1553:00	CAST	CN	35779	35791	2.93	In Earth orbit
S49018	2021-064A	Zhongzi 02 zu 01 xing	2021 Jul 9 1159:00	NINGX/CASC	CN	857	866	45.00	In Earth orbit
S49019	2021-064B	Zhongzi 02 zu 02 xing	2021 Jul 9 1159:00	NINGX/CASC	CN	856	866	45.00	In Earth orbit
S49020	2021-064C	Zhongzi 02 zu 03 xing	2021 Jul 9 1159:00	NINGX/CASC	CN	855	866	45.00	In Earth orbit
S49021	2021-064D	Zhongzi 02 zu 04 xing	2021 Jul 9 1159:00	NINGX/CASC	CN	854	867	45.00	In Earth orbit
S49022	2021-064E	Zhongzi 02 zu 05 xing	2021 Jul 9 1159:00	NINGX/CASC	CN	853	866	45.00	In Earth orbit
S49026	2021-065A	Yaogan 30 hao 10 zu 01 xing	2021 Jul 19 0019:00	ZZB	CN	591	601	34.99	In Earth orbit
S49027	2021-065B	Ruijin	2021 Jul 19 0019:00	GUOG	CN	587	599	35.00	In Earth orbit
S49028	2021-065C	Yaogan 30 hao 10 zu 02 xing	2021 Jul 19 0019:00	ZZB	CN	591	601	34.99	In Earth orbit
S49029	2021-065D	Yaogan 30 hao 10 zu 03 xing	2021 Jul 19 0019:00	ZZB	CN	591	601	34.99	In Earth orbit
S49044	2021-066A	Nauka	2021 Jul 21 1458:25	RKKE	RU	224	362	51.58	In Earth orbit
A09890	2021-U01	CZ Orbital RV	2021 Jul 27 0000:00	PLA	CN	150	200	137.00	Deorbited
S49049	2021-067A	Tianhui 1-04	2021 Jul 29 0401:00	GCDX	CN	487	503	97.48	In Earth orbit
S49052	2021-068A	Monolith	2021 Jul 29 0600:00	STP	US	598	609	37.02	In Earth orbit
S49055	2021-069A	Star One D2	2021 Jul 30 2100:00	STONE	BR	35709	35793	0.09	In Earth orbit
S49056	2021-069B	Eutelsat Quantum	2021 Jul 30 2100:00	EUTSA	F	35728	35772	0.06	In Earth orbit
S49059	2021-070A	KL-Beta-A	2021 Aug 4 1101:00	KLEO	D	899	907	88.99	In Earth orbit
S49060	2021-070B	KL-Beta-B	2021 Aug 4 1101:00	KLEO	D	899	907	88.99	In Earth orbit
S49062	2021-071A	Zhongxing 2E	2021 Aug 5 1630:04	ZZB	CN	35783	35790	0.29	In Earth orbit
S49064	2021-072A	S.S. Ellison Onizuka	2021 Aug 10 2201:05	NGIS	US	216	336	51.63	Deorbited
S49066	2021-073A	BRO-4	2021 Aug 17 0147:06	UNSEEN	F	522	561	97.56	In Earth orbit
S49067	2021-073B	RADCUBE	2021 Aug 17 0147:06	CERHU/C3S	HU	526	563	97.56	In Earth orbit
S49068	2021-073C	Sunstorm	2021 Aug 17 0147:06	REAKT/ESA	FI	526	563	97.56	In Earth orbit
S49069	2021-073D	LEDSAT	2021 Aug 17 0147:06	ROSAP	I	526	563	97.56	In Earth orbit
S49070	2021-073E	Pleiades Neo 4	2021 Aug 17 0147:06	ADSTI	F	615	617	97.90	In Earth orbit
S49071	2021-074A	Tianhui-2 02-01	2021 Aug 18 2232:00	GCDX	CN	492	506	97.44	In Earth orbit
S49072	2021-074B	Tianhui-2 02-02	2021 Aug 18 2232:00	GCDX	CN	496	506	97.45	In Earth orbit
S49075	2021-075A	OneWeb SL0285	2021 Aug 21 2213:40	ONEWEB	UK	443	466	87.40	In Earth orbit
S49076	2021-075B	OneWeb SL0286	2021 Aug 21 2213:40	ONEWEB	UK	440	465	87.40	In Earth orbit
S49077	2021-075C	OneWeb SL0287	2021 Aug 21 2213:40	ONEWEB	UK	450	473	87.40	In Earth orbit
S49078	2021-075D	OneWeb SL0288	2021 Aug 21 2213:40	ONEWEB	UK	440	465	87.40	In Earth orbit
S49079	2021-075E	OneWeb SL0289	2021 Aug 21 2213:40	ONEWEB	UK	444	472	87.40	In Earth orbit
S49080	2021-075F	OneWeb SL0290	2021 Aug 21 2213:40	ONEWEB	UK	445	473	87.40	In Earth orbit
S49081	2021-075G	OneWeb SL0291	2021 Aug 21 2213:40	ONEWEB	UK	444	467	87.40	In Earth orbit
S49082	2021-075H	OneWeb SL0293	2021 Aug 21 2213:40	ONEWEB	UK	444	472	87.40	In Earth orbit
S49083	2021-075J	OneWeb SL0294	2021 Aug 21 2213:40	ONEWEB	UK	437	464	87.40	In Earth orbit
S49084	2021-075K	OneWeb SL0295	2021 Aug 21 2213:40	ONEWEB	UK	449	473	87.40	In Earth orbit
S49085	2021-075L	OneWeb SL0296	2021 Aug 21 2213:40	ONEWEB	UK	438	465	87.40	In Earth orbit
S49086	2021-075M	OneWeb SL0297	2021 Aug 21 2213:40	ONEWEB	UK	444	466	87.40	In Earth orbit
S49087	2021-075N	OneWeb SL0298	2021 Aug 21 2213:40	ONEWEB	UK	444	470	87.40	In Earth orbit
S49088	2021-075P	OneWeb SL0299	2021 Aug 21 2213:40	ONEWEB	UK	449	473	87.40	In Earth orbit
S49089	2021-075Q	OneWeb SL0300	2021 Aug 21 2213:40	ONEWEB	UK	441	465	87.40	In Earth orbit
S49090	2021-075R	OneWeb SL0301	2021 Aug 21 2213:40	ONEWEB	UK	437	464	87.40	In Earth orbit
S49091	2021-075S	OneWeb SL0302	2021 Aug 21 2213:40	ONEWEB	UK	436	463	87.40	In Earth orbit
S49092	2021-075T	OneWeb SL0304	2021 Aug 21 2213:40	ONEWEB	UK	448	473	87.40	In Earth orbit

S49093	2021-075U	OneWeb SL0305	2021 Aug 21 2213:40	ONEWEB	UK	443	470	87.40	In Earth orbit
S49094	2021-075V	OneWeb SL0308	2021 Aug 21 2213:40	ONEWEB	UK	439	465	87.40	In Earth orbit
S49095	2021-075W	OneWeb SL0309	2021 Aug 21 2213:40	ONEWEB	UK	446	473	87.40	In Earth orbit
S49096	2021-075X	OneWeb SL0310	2021 Aug 21 2213:40	ONEWEB	UK	442	465	87.40	In Earth orbit
S49097	2021-075Y	OneWeb SL0311	2021 Aug 21 2213:40	ONEWEB	UK	444	467	87.40	In Earth orbit
S49098	2021-075Z	OneWeb SL0312	2021 Aug 21 2213:40	ONEWEB	UK	444	472	87.40	In Earth orbit
S49099	2021-075AA	OneWeb SL0313	2021 Aug 21 2213:40	ONEWEB	UK	444	469	87.40	In Earth orbit
S49100	2021-075AB	OneWeb SL0314	2021 Aug 21 2213:40	ONEWEB	UK	448	474	87.39	In Earth orbit
S49101	2021-075AC	OneWeb SL0315	2021 Aug 21 2213:40	ONEWEB	UK	443	465	87.40	In Earth orbit
S49102	2021-075AD	OneWeb SL0316	2021 Aug 21 2213:40	ONEWEB	UK	436	460	87.40	In Earth orbit
S49103	2021-075AE	OneWeb SL0317	2021 Aug 21 2213:40	ONEWEB	UK	443	465	87.40	In Earth orbit
S49104	2021-075AF	OneWeb SL0318	2021 Aug 21 2213:40	ONEWEB	UK	436	460	87.40	In Earth orbit
S49105	2021-075AG	OneWeb SL0319	2021 Aug 21 2213:40	ONEWEB	UK	444	471	87.40	In Earth orbit
S49106	2021-075AH	OneWeb SL0323	2021 Aug 21 2213:40	ONEWEB	UK	436	463	87.40	In Earth orbit
S49107	2021-075AJ	OneWeb SL0329	2021 Aug 21 2213:40	ONEWEB	UK	447	473	87.40	In Earth orbit
S49108	2021-075AK	OneWeb SL0330	2021 Aug 21 2213:40	ONEWEB	UK	446	473	87.40	In Earth orbit
S49112	2021-076A	Ronghe Shiyan Weixing 1	2021 Aug 24 1115:00	CAST	CN	1085	1106	86.40	In Earth orbit
S49113	2021-076B	Test satellite	2021 Aug 24 1115:00	CAST	CN	1084	1108	86.40	In Earth orbit
S49114	2021-076C	Ronghe Shiyan Weixing 2	2021 Aug 24 1115:00	CAST	CN	1085	1111	86.40	In Earth orbit
S49115	2021-077A	Tongxin Jishu Shiyan 7	2021 Aug 24 1541:00	CASC	CN	35780	35791	1.00	In Earth orbit
S49117	2021-078A	Dragon CRS-23	2021 Aug 29 0714:48	SPX	US	209	240	51.66	Landed
S49272	1998-067SR	Binar-1	2021 Aug 29 0714:48	CURTIN	AU	413	421	51.64	In Earth orbit
S49273	1998-067SS	Maya-3	2021 Aug 29 0714:48	DOST/UPD	PH	414	421	51.64	In Earth orbit
S49274	1998-067ST	Maya-4	2021 Aug 29 0714:48	DOST/UPD	PH	413	421	51.64	In Earth orbit
S49275	1998-067SU	CUAVA-1	2021 Aug 29 0714:48	USYD/UNSW	AU	414	419	51.64	In Earth orbit
S49276	1998-067SV	CAPSat	2021 Aug 29 0714:48	UIUC	US	419	423	51.64	In Earth orbit
S49277	1998-067SW ?	PR-CuNaR2	2021 Aug 29 0714:48	UIPRB	PR	419	423	51.64	In Earth orbit
S49278	1998-067SX ?	SPACE HAUC	2021 Aug 29 0714:48	UMAL	US	419	423	51.64	In Earth orbit
S49122	2021-079A	Gao Fen 5-02	2021 Sep 7 0301:00	GWHYZ	CN	688	695	98.28	In Earth orbit
S49125	2021-080A	Zhongxing 9B	2021 Sep 9 1150:00	CHISAE	CN	35768	35804	0.06	In Earth orbit
S49127	2021-081A	Kosmos-2551	2021 Sep 9 1959:47	MORF	RU	294	307	96.34	Reentered
S49131	2021-082B	Starlink 3096	2021 Sep 14 0355:50	SPXS	US	228	334	70.00	In Earth orbit
S49132	2021-082C	Starlink 3090	2021 Sep 14 0355:50	SPXS	US	226	334	70.00	In Earth orbit
S49133	2021-082D	Starlink 3077	2021 Sep 14 0355:50	SPXS	US	227	335	70.00	In Earth orbit
S49134	2021-082E	Starlink 3078	2021 Sep 14 0355:50	SPXS	US	242	333	70.00	In Earth orbit
S49135	2021-082F	Starlink 3073	2021 Sep 14 0355:50	SPXS	US	241	334	70.00	In Earth orbit
S49136	2021-082G	Starlink 3084	2021 Sep 14 0355:50	SPXS	US	242	334	70.00	In Earth orbit
S49137	2021-082H	Starlink 3055	2021 Sep 14 0355:50	SPXS	US	241	334	70.00	In Earth orbit
S49138	2021-082J	Starlink 3058	2021 Sep 14 0355:50	SPXS	US	227	334	70.00	In Earth orbit
S49139	2021-082K	Starlink 3057	2021 Sep 14 0355:50	SPXS	US	241	334	70.00	In Earth orbit
S49140	2021-082L	Starlink 3118	2021 Sep 14 0355:50	SPXS	US	224	335	70.00	In Earth orbit
S49141	2021-082M	Starlink 3093	2021 Sep 14 0355:50	SPXS	US	224	334	70.00	In Earth orbit
S49142	2021-082N	Starlink 3042	2021 Sep 14 0355:50	SPXS	US	226	334	70.00	In Earth orbit
S49143	2021-082P	Starlink 3109	2021 Sep 14 0355:50	SPXS	US	226	333	70.00	In Earth orbit
S49144	2021-082Q	Starlink 3100	2021 Sep 14 0355:50	SPXS	US	223	334	70.00	In Earth orbit
S49145	2021-082R	Starlink 3119	2021 Sep 14 0355:50	SPXS	US	222	334	70.00	In Earth orbit
S49146	2021-082S	Starlink 3116	2021 Sep 14 0355:50	SPXS	US	239	333	70.00	In Earth orbit
S49147	2021-082T	Starlink 3071	2021 Sep 14 0355:50	SPXS	US	240	333	70.00	In Earth orbit
S49148	2021-082U	Starlink 3048	2021 Sep 14 0355:50	SPXS	US	225	333	70.00	In Earth orbit
S49149	2021-082V	Starlink 3053	2021 Sep 14 0355:50	SPXS	US	225	333	70.00	In Earth orbit
S49150	2021-082W	Starlink 3104	2021 Sep 14 0355:50	SPXS	US	221	334	70.00	In Earth orbit
S49151	2021-082X	Starlink 3102	2021 Sep 14 0355:50	SPXS	US	239	333	70.00	In Earth orbit
S49152	2021-082Y	Starlink 3081	2021 Sep 14 0355:50	SPXS	US	238	332	70.00	In Earth orbit
S49153	2021-082Z	Starlink 3072	2021 Sep 14 0355:50	SPXS	US	238	333	70.00	In Earth orbit
S49154	2021-082AA	Starlink 3068	2021 Sep 14 0355:50	SPXS	US	238	332	70.00	In Earth orbit
S49155	2021-082AB	Starlink 3060	2021 Sep 14 0355:50	SPXS	US	221	334	70.00	In Earth orbit
S49156	2021-082AC	Starlink 3085	2021 Sep 14 0355:50	SPXS	US	237	332	70.00	In Earth orbit
S49157	2021-082AD	Starlink 3051	2021 Sep 14 0355:50	SPXS	US	237	332	70.00	In Earth orbit
S49158	2021-082AE	Starlink 3083	2021 Sep 14 0355:50	SPXS	US	233	332	70.00	In Earth orbit
S49159	2021-082AF	Starlink 3056	2021 Sep 14 0355:50	SPXS	US	223	333	70.00	In Earth orbit
S49160	2021-082AG	Starlink 3095	2021 Sep 14 0355:50	SPXS	US	219	333	70.00	In Earth orbit
S49161	2021-082AH	Starlink 3080	2021 Sep 14 0355:50	SPXS	US	237	333	70.00	In Earth orbit
S49162	2021-082AJ	Starlink 3082	2021 Sep 14 0355:50	SPXS	US	232	332	70.00	In Earth orbit
S49163	2021-082AK	Starlink 3088	2021 Sep 14 0355:50	SPXS	US	236	333	70.00	In Earth orbit
S49164	2021-082AL	Starlink 3106	2021 Sep 14 0355:50	SPXS	US	220	333	70.00	In Earth orbit
S49165	2021-082AM	Starlink 3052	2021 Sep 14 0355:50	SPXS	US	218	334	70.00	In Earth orbit

S49166	2021-082AN	Starlink 3089	2021 Sep 14 0355:50	SPXS	US	221	333	70.00	In Earth orbit
S49167	2021-082AP	Starlink 3054	2021 Sep 14 0355:50	SPXS	US	232	332	70.00	In Earth orbit
S49168	2021-082AQ	Starlink 3101	2021 Sep 14 0355:50	SPXS	US	216	333	70.00	In Earth orbit
S49169	2021-082AR	Starlink 3046	2021 Sep 14 0355:50	SPXS	US	220	333	70.00	In Earth orbit
S49170	2021-082AS	Starlink 3074	2021 Sep 14 0355:50	SPXS	US	219	333	70.00	In Earth orbit
S49171	2021-082AT	Starlink 3107	2021 Sep 14 0355:50	SPXS	US	219	334	70.00	In Earth orbit
S49172	2021-082AU	Starlink 3091	2021 Sep 14 0355:50	SPXS	US	210	338	70.00	In Earth orbit
S49173	2021-082AV	Starlink 3045	2021 Sep 14 0355:50	SPXS	US	211	335	70.00	In Earth orbit
S49174	2021-082AW	Starlink 3047	2021 Sep 14 0355:50	SPXS	US	219	333	70.00	In Earth orbit
S49175	2021-082AX	Starlink 3087	2021 Sep 14 0355:50	SPXS	US	233	332	70.00	In Earth orbit
S49176	2021-082AY	Starlink 3069	2021 Sep 14 0355:50	SPXS	US	229	332	70.00	In Earth orbit
S49177	2021-082AZ	Starlink 3103	2021 Sep 14 0355:50	SPXS	US	229	331	70.00	In Earth orbit
S49178	2021-082BA	Starlink 3086	2021 Sep 14 0355:50	SPXS	US	215	332	70.00	In Earth orbit
S49179	2021-082BB	Starlink 3043	2021 Sep 14 0355:50	SPXS	US	233	332	70.00	In Earth orbit
S49180	2021-082BC	Starlink 3050	2021 Sep 14 0355:50	SPXS	US	218	332	70.00	In Earth orbit
S49181	2021-082BD	Starlink 3059	2021 Sep 14 0355:50	SPXS	US	217	332	70.00	In Earth orbit
S49186	2021-083A	OneWeb SL0292	2021 Sep 14 1807:19	ONEWEB	UK	440	465	87.40	In Earth orbit
S49187	2021-083B	OneWeb SL0303	2021 Sep 14 1807:19	ONEWEB	UK	450	473	87.40	In Earth orbit
S49188	2021-083C	OneWeb SL0306	2021 Sep 14 1807:19	ONEWEB	UK	445	472	87.40	In Earth orbit
S49189	2021-083D	OneWeb SL0307	2021 Sep 14 1807:19	ONEWEB	UK	444	465	87.40	In Earth orbit
S49190	2021-083E	OneWeb SL0320	2021 Sep 14 1807:19	ONEWEB	UK	451	473	87.40	In Earth orbit
S49191	2021-083F	OneWeb SL0321	2021 Sep 14 1807:19	ONEWEB	UK	439	465	87.40	In Earth orbit
S49192	2021-083G	OneWeb SL0322	2021 Sep 14 1807:19	ONEWEB	UK	441	465	87.40	In Earth orbit
S49193	2021-083H	OneWeb SL0324	2021 Sep 14 1807:19	ONEWEB	UK	447	473	87.40	In Earth orbit
S49194	2021-083J	OneWeb SL0325	2021 Sep 14 1807:19	ONEWEB	UK	450	473	87.40	In Earth orbit
S49195	2021-083K	OneWeb SL0326	2021 Sep 14 1807:19	ONEWEB	UK	444	471	87.40	In Earth orbit
S49196	2021-083L	OneWeb SL0327	2021 Sep 14 1807:19	ONEWEB	UK	445	473	87.40	In Earth orbit
S49197	2021-083M	OneWeb SL0328	2021 Sep 14 1807:19	ONEWEB	UK	442	465	87.40	In Earth orbit
S49198	2021-083N	OneWeb SL0331	2021 Sep 14 1807:19	ONEWEB	UK	446	473	87.40	In Earth orbit
S49199	2021-083P	OneWeb SL0333	2021 Sep 14 1807:19	ONEWEB	UK	443	465	87.40	In Earth orbit
S49200	2021-083Q	OneWeb SL0334	2021 Sep 14 1807:19	ONEWEB	UK	437	463	87.40	In Earth orbit
S49201	2021-083R	OneWeb SL0335	2021 Sep 14 1807:19	ONEWEB	UK	444	470	87.40	In Earth orbit
S49202	2021-083S	OneWeb SL0336	2021 Sep 14 1807:19	ONEWEB	UK	445	467	87.40	In Earth orbit
S49203	2021-083T	OneWeb SL0337	2021 Sep 14 1807:19	ONEWEB	UK	444	471	87.40	In Earth orbit
S49204	2021-083U	OneWeb SL0338	2021 Sep 14 1807:19	ONEWEB	UK	440	465	87.40	In Earth orbit
S49205	2021-083V	OneWeb SL0339	2021 Sep 14 1807:19	ONEWEB	UK	444	466	87.40	In Earth orbit
S49206	2021-083W	OneWeb SL0340	2021 Sep 14 1807:19	ONEWEB	UK	449	473	87.40	In Earth orbit
S49207	2021-083X	OneWeb SL0341	2021 Sep 14 1807:19	ONEWEB	UK	448	473	87.40	In Earth orbit
S49208	2021-083Y	OneWeb SL0342	2021 Sep 14 1807:19	ONEWEB	UK	437	463	87.40	In Earth orbit
S49209	2021-083Z	OneWeb SL0343	2021 Sep 14 1807:19	ONEWEB	UK	445	472	87.40	In Earth orbit
S49210	2021-083AA	OneWeb SL0344	2021 Sep 14 1807:19	ONEWEB	UK	444	469	87.40	In Earth orbit
S49211	2021-083AB	OneWeb SL0345	2021 Sep 14 1807:19	ONEWEB	UK	444	468	87.40	In Earth orbit
S49212	2021-083AC	OneWeb SL0346	2021 Sep 14 1807:19	ONEWEB	UK	448	473	87.40	In Earth orbit
S49213	2021-083AD	OneWeb SL0348	2021 Sep 14 1807:19	ONEWEB	UK	438	464	87.40	In Earth orbit
S49214	2021-083AE	OneWeb SL0350	2021 Sep 14 1807:19	ONEWEB	UK	444	465	87.40	In Earth orbit
S49215	2021-083AF	OneWeb SL0351	2021 Sep 14 1807:19	ONEWEB	UK	437	459	87.40	In Earth orbit
S49216	2021-083AG	OneWeb SL0352	2021 Sep 14 1807:19	ONEWEB	UK	444	466	87.40	In Earth orbit
S49217	2021-083AH	OneWeb SL0354	2021 Sep 14 1807:19	ONEWEB	UK	437	459	87.40	In Earth orbit
S49218	2021-083AJ	OneWeb SL0355	2021 Sep 14 1807:19	ONEWEB	UK	443	465	87.40	In Earth orbit
S49219	2021-083AK	OneWeb SL0357	2021 Sep 14 1807:19	ONEWEB	UK	438	464	87.40	In Earth orbit
S49220	2021-084A	Inspiration4	2021 Sep 16 0002:56	SPX	US	569	579	51.64	Landed
S49222	2021-085A	Tianzhou-3	2021 Sep 20 0710:11	CMSEO	CN	380	386	41.47	Attached to Tianhe
S49256	2021-086A	Jilin-1 Gaofen 02D	2021 Sep 27 0619:00	CGSTL	CN	531	545	97.54	In Earth orbit
S49258	2021-087A	Shiyan 10	2021 Sep 27 0820:00	YWZB	CN	173	40101	51.09	In Earth orbit
S49260	2021-088A	Landsat 9	2021 Sep 27 1812:00	USGS/GSFC	US	670	686	98.22	In Earth orbit
S49261	2021-088B	Cesium Satellite 1	2021 Sep 27 1812:00	CESIUM	US	550	580	97.62	In Earth orbit
S49262	2021-088C	Cesium Satellite 2	2021 Sep 27 1812:00	CESIUM	US	550	580	97.62	In Earth orbit
S49263	2021-088D	CUTE	2021 Sep 27 1812:00	UCO	US	550	574	97.63	In Earth orbit
S49264	2021-088E	CuPID	2021 Sep 27 1812:00	BU	US	550	573	97.62	In Earth orbit
S49269	2021-089A	Soyuz MS-19	2021 Oct 5 0855:02	RKKE	RU	195	227	51.64	Attached to Rassvet
S49279	2021-090A	OneWeb SL0332	2021 Oct 14 0940:10	ONEWEB	UK	442	450	87.39	In Earth orbit
S49280	2021-090B	OneWeb SL0347	2021 Oct 14 0940:10	ONEWEB	UK	445	455	87.39	In Earth orbit
S49281	2021-090C	OneWeb SL0349	2021 Oct 14 0940:10	ONEWEB	UK	435	446	87.40	In Earth orbit
S49282	2021-090D	OneWeb SL0353	2021 Oct 14 0940:10	ONEWEB	UK	443	453	87.40	In Earth orbit
S49283	2021-090E	OneWeb SL0356	2021 Oct 14 0940:10	ONEWEB	UK	441	447	87.40	In Earth orbit
S49284	2021-090F	OneWeb SL0358	2021 Oct 14 0940:10	ONEWEB	UK	442	449	87.39	In Earth orbit

S49285	2021-090G	OneWeb SL0359	2021 Oct 14 0940:10	ONEWEB	UK	444	454	87.39	In Earth orbit
S49286	2021-090H ?	OneWeb SL0360	2021 Oct 14 0940:10	ONEWEB	UK	442	446	87.40	In Earth orbit
S49287	2021-090J	OneWeb SL0361	2021 Oct 14 0940:10	ONEWEB	UK	439	447	87.40	In Earth orbit
S49288	2021-090K	OneWeb SL0362	2021 Oct 14 0940:10	ONEWEB	UK	449	455	87.40	In Earth orbit
S49289	2021-090L	OneWeb SL0363	2021 Oct 14 0940:10	ONEWEB	UK	441	447	87.40	In Earth orbit
S49290	2021-090M	OneWeb SL0364	2021 Oct 14 0940:10	ONEWEB	UK	444	454	87.39	In Earth orbit
S49291	2021-090N	OneWeb SL0365	2021 Oct 14 0940:10	ONEWEB	UK	450	456	87.40	In Earth orbit
S49292	2021-090P	OneWeb SL0366	2021 Oct 14 0940:10	ONEWEB	UK	442	450	87.39	In Earth orbit
S49293	2021-090Q	OneWeb SL0367	2021 Oct 14 0940:10	ONEWEB	UK	442	447	87.40	In Earth orbit
S49294	2021-090R	OneWeb SL0368	2021 Oct 14 0940:10	ONEWEB	UK	443	453	87.40	In Earth orbit
S49295	2021-090S	OneWeb SL0369	2021 Oct 14 0940:10	ONEWEB	UK	449	455	87.40	In Earth orbit
S49296	2021-090T	OneWeb SL0370	2021 Oct 14 0940:10	ONEWEB	UK	437	446	87.40	In Earth orbit
S49297	2021-090U	OneWeb SL0371	2021 Oct 14 0940:10	ONEWEB	UK	448	454	87.40	In Earth orbit
S49298	2021-090V	OneWeb SL0372	2021 Oct 14 0940:10	ONEWEB	UK	436	446	87.40	In Earth orbit
S49299	2021-090W	OneWeb SL0373	2021 Oct 14 0940:10	ONEWEB	UK	442	451	87.40	In Earth orbit
S49300	2021-090X	OneWeb SL0374	2021 Oct 14 0940:10	ONEWEB	UK	446	454	87.40	In Earth orbit
S49301	2021-090Y	OneWeb SL0375	2021 Oct 14 0940:10	ONEWEB	UK	442	448	87.40	In Earth orbit
S49302	2021-090Z	OneWeb SL0376	2021 Oct 14 0940:10	ONEWEB	UK	449	454	87.40	In Earth orbit
S49303	2021-090AA	OneWeb SL0377	2021 Oct 14 0940:10	ONEWEB	UK	445	454	87.40	In Earth orbit
S49304	2021-090AB	OneWeb SL0378	2021 Oct 14 0940:10	ONEWEB	UK	433	444	87.40	In Earth orbit
S49305	2021-090AC	OneWeb SL0379	2021 Oct 14 0940:10	ONEWEB	UK	443	454	87.40	In Earth orbit
S49306	2021-090AD	OneWeb SL0380	2021 Oct 14 0940:10	ONEWEB	UK	447	454	87.40	In Earth orbit
S49307	2021-090AE	OneWeb SL0381	2021 Oct 14 0940:10	ONEWEB	UK	440	447	87.40	In Earth orbit
S49308	2021-090AF	OneWeb SL0382	2021 Oct 14 0940:10	ONEWEB	UK	434	445	87.40	In Earth orbit
S49309	2021-090AG	OneWeb SL0383	2021 Oct 14 0940:10	ONEWEB	UK	442	452	87.40	In Earth orbit
S49310	2021-090AH	OneWeb SL0384	2021 Oct 14 0940:10	ONEWEB	UK	434	445	87.40	In Earth orbit
S49311	2021-090AJ	OneWeb SL0385	2021 Oct 14 0940:10	ONEWEB	UK	433	445	87.40	In Earth orbit
S49312	2021-090AK	OneWeb SL0386	2021 Oct 14 0940:10	ONEWEB	UK	442	447	87.40	In Earth orbit
S49313	2021-090AL	OneWeb SL0387	2021 Oct 14 0940:10	ONEWEB	UK	437	447	87.40	In Earth orbit
S49314	2021-090AM	OneWeb SL0388	2021 Oct 14 0940:10	ONEWEB	UK	447	454	87.40	In Earth orbit
S49315	2021-091A ?	Xihe	2021 Oct 14 1051:00	NJU/SAST	CN	500	519	97.48	In Earth orbit
S49316	2021-091B ?	QX-1	2021 Oct 14 1051:00	DFHS	CN	503	522	97.46	In Earth orbit
S49317	2021-091C ?	Tianshu-1	2021 Oct 14 1051:00	HUOYAN	CN	503	522	97.46	In Earth orbit
S49318	2021-091D ?	JTSY	2021 Oct 14 1051:00	SISE	CN	503	522	97.46	In Earth orbit
S49319	2021-091E ?	HEAD-2E	2021 Oct 14 1051:00	HEAD	CN	503	522	97.46	In Earth orbit
S49320	2021-091F ?	MD-1	2021 Oct 14 1051:00	DFHS	CN	503	522	97.46	In Earth orbit
S49321	2021-091G ?	SSS-1	2021 Oct 14 1051:00	APSCO/BUAA	CN	502	522	97.47	In Earth orbit
S49322	2021-091H ?	HEAD-2F	2021 Oct 14 1051:00	HEAD	CN	502	522	97.46	In Earth orbit
S49323	2021-091J ?	Tianyuan-1	2021 Oct 14 1051:00	NJUST	CN	502	523	97.46	In Earth orbit
S49324	2021-091K ?	Jin Zijing Weixing 2	2021 Oct 14 1051:00	LINGZ/HKATG	CN	502	522	97.45	In Earth orbit
S49325	2021-091L ?	SSS-2A	2021 Oct 14 1051:00	APSCO/SJTU	CN	500	523	97.47	In Earth orbit
S49326	2021-092A	Shenzhou 13	2021 Oct 15 1623:44	CMSEO	CN	328	335	42.41	Attached to Tianhe
S49328	2021-093A	Lucy	2021 Oct 16 0934:00	GSFC/SWRI	US	208	-40809	31.34	Deep Space
S49330	2021-094A	Shi Jian 21	2021 Oct 24 0127:00	SAST	CN	35861	35887	8.11	In Earth orbit
S49382	2021-094C	SJ-21 subsatellite	2021 Oct 24 0127:00	SAST	CN	35860	35874	8.11	In Earth orbit
S49332	2021-095A	SES-17	2021 Oct 24 0210:00	SESSL	UK	668	35864	5.90	In Earth orbit
S49333	2021-095B	Syracuse 4A	2021 Oct 24 0210:00	DGA	F	522	35738	5.92	In Earth orbit
S49336	2021-096A	Michibiki Shogoki Kokei-ki	2021 Oct 26 0219:37	NUSS/JAXA	J	32647	38964	34.03	In Earth orbit
S49338	2021-097A	Jilin-1 Gaofen 02F	2021 Oct 27 0619:00	CGSTL	CN	532	546	97.54	In Earth orbit
S49379	2021-098A	Progress MS-18	2021 Oct 28 0000:32	RKKE	RU	321	326	51.64	Attached to Zvezda
S49383	2021-099A	Yaogan 32 hao 02 zu 01 xing	2021 Nov 3 0743:00	ZZB	CN	689	703	98.09	In Earth orbit
S49384	2021-099B	Yaogan 32 hao 02 zu 02 xing	2021 Nov 3 0743:00	ZZB	CN	689	703	98.09	In Earth orbit
S49387	2021-100A	SDGSAT-1	2021 Nov 5 0219:00	CAS	CN	501	513	97.50	In Earth orbit
S49390	2021-101A	Yaogan 35A	2021 Nov 6 0300:00	CASC	CN	493	498	34.99	In Earth orbit
S49391	2021-101B	Yaogan 35B	2021 Nov 6 0300:00	CASC	CN	490	495	34.99	In Earth orbit
S49392	2021-101C	Yaogan 35C	2021 Nov 6 0300:00	CASC	CN	494	499	34.99	In Earth orbit
S49395	2021-102A ?	RAISE-2	2021 Nov 9 0055:16	JAXA	J	561	573	97.58	In Earth orbit
S49396	2021-102B	Oruri	2021 Nov 9 0055:16	TEIK	J	558	574	97.57	In Earth orbit
S49397	2021-102C ?	Asutarisuku	2021 Nov 9 0055:16	CHIBA	J	556	573	97.57	In Earth orbit
S49398	2021-102D ?	DRUMS	2021 Nov 9 0055:16	KAWA	J	549	572	97.57	In Earth orbit
S49399	2021-102E	Z-SAT	2021 Nov 9 0055:16	MHIME	J	552	572	97.57	In Earth orbit
S49400	2021-102F ?	Hibari	2021 Nov 9 0055:16	TIT	J	548	572	97.56	In Earth orbit
S49401	2021-102G ?	NanoDragon	2021 Nov 9 0055:16	VNSC/MEISEI	VN	543	572	97.56	In Earth orbit
S49402	2021-102H	KOSEN-1	2021 Nov 9 0055:16	KOCHI	J	543	572	97.56	In Earth orbit
S49403	2021-102J ?	ARICA	2021 Nov 9 0055:16	AOGD	J	547	572	97.57	In Earth orbit
T00002	2021-102	DRUMS Target 1	2021 Nov 9 0055:16	KAWA	J	0	0	0.00	Attached to Z-SAT

T00003	2021-102	DRUMS Target 2	2021 Nov 9 0055:16	KAWA	J	0	0	0.00	Attached to Z-SAT
S49407	2021-103A	Endurance (SpX Crew-3)	2021 Nov 11 0203:31	SPX	US	190	212	51.64	Attached to IDA-2
S49408	2021-104A	Starlink 3151	2021 Nov 13 1218:56	SPXS	US	223	330	53.22	In Earth orbit
S49409	2021-104B	Starlink 3075	2021 Nov 13 1218:56	SPXS	US	224	330	53.22	In Earth orbit
S49410	2021-104C	Starlink 3147	2021 Nov 13 1218:56	SPXS	US	224	330	53.22	In Earth orbit
S49411	2021-104D	Starlink 3162	2021 Nov 13 1218:56	SPXS	US	224	330	53.22	In Earth orbit
S49412	2021-104E	Starlink 3144	2021 Nov 13 1218:56	SPXS	US	224	330	53.22	In Earth orbit
S49413	2021-104F	Starlink 3157	2021 Nov 13 1218:56	SPXS	US	224	329	53.22	In Earth orbit
S49414	2021-104G	Starlink 3146	2021 Nov 13 1218:56	SPXS	US	224	330	53.22	In Earth orbit
S49415	2021-104H	Starlink 3159	2021 Nov 13 1218:56	SPXS	US	224	329	53.22	In Earth orbit
S49416	2021-104J	Starlink 3133	2021 Nov 13 1218:56	SPXS	US	224	330	53.22	In Earth orbit
S49417	2021-104K	Starlink 3154	2021 Nov 13 1218:56	SPXS	US	224	329	53.22	In Earth orbit
S49418	2021-104L	Starlink 3111	2021 Nov 13 1218:56	SPXS	US	224	329	53.22	In Earth orbit
S49419	2021-104M	Starlink 3120	2021 Nov 13 1218:56	SPXS	US	224	329	53.22	In Earth orbit
S49420	2021-104N	Starlink 3110	2021 Nov 13 1218:56	SPXS	US	224	329	53.22	In Earth orbit
S49421	2021-104P	Starlink 3112	2021 Nov 13 1218:56	SPXS	US	224	329	53.22	In Earth orbit
S49422	2021-104Q	Starlink 3161	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49423	2021-104R	Starlink 3149	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49424	2021-104S	Starlink 3135	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49425	2021-104T	Starlink 3139	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49426	2021-104U	Starlink 3114	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49427	2021-104V	Starlink 3131	2021 Nov 13 1218:56	SPXS	US	219	330	53.22	In Earth orbit
S49428	2021-104W	Starlink 3121	2021 Nov 13 1218:56	SPXS	US	218	330	53.22	In Earth orbit
S49429	2021-104X	Starlink 3123	2021 Nov 13 1218:56	SPXS	US	203	303	53.22	Reentered
S49430	2021-104Y	Starlink 3138	2021 Nov 13 1218:56	SPXS	US	234	328	53.22	In Earth orbit
S49431	2021-104Z	Starlink 3153	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49432	2021-104AA	Starlink 3158	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49433	2021-104AB	Starlink 3079	2021 Nov 13 1218:56	SPXS	US	218	330	53.22	In Earth orbit
S49434	2021-104AC	Starlink 3134	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49435	2021-104AD	Starlink 3117	2021 Nov 13 1218:56	SPXS	US	223	327	53.22	In Earth orbit
S49436	2021-104AE	Starlink 3049	2021 Nov 13 1218:56	SPXS	US	219	330	53.22	In Earth orbit
S49437	2021-104AF	Starlink 3130	2021 Nov 13 1218:56	SPXS	US	222	329	53.22	In Earth orbit
S49438	2021-104AG	Starlink 3044	2021 Nov 13 1218:56	SPXS	US	223	329	53.22	In Earth orbit
S49439	2021-104AH	Starlink 3108	2021 Nov 13 1218:56	SPXS	US	222	329	53.22	In Earth orbit
S49440	2021-104AJ	Starlink 3105	2021 Nov 13 1218:56	SPXS	US	218	330	53.22	In Earth orbit
S49441	2021-104AK	Starlink 3128	2021 Nov 13 1218:56	SPXS	US	217	330	53.22	In Earth orbit
S49442	2021-104AL	Starlink 3098	2021 Nov 13 1218:56	SPXS	US	218	330	53.22	In Earth orbit
S49443	2021-104AM	Starlink 3136	2021 Nov 13 1218:56	SPXS	US	222	329	53.22	In Earth orbit
S49444	2021-104AN	Starlink 3126	2021 Nov 13 1218:56	SPXS	US	220	330	53.22	In Earth orbit
S49445	2021-104AP	Starlink 3122	2021 Nov 13 1218:56	SPXS	US	215	330	53.22	In Earth orbit
S49446	2021-104AQ	Starlink 3099	2021 Nov 13 1218:56	SPXS	US	217	330	53.22	In Earth orbit
S49447	2021-104AR	Starlink 3115	2021 Nov 13 1218:56	SPXS	US	218	329	53.22	In Earth orbit
S49448	2021-104AS	Starlink 3097	2021 Nov 13 1218:56	SPXS	US	222	329	53.22	In Earth orbit
S49449	2021-104AT	Starlink 3137	2021 Nov 13 1218:56	SPXS	US	222	329	53.22	In Earth orbit
S49450	2021-104AU	Starlink 3127	2021 Nov 13 1218:56	SPXS	US	217	329	53.22	In Earth orbit
S49451	2021-104AV	Starlink 3125	2021 Nov 13 1218:56	SPXS	US	218	329	53.22	In Earth orbit
S49452	2021-104AW	Starlink 3150	2021 Nov 13 1218:56	SPXS	US	221	329	53.22	In Earth orbit
S49453	2021-104AX	Starlink 3129	2021 Nov 13 1218:56	SPXS	US	220	329	53.22	In Earth orbit
S49454	2021-104AY	Starlink 3160	2021 Nov 13 1218:56	SPXS	US	217	329	53.22	In Earth orbit
S49455	2021-104AZ	Starlink 3145	2021 Nov 13 1218:56	SPXS	US	221	329	53.22	In Earth orbit
S49456	2021-104BA	Starlink 3124	2021 Nov 13 1218:56	SPXS	US	220	329	53.22	In Earth orbit
S49457	2021-104BB	Starlink 3132	2021 Nov 13 1218:56	SPXS	US	221	328	53.22	In Earth orbit
S49458	2021-104BC	Starlink 3156	2021 Nov 13 1218:56	SPXS	US	221	328	53.22	In Earth orbit
S49459	2021-104BD	Starlink 3141	2021 Nov 13 1218:56	SPXS	US	221	328	53.22	In Earth orbit
S49460	2021-104BE	Starlink 3140	2021 Nov 13 1218:56	SPXS	US	216	330	53.22	In Earth orbit
S49464	2021-105A	CERES 1	2021 Nov 16 0927:55	DGA/CNES	F	669	672	75.00	In Earth orbit
S49465	2021-105B	CERES 2	2021 Nov 16 0927:55	DGA/CNES	F	671	672	74.85	In Earth orbit
S49466	2021-105C	CERES 3	2021 Nov 16 0927:55	DGA/CNES	F	670	673	75.00	In Earth orbit
S49469	2021-106A	Global-14	2021 Nov 18 0138:00	BSKG	US	428	439	42.02	In Earth orbit
S49470	2021-106B	Global-15	2021 Nov 18 0138:00	BSKG	US	426	438	42.02	In Earth orbit
S49492	2021-107A	Gao Fen 11-03	2021 Nov 20 0151:00	YWZB	CN	243	695	97.45	In Earth orbit
S49494	2021-108A	STP-S27AD2	2021 Nov 20 0616:00	STP	US	438	507	86.01	Attached to Astra Rocket 3.3 Stage 2
S49495	2021-109A	Gao Fen 3-02	2021 Nov 22 2345:00	GWHYZ	CN	737	745	98.42	In Earth orbit
S49497	2021-110A	DART	2021 Nov 24 0621:02	APL/MSFC	US	263	-135350	64.65	Deep Space
T00005	2021-110C	LICIACube	2021 Nov 24 0621:02	ASI/ARGOT	I	263	-135350	64.65	Deep Space Att to DART

S49499	2021-111A	Prichal	2021 Nov 24 1306:35	RKKE	RU	323	351	51.64	Attached to Nauka
A09906	2021-111A	Progress M-UM PAO	2021 Nov 24 1306:35	RKKE	RU	179	207	51.64	Deorbited
S49501	2021-112A	Shiyan 11	2021 Nov 24 2341:00	CASC	CN	489	502	97.45	In Earth orbit
S49503	2021-113A	Kosmos-2552	2021 Nov 25 0109:13	KVR	RU	1664	38596	63.74	In Earth orbit
S49505	2021-114A	Zhongxing 1D	2021 Nov 26 1640:04	ZZB	CN	35781	35791	1.95	In Earth orbit
S49724	2021-115A	Starlink 3219	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49725	2021-115B	Starlink 3218	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49726	2021-115C	Starlink 3237	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49727	2021-115D	Starlink 3242	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49728	2021-115E	Starlink 3240	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49729	2021-115F	Starlink 3251	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49730	2021-115G	Starlink 3249	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49731	2021-115H	Starlink 3228	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49732	2021-115J	Starlink 3246	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49733	2021-115K	Starlink 3252	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49734	2021-115L	Starlink 3238	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49735	2021-115M	Starlink 3113	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49736	2021-115N	Starlink 3148	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49737	2021-115P	Starlink 3225	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49738	2021-115Q	Starlink 3143	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49739	2021-115R	Starlink 3155	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49740	2021-115S	Starlink 3226	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49741	2021-115T	Starlink 3244	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49742	2021-115U	Starlink 3202	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49743	2021-115V	Starlink 3239	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49744	2021-115W	Starlink 3231	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49745	2021-115X	Starlink 3241	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49746	2021-115Y	Starlink 3233	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49747	2021-115Z	Starlink 3247	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49748	2021-115AA	Starlink 3248	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49749	2021-115AB	Starlink 3250	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49750	2021-115AC	Starlink 3236	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49751	2021-115AD	Starlink 3229	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49752	2021-115AE	Starlink 3209	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49753	2021-115AF	Starlink 3200	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49754	2021-115AG	Starlink 3193	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49755	2021-115AH	Starlink 3210	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49756	2021-115AJ	Starlink 3207	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49757	2021-115AK	Starlink 3197	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49758	2021-115AL	Starlink 3194	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49759	2021-115AM	Starlink 3204	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49760	2021-115AN	Starlink 3199	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49761	2021-115AP	Starlink 3203	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49762	2021-115AQ	Starlink 3195	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49763	2021-115AR	Starlink 3198	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49764	2021-115AS	Starlink 3206	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49765	2021-115AT	Starlink 3227	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49766	2021-115AU	Starlink 3190	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49767	2021-115AV	Starlink 3192	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49768	2021-115AW	Starlink 3196	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49769	2021-115AX	Starlink 3208	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49770	2021-115AY	Starlink 3191	2021 Dec 2 2312:00	SPXS	US	424	440	53.22	In Earth orbit
S49771	2021-115AZ	Starlink 3201	2021 Dec 2 2312:00	SPXS	US	434	442	53.22	In Earth orbit
S49772	2021-115BA	Global-12	2021 Dec 2 2312:00	BSKG	US	426	443	53.21	In Earth orbit
S49773	2021-115BB	Global-13	2021 Dec 2 2312:00	BSKG	US	424	443	53.21	In Earth orbit
S49809	2021-116A	GalileoSat-27	2021 Dec 5 0019:20	GSAEU	I-EU	23380	23518	57.11	In Earth orbit
S49810	2021-116B	GalileoSat-28	2021 Dec 5 0019:20	GSAEU	I-EU	23515	23571	57.07	In Earth orbit
S49812	2021-117A ?	Tianjin Daxue 1	2021 Dec 7 0412:30	TIANJU	CN	483	501	97.41	In Earth orbit
S49813	2021-117B ?	Lize 1	2021 Dec 7 0412:30	CTYK/YINGSH	CN	485	501	97.39	In Earth orbit
S49814	2021-117C ?	Baoyun	2021 Dec 7 0412:30	CTYK	CN	472	502	97.41	In Earth orbit
S49815	2021-117D ?	Jin Zijing 5	2021 Dec 7 0412:30	HKATG	CN	473	503	97.40	In Earth orbit
S49816	2021-117E ?	Jin Zijing 1-03	2021 Dec 7 0412:30	HKATG	CN	479	501	97.40	In Earth orbit
S49817	2021-118A	STPSAT-6	2021 Dec 7 1019:00	STP	US	36097	36110	0.03	In Earth orbit
S49818	2021-118B	LDPE 1	2021 Dec 7 1019:00	AFRL	US	36084	36125	0.03	In Earth orbit
S50214	2021-118D	USA 3xx (or debris?)	2021 Dec 7 1019:00	AFRL	US	35990	36116	0.07	In Earth orbit
T00006	2021-118D	ASCENT	2021 Dec 7 1019:00	AFRL	US	0	0	0.00	Attached to LDPE 1

S49922	2021-119A	Soyuz MS-20	2021 Dec 8 0738:15	RKKE	RU	194	220	51.64	Landed
S49949	2021-120A	Global-16	2021 Dec 9 0002:07	BSKG	US	430	439	42.01	In Earth orbit
S49950	2021-120B	Global-17	2021 Dec 9 0002:07	BSKG	US	433	440	42.01	In Earth orbit
S49954	2021-121A	IXPE	2021 Dec 9 0600:00	MSFC	US	588	603	0.23	In Earth orbit
S49961	2021-122A	Shi Jian 6/5B	2021 Dec 10 0011:30	CASC	CN	454	468	97.36	In Earth orbit
S49962	2021-122B	Shi Jian 6/5A	2021 Dec 10 0011:30	CASC	CN	456	470	97.36	In Earth orbit
S50001	2021-123A ?	Ekspress-AMU3	2021 Dec 13 1207:00	KS	RU	16325	52810	1.68	In Earth orbit
S50002	2021-123B ?	Ekspress-AMU7	2021 Dec 13 1207:00	KS	RU	16335	52810	1.65	In Earth orbit
S50005	2021-124A	Tian Lian 2-02	2021 Dec 13 1609:00	CAST	CN	35775	35803	2.99	In Earth orbit
S50156	2021-125A	Starlink 3317	2021 Dec 18 1241:40	SPXS	US	209	339	53.22	In Earth orbit
S50157	2021-125B	Starlink 3313	2021 Dec 18 1241:40	SPXS	US	209	339	53.22	In Earth orbit
S50158	2021-125C	Starlink 3309	2021 Dec 18 1241:40	SPXS	US	209	339	53.22	In Earth orbit
S50159	2021-125D	Starlink 3297	2021 Dec 18 1241:40	SPXS	US	209	339	53.22	In Earth orbit
S50160	2021-125E	Starlink 3288	2021 Dec 18 1241:40	SPXS	US	209	339	53.22	In Earth orbit
S50161	2021-125F	Starlink 3304	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50162	2021-125G	Starlink 3303	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50163	2021-125H	Starlink 3306	2021 Dec 18 1241:40	SPXS	US	209	337	53.22	In Earth orbit
S50164	2021-125J	Starlink 3307	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50165	2021-125K	Starlink 3298	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50166	2021-125L	Starlink 3305	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50167	2021-125M	Starlink 3271	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50168	2021-125N	Starlink 3296	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50169	2021-125P	Starlink 3301	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50170	2021-125Q	Starlink 3245	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50171	2021-125R	Starlink 3286	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50172	2021-125S	Starlink 3287	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50173	2021-125T	Starlink 3289	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50174	2021-125U	Starlink 3292	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50175	2021-125V	Starlink 3291	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50176	2021-125W	Starlink 3293	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50177	2021-125X	Starlink 3282	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50178	2021-125Y	Starlink 3284	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50179	2021-125Z	Starlink 3283	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50180	2021-125AA	Starlink 3265	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50181	2021-125AB	Starlink 3285	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50182	2021-125AC	Starlink 3277	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50183	2021-125AD	Starlink 3281	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50184	2021-125AE	Starlink 3280	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50185	2021-125AF	Starlink 3279	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50186	2021-125AG	Starlink 3274	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50187	2021-125AH	Starlink 3272	2021 Dec 18 1241:40	SPXS	US	210	341	53.22	In Earth orbit
S50188	2021-125AJ	Starlink 3275	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50189	2021-125AK	Starlink 3276	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50190	2021-125AL	Starlink 3268	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50191	2021-125AM	Starlink 3273	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50192	2021-125AN	Starlink 3259	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50193	2021-125AP	Starlink 3261	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50194	2021-125AQ	Starlink 3269	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50195	2021-125AR	Starlink 3266	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50196	2021-125AS	Starlink 3263	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50197	2021-125AT	Starlink 3267	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50198	2021-125AU	Starlink 3264	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50199	2021-125AV	Starlink 3270	2021 Dec 18 1241:40	SPXS	US	208	334	53.22	In Earth orbit
S50200	2021-125AW	Starlink 3235	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50201	2021-125AX	Starlink 3255	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50202	2021-125AY	Starlink 3256	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50203	2021-125AZ	Starlink 3257	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50204	2021-125BA	Starlink 3254	2021 Dec 18 1241:40	SPXS	US	209	334	53.22	In Earth orbit
S50205	2021-125BB	Starlink 3260	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50206	2021-125BC	Starlink 3258	2021 Dec 18 1241:40	SPXS	US	209	338	53.22	In Earth orbit
S50207	2021-125BD	Starlink 3262	2021 Dec 18 1241:40	SPXS	US	210	340	53.22	In Earth orbit
S50212	2021-126A	Turksat 5B	2021 Dec 19 0358:39	TURKS	TR	198	68931	27.12	In Earth orbit
S50318	2021-127A	Dragon CRS-24	2021 Dec 21 1007:08	SPX	US	212	362	51.64	Attached to IDA-3
T00008	2021-127	DAILI	2021 Dec 21 1007:08	AERO	US	0	0	0.00	Attached to NRCSD No. 22
T00009	2021-127	GASPACS	2021 Dec 21 1007:08	USU	US	0	0	0.00	Attached to NRCSD No. 22
T00010	2021-127	PATCOOL	2021 Dec 21 1007:08	KSC/UFL	US	0	0	0.00	Attached to NRCSD No. 22

T00011	2021-127	TARGIT	2021 Dec 21 1007:08	GIT	US	0	0	0.00	Attached to NRCSD No. 22
T00012	2021-127	TARGIT target	2021 Dec 21 1007:08	GIT	US	0	0	0.00	Attached to TARGIT
T00013	2021-127	GT-1	2021 Dec 21 1007:08	GIT	US	0	0	0.00	Attached to J-SSOD No. 20?
T00014	2021-127	Mitsui cubesat 1	2021 Dec 21 1007:08	MITSUI?	J	0	0	0.00	Attached to J-SSOD No. 20?
T00015	2021-127	Light-1	2021 Dec 21 1007:08	NYUAD	UAE	0	0	0.00	Attached to J-SSOD No. 20?
T00016	2021-127	FEES-2	2021 Dec 21 1007:08	GPAP	I	0	0	0.00	Attached to NRCSD No. 22
S50319	2021-128A	Inmarsat 6 F1	2021 Dec 22 1532:00	INMRL	UK	179	64689	30.04	In Earth orbit
S50321	2021-129A	Shiyan 12-01	2021 Dec 23 1012:00	CAST	CN	35784	35787	0.54	In Earth orbit
S50322	2021-129B	Shiyan 12-02	2021 Dec 23 1012:00	CAST	CN	208	35711	19.46	In Earth orbit
S50463	2021-130A	JWST	2021 Dec 25 1220:07	GSFC/ESA	US	315	1048000	4.17	Deep Space
S50465	2021-131A	Zi Yuan 1-02E	2021 Dec 26 0311:31	ZZWYZ	CN	764	768	98.59	In Earth orbit
S50466	2021-131B	Hope-OSCAR-113	2021 Dec 26 0311:31	CAMSAT	CN	761	766	98.60	In Earth orbit
S50469	2021-132A	OneWeb SL0389	2021 Dec 27 1310:37	ONEWEB	UK	451	475	87.40	In Earth orbit
S50470	2021-132B	OneWeb SL0390	2021 Dec 27 1310:37	ONEWEB	UK	445	468	87.40	In Earth orbit
S50471	2021-132C	OneWeb SL0391	2021 Dec 27 1310:37	ONEWEB	UK	438	465	87.40	In Earth orbit
S50472	2021-132D	OneWeb SL0392	2021 Dec 27 1310:37	ONEWEB	UK	444	467	87.40	In Earth orbit
S50473	2021-132E	OneWeb SL0393	2021 Dec 27 1310:37	ONEWEB	UK	441	467	87.40	In Earth orbit
S50474	2021-132F	OneWeb SL0394	2021 Dec 27 1310:37	ONEWEB	UK	445	474	87.40	In Earth orbit
S50475	2021-132G	OneWeb SL0395	2021 Dec 27 1310:37	ONEWEB	UK	451	475	87.40	In Earth orbit
S50476	2021-132H	OneWeb SL0396	2021 Dec 27 1310:37	ONEWEB	UK	445	473	87.40	In Earth orbit
S50477	2021-132J	OneWeb SL0397	2021 Dec 27 1310:37	ONEWEB	UK	446	475	87.40	In Earth orbit
S50478	2021-132K	OneWeb SL0398	2021 Dec 27 1310:37	ONEWEB	UK	450	475	87.40	In Earth orbit
S50479	2021-132L	OneWeb SL0399	2021 Dec 27 1310:37	ONEWEB	UK	451	475	87.40	In Earth orbit
S50480	2021-132M	OneWeb SL0400	2021 Dec 27 1310:37	ONEWEB	UK	441	467	87.40	In Earth orbit
S50481	2021-132N	OneWeb SL0401	2021 Dec 27 1310:37	ONEWEB	UK	445	471	87.40	In Earth orbit
S50482	2021-132P	OneWeb SL0402	2021 Dec 27 1310:37	ONEWEB	UK	445	468	87.40	In Earth orbit
S50483	2021-132Q	OneWeb SL0403	2021 Dec 27 1310:37	ONEWEB	UK	444	467	87.40	In Earth orbit
S50484	2021-132R	OneWeb SL0404	2021 Dec 27 1310:37	ONEWEB	UK	449	475	87.40	In Earth orbit
S50485	2021-132S	OneWeb SL0405	2021 Dec 27 1310:37	ONEWEB	UK	445	469	87.40	In Earth orbit
S50486	2021-132T	OneWeb SL0406	2021 Dec 27 1310:37	ONEWEB	UK	445	470	87.40	In Earth orbit
S50487	2021-132U	OneWeb SL0407	2021 Dec 27 1310:37	ONEWEB	UK	442	467	87.40	In Earth orbit
S50488	2021-132V	OneWeb SL0409	2021 Dec 27 1310:37	ONEWEB	UK	449	475	87.40	In Earth orbit
S50489	2021-132W	OneWeb SL0412	2021 Dec 27 1310:37	ONEWEB	UK	447	475	87.40	In Earth orbit
S50490	2021-132X	OneWeb SL0413	2021 Dec 27 1310:37	ONEWEB	UK	445	474	87.40	In Earth orbit
S50491	2021-132Y	OneWeb SL0414	2021 Dec 27 1310:37	ONEWEB	UK	443	467	87.40	In Earth orbit
S50492	2021-132Z	OneWeb SL0417	2021 Dec 27 1310:37	ONEWEB	UK	437	465	87.40	In Earth orbit
S50493	2021-132AA	OneWeb SL0418	2021 Dec 27 1310:37	ONEWEB	UK	446	474	87.40	In Earth orbit
S50494	2021-132AB	OneWeb SL0419	2021 Dec 27 1310:37	ONEWEB	UK	450	475	87.40	In Earth orbit
S50495	2021-132AC	OneWeb SL0420	2021 Dec 27 1310:37	ONEWEB	UK	437	459	87.40	In Earth orbit
S50496	2021-132AD	OneWeb SL0421	2021 Dec 27 1310:37	ONEWEB	UK	439	467	87.40	In Earth orbit
S50497	2021-132AE	OneWeb SL0424	2021 Dec 27 1310:37	ONEWEB	UK	447	475	87.40	In Earth orbit
S50498	2021-132AF	OneWeb SL0426	2021 Dec 27 1310:37	ONEWEB	UK	444	467	87.40	In Earth orbit
S50499	2021-132AG	OneWeb SL0427	2021 Dec 27 1310:37	ONEWEB	UK	437	459	87.40	In Earth orbit
S50500	2021-132AH	OneWeb SL0429	2021 Dec 27 1310:37	ONEWEB	UK	438	465	87.40	In Earth orbit
S50501	2021-132AJ	OneWeb SL0430	2021 Dec 27 1310:37	ONEWEB	UK	448	475	87.40	In Earth orbit
S50502	2021-132AK	OneWeb SL0432	2021 Dec 27 1310:37	ONEWEB	UK	437	460	87.40	In Earth orbit
S50503	2021-132AL	OneWeb SL0440	2021 Dec 27 1310:37	ONEWEB	UK	438	466	87.40	In Earth orbit
S50504	2021-132AM	OneWeb SL0450	2021 Dec 27 1310:37	ONEWEB	UK	445	472	87.40	In Earth orbit
S50505	2021-133A	IPN-1	2021 Dec 27 1900:00	KHRU	RU	179	201	63.39	Attached to Persei No. 1L
S50572	2021-134A	Tianhui-4 01	2021 Dec 29 1113:00	GCDX	CN	483	498	89.00	In Earth orbit
S50573	2021-134B	Tianhui-4 02?	2021 Dec 29 1113:00	GCDX	CN	483	498	89.00	In Earth orbit
S50574	2021-135A	Tongxin Jishu Shiyan 9	2021 Dec 29 1643:00	CASC	CN	176	35808	27.09	In Earth orbit
Payloads not included in annual statistics									
A09741	2021-006CB	Celestis-17	2021 Jan 24 1500:00	SSICE	US	515	534	97.51	Attached to SHERPA-FX 1
S47946	2021-022Q ?	Vigoride mass simulator	2021 Mar 22 0607:12	GKLS	RU	535	558	97.56	In Earth orbit
S47958	2021-022AC ?	NAPA-2 mass simulator?	2021 Mar 22 0607:12	GKLS	RU	535	564	97.56	In Earth orbit

Appendix 2b: Satellite payloads deployed in 2021

CATID	LAUNCH ID	Name	Deploy date UTC	Owner	Country	Perigee	Apogee	Inc	Status
A06581	2001-041	Pirs	2021 Jul 26 1055:00	RKKE	RU	379	389	51.64	Deorbited
S48156	2019-022P	Jackie	2021 Apr 6 2100:00	AERO	US	462	475	51.64	Reentered
S49381	2020-029C C	Falconsat 8	2021 Oct 24 0000:00	USAFA	US	445	447	45.00	In Earth orbit
S47306	2021-001A	Turksat 5A	2021 Jan 8 0248:00	TURKS	TR	1170	56359	15.98	In Earth orbit
S47309	2021-002A	CAPE 3	2021 Jan 17 2036:00	ULLAF	US	493	517	60.68	In Earth orbit
S47310	2021-002B	PolarCube	2021 Jan 17 2036:00	COSG	US	490	511	60.68	In Earth orbit
S47311	2021-002C	RadFxSat-2	2021 Jan 17 2036:00	AMNA/VANDU	US	493	511	60.69	In Earth orbit
S47312	2021-002D	TechEdSat-7	2021 Jan 17 2036:00	ARC/SJSU	US	489	506	60.68	In Earth orbit
S47313	2021-002E	Prometheus 2.11	2021 Jan 17 2036:00	SOCOM	US	493	514	60.68	In Earth orbit
S47314	2021-002F	MiTEE 1	2021 Jan 17 2036:00	UMI	US	489	508	60.69	In Earth orbit
S47315	2021-002G ?	Q-PACE	2021 Jan 17 2036:00	UCF	US	493	511	60.69	In Earth orbit
S47317	2021-002J ?	PICS 1	2021 Jan 17 2036:00	BYU	US	492	516	60.68	In Earth orbit
S47318	2021-002K ?	PICS 2	2021 Jan 17 2036:00	BYU	US	493	516	60.69	In Earth orbit
S47319	2021-002L	ExoCube 2	2021 Jan 17 2036:00	CALP/NSF	US	493	512	60.68	In Earth orbit
S47320	2021-002M ?	CACTUS-1	2021 Jan 17 2036:00	CAPTU	US	493	514	60.68	In Earth orbit
S47345	2021-002N	Prometheus 2.8	2021 Jan 17 2036:00	SOCOM	US	489	512	60.69	In Earth orbit
S47321	2021-003A	Tiantong-1 03 xing	2021 Jan 19 1650:00	CAST	CN	35777	35794	5.51	In Earth orbit
S47346	2021-004A	GMS-T	2021 Jan 20 0836:00	OHB	D	1210	1217	90.00	In Earth orbit
S47349	2021-005A	Starlink 1952	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47350	2021-005B	Starlink 2011	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47351	2021-005C	Starlink 2017	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47352	2021-005D	Starlink 2034	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47353	2021-005E	Starlink 2045	2021 Jan 20 1406:00	SPXS	US	263	280	53.05	In Earth orbit
S47354	2021-005F	Starlink 2046	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47355	2021-005G	Starlink 2047	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47356	2021-005H	Starlink 2049	2021 Jan 20 1406:00	SPXS	US	263	280	53.05	In Earth orbit
S47357	2021-005J	Starlink 2050	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47358	2021-005K	Starlink 2055	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47359	2021-005L	Starlink 2069	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47360	2021-005M	Starlink 2070	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47361	2021-005N	Starlink 2071	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47362	2021-005P	Starlink 2076	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47363	2021-005Q	Starlink 2077	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47364	2021-005R	Starlink 2079	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	Reentered
S47365	2021-005S	Starlink 2080	2021 Jan 20 1406:00	SPXS	US	263	280	53.05	In Earth orbit
S47366	2021-005T	Starlink 2081	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47367	2021-005U	Starlink 2082	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47368	2021-005V	Starlink 2084	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47369	2021-005W	Starlink 2085	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47370	2021-005X	Starlink 2086	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47371	2021-005Y	Starlink 2088	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47372	2021-005Z	Starlink 2089	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47373	2021-005AA	Starlink 2092	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47374	2021-005AB	Starlink 2093	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47375	2021-005AC	Starlink 2094	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47376	2021-005AD	Starlink 2096	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47377	2021-005AE	Starlink 2097	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47378	2021-005AF	Starlink 2098	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47379	2021-005AG	Starlink 2099	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47380	2021-005AH	Starlink 2100	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47381	2021-005AJ	Starlink 2101	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47382	2021-005AK	Starlink 2102	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47383	2021-005AL	Starlink 2103	2021 Jan 20 1406:00	SPXS	US	263	280	53.05	In Earth orbit
S47384	2021-005AM	Starlink 2104	2021 Jan 20 1406:00	SPXS	US	263	280	53.05	In Earth orbit
S47385	2021-005AN	Starlink 2105	2021 Jan 20 1406:00	SPXS	US	263	280	53.05	In Earth orbit
S47386	2021-005AP	Starlink 2106	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47387	2021-005AQ	Starlink 2108	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47388	2021-005AR	Starlink 2109	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47389	2021-005AS	Starlink 2110	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47390	2021-005AT	Starlink 2111	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47391	2021-005AU	Starlink 2112	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit

S47392	2021-005AV	Starlink 2113	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47393	2021-005AW	Starlink 2114	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47394	2021-005AX	Starlink 2115	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47395	2021-005AY	Starlink 2117	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47396	2021-005AZ	Starlink 2118	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47397	2021-005BA	Starlink 2119	2021 Jan 20 1406:00	SPXS	US	265	282	53.05	In Earth orbit
S47398	2021-005BB	Starlink 2120	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47399	2021-005BC	Starlink 2121	2021 Jan 20 1406:00	SPXS	US	263	280	53.05	In Earth orbit
S47400	2021-005BD	Starlink 2122	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47401	2021-005BE	Starlink 2123	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47402	2021-005BF	Starlink 2124	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47403	2021-005BG	Starlink 2127	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47404	2021-005BH	Starlink 2128	2021 Jan 20 1406:00	SPXS	US	264	280	53.05	In Earth orbit
S47405	2021-005BJ	Starlink 2130	2021 Jan 20 1406:00	SPXS	US	265	281	53.05	In Earth orbit
S47406	2021-005BK	Starlink 2133	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47407	2021-005BL	Starlink 2134	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47408	2021-005BM	Starlink 2135	2021 Jan 20 1406:00	SPXS	US	264	281	53.05	In Earth orbit
S47413	2021-006A	Starlink 2199	2021 Jan 24 1631:00	SPXS	US	515	531	97.51	Reentered
S47414	2021-006B	Starlink 2200	2021 Jan 24 1631:00	SPXS	US	512	534	97.51	In Earth orbit
S47415	2021-006C	Starlink 2201	2021 Jan 24 1631:00	SPXS	US	516	535	97.51	In Earth orbit
S47416	2021-006D	Starlink 2202	2021 Jan 24 1631:00	SPXS	US	516	535	97.51	In Earth orbit
S47417	2021-006E	Starlink 2203	2021 Jan 24 1631:00	SPXS	US	516	535	97.51	Reentered
S47418	2021-006F	Starlink 2204	2021 Jan 24 1631:00	SPXS	US	516	537	97.51	Reentered
S47419	2021-006G	Starlink 2205	2021 Jan 24 1631:00	SPXS	US	516	534	97.51	Reentered
S47420	2021-006H	Starlink 2206	2021 Jan 24 1631:00	SPXS	US	516	534	97.51	Reentered
S47421	2021-006J	Starlink 2207	2021 Jan 24 1631:00	SPXS	US	516	535	97.51	Reentered
S47422	2021-006K	Starlink 2208	2021 Jan 24 1631:00	SPXS	US	512	534	97.52	In Earth orbit
S47425	2021-006N	SpaceBEE-52	2021 Jan 24 1613:00	SWARM	US	525	536	97.52	In Earth orbit
S47426	2021-006P	SpaceBEE-46	2021 Jan 24 1610:00	SWARM	US	524	535	97.52	In Earth orbit
S47427	2021-006Q	SpaceBEE-47	2021 Jan 24 1610:00	SWARM	US	523	537	97.51	In Earth orbit
S47428	2021-006R	SpaceBEE-59	2021 Jan 24 1613:00	SWARM	US	525	536	97.51	In Earth orbit
S47429	2021-006S	SpaceBEE-62	2021 Jan 24 1613:00	SWARM	US	526	536	97.51	In Earth orbit
S47430	2021-006T	Astrocast-0101	2021 Jan 24 1813:00	ACAST	CH	521	534	97.51	In Earth orbit
S47431	2021-006U	SpaceBEE-61	2021 Jan 24 1613:00	SWARM	US	525	536	97.52	In Earth orbit
S47432	2021-006V	SpaceBEE-49	2021 Jan 24 1610:00	SWARM	US	525	535	97.51	In Earth orbit
S47433	2021-006W	SpaceBEE-60	2021 Jan 24 1613:00	SWARM	US	525	536	97.52	In Earth orbit
S47434	2021-006X	SpaceBEE-53	2021 Jan 24 1613:00	SWARM	US	525	536	97.51	In Earth orbit
S47438	2021-006AB	UVSQ-SAT	2021 Jan 24 1606:00	UVSQ/LATMOS	F	523	535	97.51	In Earth orbit
S47439	2021-006AC	Yushan Weixing	2021 Jan 24 1606:00	NTOU	TW	523	535	97.51	In Earth orbit
S47440	2021-006AD	AII-Charlie	2021 Jan 24 1608:00	AUINS/SPQ	US	522	535	97.52	In Earth orbit
S47441	2021-006AE ?	ASELSAT	2021 Jan 24 1607:00	ASELSN	TR	522	536	97.51	In Earth orbit
S47442	2021-006AF	SpaceBEE-63	2021 Jan 24 1613:00	SWARM	US	517	536	97.51	In Earth orbit
S47443	2021-006AG	SpaceBEE-50	2021 Jan 24 1610:00	SWARM	US	525	535	97.51	In Earth orbit
S47444	2021-006AH	SpaceBEE-51	2021 Jan 24 1610:00	SWARM	US	525	536	97.52	In Earth orbit
S47445	2021-006AJ	SOMP 2b	2021 Jan 24 1614:00	TUD	D	522	535	97.52	In Earth orbit
S47446	2021-006AK	Boba	2021 Jan 24 1601:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47447	2021-006AL	SpaceBEE-48	2021 Jan 24 1610:00	SWARM	US	524	535	97.50	In Earth orbit
S47448	2021-006AM	CubeL	2021 Jan 24 1610:00	DLR	D	522	535	97.51	In Earth orbit
S47449	2021-006AN	SpaceBEE-40	2021 Jan 24 1610:00	SWARM	US	521	535	97.52	In Earth orbit
S47450	2021-006AP	Lemur-2-Neva	2021 Jan 24 1611:00	SPIRE	US	521	535	97.51	In Earth orbit
S47451	2021-006AQ	SpaceBEE-41	2021 Jan 24 1610:00	SWARM	US	523	536	97.51	In Earth orbit
S47452	2021-006AR	Flock 4s-22	2021 Jan 24 1603:00	PLABS	US	521	535	97.51	In Earth orbit
S47453	2021-006AS	Lemur-2-Saoirsedh5Guo	2021 Jan 24 1613:00	SPIRE	US	521	535	97.52	In Earth orbit
S47454	2021-006AT	Lucky	2021 Jan 24 1602:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47455	2021-006AU	SpaceBEE-42	2021 Jan 24 1610:00	SWARM	US	523	535	97.51	In Earth orbit
S47456	2021-006AV	Flock 4s-21	2021 Jan 24 1603:00	PLABS	US	521	535	97.51	In Earth orbit
S47457	2021-006AW	Lemur-2-NallyWacker	2021 Jan 24 1610:00	SPIRE	US	522	535	97.51	In Earth orbit
S47458	2021-006AX	IDEASSat	2021 Jan 24 1608:00	NCU	TW	523	535	97.51	In Earth orbit
S47459	2021-006AY	SpaceBEE-55	2021 Jan 24 1613:00	SWARM	US	525	536	97.52	In Earth orbit
S47460	2021-006AZ	SpaceBEE-54	2021 Jan 24 1613:00	SWARM	US	525	536	97.51	In Earth orbit
S47461	2021-006BA	SudoRmRf	2021 Jan 24 1603:00	KEPLER	CA	527	535	97.51	In Earth orbit
S47462	2021-006BB	Flock 4s-11	2021 Jan 24 1601:00	PLABS	US	520	535	97.51	In Earth orbit
S47463	2021-006BC ?	Cora	2021 Jan 24 1559:00	ARC/CMU	US	527	535	97.51	In Earth orbit
S47464	2021-006BD	SpaceBEE-58	2021 Jan 24 1613:00	SWARM	US	524	537	97.51	In Earth orbit
S47465	2021-006BE	SpaceBEE-57	2021 Jan 24 1613:00	SWARM	US	525	536	97.51	In Earth orbit
S47466	2021-006BF	SpaceBEE-44	2021 Jan 24 1610:00	SWARM	US	523	536	97.51	In Earth orbit

S47467	2021-006BG ?	Petrie	2021 Jan 24 1559:00	ARC/CMU	US	528	535	97.52	In Earth orbit
S47468	2021-006BH	SpaceBEE-56	2021 Jan 24 1613:00	SWARM	US	526	535	97.51	In Earth orbit
S47469	2021-006BJ	Flock 4s-33	2021 Jan 24 1606:00	PLABS	US	526	536	97.51	In Earth orbit
S47470	2021-006BK	SpaceBEE-45	2021 Jan 24 1610:00	SWARM	US	523	535	97.51	In Earth orbit
S47471	2021-006BL	Flock 4s-12	2021 Jan 24 1601:00	PLABS	US	520	535	97.52	In Earth orbit
S47472	2021-006BM	Flock 4s-13	2021 Jan 24 1601:00	PLABS	US	520	535	97.51	In Earth orbit
S47473	2021-006BN	Flock 4s-35	2021 Jan 24 1607:00	PLABS	US	526	536	97.51	In Earth orbit
S47474	2021-006BP	Flock 4s-8	2021 Jan 24 1600:00	PLABS	US	527	535	97.51	In Earth orbit
S47475	2021-006BQ	Flock 4s-31	2021 Jan 24 1606:00	PLABS	US	525	537	97.50	In Earth orbit
S47476	2021-006BR	Amarok	2021 Jan 24 1559:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47477	2021-006BS	Flock 4s-34	2021 Jan 24 1607:00	PLABS	US	527	535	97.51	In Earth orbit
S47478	2021-006BT	Flock 4s-9	2021 Jan 24 1600:00	PLABS	US	520	535	97.51	In Earth orbit
S47479	2021-006BU	Flock 4s-32	2021 Jan 24 1606:00	PLABS	US	527	535	97.51	In Earth orbit
S47480	2021-006BV	SpaceBEE-43	2021 Jan 24 1610:00	SWARM	US	523	535	97.51	In Earth orbit
S47481	2021-006BW	Capella 4	2021 Jan 24 1614:00	CAPSP	US	514	534	97.51	In Earth orbit
S47482	2021-006BX	PTD 1	2021 Jan 24 1927:00	ARC/TYVAK	US	525	536	97.51	In Earth orbit
S47483	2021-006BY	Prometheus 2.10	2021 Jan 24 1930:00	SOCOM	US	519	536	97.51	In Earth orbit
S47484	2021-006BZ	ARCE 1C	2021 Jan 24 1930:00	USF	US	526	536	97.51	In Earth orbit
S47485	2021-006CA	Izanami	2021 Jan 24 1614:00	QPS	J	514	534	97.51	In Earth orbit
S47486	2021-006CB	SHERPA-FX 1	2021 Jan 24 1616:00	SFLIN	US	515	534	97.51	In Earth orbit
S47487	2021-006CC	Astrocast-0103	2021 Jan 24 1904:00	ACAST	CH	522	536	97.51	In Earth orbit
S47488	2021-006CD	Astrocast-0102	2021 Jan 24 1813:00	ACAST	CH	523	535	97.51	In Earth orbit
S47489	2021-006CE	Capella 3	2021 Jan 24 1614:00	CAPSP	US	514	534	97.51	In Earth orbit
S47490	2021-006CF	Flock 4s-39	2021 Jan 24 1605:00	PLABS	US	523	535	97.51	In Earth orbit
S47491	2021-006CG	Flock 4s-4	2021 Jan 24 1559:00	PLABS	US	519	535	97.51	In Earth orbit
S47492	2021-006CH	Flock 4s-17	2021 Jan 24 1603:00	PLABS	US	522	535	97.52	In Earth orbit
S47493	2021-006CJ	Lemur-2-Mango1	2021 Jan 24 1613:00	SPIRE	US	524	535	97.51	In Earth orbit
S47494	2021-006CK	Flock 4s-3	2021 Jan 24 1559:00	PLABS	US	519	535	97.51	In Earth orbit
S47495	2021-006CL	Flock 4s-27	2021 Jan 24 1604:00	PLABS	US	526	537	97.50	In Earth orbit
S47496	2021-006CM	Flock 4s-18	2021 Jan 24 1603:00	PLABS	US	521	535	97.51	In Earth orbit
S47497	2021-006CN	Flock 4s-26	2021 Jan 24 1604:00	PLABS	US	526	536	97.51	In Earth orbit
S47498	2021-006CP	Flock 4s-2	2021 Jan 24 1559:00	PLABS	US	519	535	97.51	In Earth orbit
S47499	2021-006CQ	Flock 4s-40	2021 Jan 24 1606:00	PLABS	US	523	535	97.51	In Earth orbit
S47500	2021-006CR	Flock 4s-19	2021 Jan 24 1603:00	PLABS	US	520	535	97.51	In Earth orbit
S47501	2021-006CS	Baby Yoda	2021 Jan 24 1600:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47502	2021-006CT	Hawk 2C	2021 Jan 24 1800:00	HE360	US	525	536	97.52	In Earth orbit
S47503	2021-006CU	Daneel	2021 Jan 24 1600:00	KEPLER	CA	525	536	97.52	In Earth orbit
S47504	2021-006CV	ION SVC LAURENTIUS	2021 Jan 24 1616:00	DORBIT	I	515	534	97.51	In Earth orbit
S47505	2021-006CW	Hawk 2A	2021 Jan 24 1800:00	HE360	US	526	535	97.51	In Earth orbit
S47506	2021-006CX	ICEYE-X9	2021 Jan 24 1616:00	ICEYE	FI	523	536	97.51	In Earth orbit
S47507	2021-006CY	XR 1	2021 Jan 24 1608:00	ICEUS/OFX	US	517	535	97.51	In Earth orbit
S47508	2021-006CZ	Hawk 2B	2021 Jan 24 1800:00	HE360	US	526	536	97.52	In Earth orbit
S47509	2021-006DA	Hugo	2021 Jan 24 1608:00	GHG	CA	528	535	97.52	In Earth orbit
S47510	2021-006DB	ICEYE-X8	2021 Jan 24 1614:00	ICEYE	FI	515	534	97.51	In Earth orbit
S47511	2021-006DC	Lemur-2-Ruairi-Elidh	2021 Jan 24 1610:00	SPIRE	US	521	535	97.51	In Earth orbit
S47512	2021-006DD	Flock 4s-38	2021 Jan 24 1604:00	PLABS	US	522	535	97.51	In Earth orbit
S47514	2021-006DE	Flock 4s-28	2021 Jan 24 1606:00	PLABS	US	515	534	97.51	In Earth orbit
S47515	2021-006DF	Flock 4s-5	2021 Jan 24 1600:00	PLABS	US	520	535	97.51	In Earth orbit
S47516	2021-006DG	Flock 4s-16	2021 Jan 24 1602:00	PLABS	US	520	535	97.51	In Earth orbit
S47517	2021-006DH	Astrocast-0105	2021 Jan 24 1904:00	ACAST	CH	526	535	97.51	In Earth orbit
S47518	2021-006DJ	Flock 4s-6	2021 Jan 24 1600:00	PLABS	US	527	535	97.51	In Earth orbit
S47519	2021-006DK	Astrocast-0104	2021 Jan 24 1904:00	ACAST	CH	524	537	97.51	In Earth orbit
S47520	2021-006DL	Flock 4s-29	2021 Jan 24 1606:00	PLABS	US	527	535	97.51	In Earth orbit
S47521	2021-006DM	Flock 4s-15	2021 Jan 24 1602:00	PLABS	US	520	535	97.51	In Earth orbit
S47522	2021-006DN	Flock 4s-37	2021 Jan 24 1604:00	PLABS	US	522	535	97.51	In Earth orbit
S47523	2021-006DP	Flock 4s-10	2021 Jan 24 1601:00	PLABS	US	520	535	97.51	In Earth orbit
S47524	2021-006DQ ?	Littlefoot	2021 Jan 24 1559:00	ARC/CMU	US	528	535	97.52	In Earth orbit
S47525	2021-006DR	Lemur-2-JenniferSong	2021 Jan 24 1612:00	SPIRE	US	522	535	97.51	In Earth orbit
S47526	2021-006DS	Stella	2021 Jan 24 1602:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47527	2021-006DT	Flock 4s-7	2021 Jan 24 1600:00	PLABS	US	527	535	97.51	In Earth orbit
S47528	2021-006DU	Flock 4s-14	2021 Jan 24 1601:00	PLABS	US	520	535	97.51	In Earth orbit
S47529	2021-006DV	Lemur-2-Chantal	2021 Jan 24 1610:00	SPIRE	US	521	535	97.51	In Earth orbit
S47530	2021-006DW	Flock 4s-36	2021 Jan 24 1607:00	PLABS	US	526	536	97.52	In Earth orbit
S47531	2021-006DX	Artemis	2021 Jan 24 1559:00	KEPLER	CA	526	536	97.51	In Earth orbit
S47538	2021-006DY	Lemur-2-NoobNoob	2021 Jan 24 1610:00	SPIRE	US	521	535	97.52	In Earth orbit
S47539	2021-006DZ	Flock 4s-24	2021 Jan 24 1604:00	PLABS	US	521	535	97.51	In Earth orbit

S47540	2021-006EA	Flock 4s-20	2021 Jan 24 1603:00	PLABS	US	521	535	97.51	In Earth orbit
S47541	2021-006EB	Hiber 4	2021 Jan 24 1608:00	HIBER	NL	523	535	97.51	In Earth orbit
S47542	2021-006EC	Flock 4s-25	2021 Jan 24 1604:00	PLABS	US	526	536	97.51	In Earth orbit
S47543	2021-006ED	Flock 4s-1	2021 Jan 24 1559:00	PLABS	US	519	535	97.51	In Earth orbit
S47544	2021-006EE	Flock 4s-30	2021 Jan 24 1606:00	PLABS	US	527	535	97.51	In Earth orbit
S47545	2021-006EF	Flock 4s-23	2021 Jan 24 1604:00	PLABS	US	520	536	97.51	In Earth orbit
S47612	2021-006EQ	Flock 4s-42	2021 Feb 18 0946:00	PLABS	US	520	538	97.51	In Earth orbit
S47615	2021-006EG	ARCE 1B	2021 Jan 24 1930:00	USF	US	522	536	97.51	In Earth orbit
S47616	2021-006EH	ARCE 1A	2021 Jan 24 1930:00	USF	US	522	536	97.51	In Earth orbit
S47617	2021-006EJ	Flock 4s-48	2021 Feb 8 1232:00	PLABS	US	524	536	97.51	In Earth orbit
S47684	2021-006EK	Flock 4s-46	2021 Feb 13 1200:00	PLABS	US	521	533	97.51	In Earth orbit
S47685	2021-006EL	Flock 4s-47	2021 Feb 14 1027:00	PLABS	US	526	537	97.51	In Earth orbit
S47686	2021-006EM	Flock 4s-44	2021 Feb 16 1006:00	PLABS	US	519	537	97.51	In Earth orbit
S47687	2021-006EN	Flock 4s-43	2021 Feb 17 0956:00	PLABS	US	521	533	97.51	In Earth orbit
S47688	2021-006EP	Flock 4s-45	2021 Feb 10 1022:00	PLABS	US	523	541	97.51	In Earth orbit
S47698	2021-006ER	Flock 4s-41	2021 Feb 19 1011:00	PLABS	US	522	539	97.51	In Earth orbit
S48626	2021-006ES	SpaceBEE-65	2021 May 11 0000:00	SWARM	US	511	533	97.26	In Earth orbit
S48627	2021-006ET	SpaceBEE-64	2021 May 11 0000:00	SWARM	US	511	533	97.26	In Earth orbit
S48628	2021-006EU	SpaceBEE-66	2021 May 11 0000:00	SWARM	US	511	533	97.26	In Earth orbit
S48629	2021-006EV	SpaceBEE-67	2021 May 11 0000:00	SWARM	US	511	534	97.26	In Earth orbit
S48630	2021-006EW	SpaceBEE-68	2021 May 11 0000:00	SWARM	US	511	534	97.26	In Earth orbit
S48631	2021-006EX	SpaceBEE-69	2021 May 11 0000:00	SWARM	US	511	534	97.26	In Earth orbit
S48632	2021-006EY	SpaceBEE-70	2021 May 11 0000:00	SWARM	US	511	534	97.26	In Earth orbit
S48633	2021-006EZ	SpaceBEE-71	2021 May 11 0000:00	SWARM	US	511	534	97.26	In Earth orbit
S48634	2021-006FA	SpaceBEE-72	2021 May 11 0000:00	SWARM	US	511	534	97.26	In Earth orbit
S48635	2021-006FB	SpaceBEE-73	2021 May 11 0000:00	SWARM	US	511	535	97.26	In Earth orbit
S48636	2021-006FC	SpaceBEE-74	2021 May 11 0000:00	SWARM	US	511	535	97.26	In Earth orbit
S48637	2021-006FD	SpaceBEE-75	2021 May 11 0000:00	SWARM	US	511	536	97.26	In Earth orbit
S47532	2021-007A	Yaogan 31 hao 02 zu 01 xing	2021 Jan 29 0500:00	ZZB	CN	1091	1096	63.41	In Earth orbit
S47533	2021-007B	Yaogan 31 hao 02 zu 02 xing	2021 Jan 29 0500:00	ZZB	CN	1090	1097	63.41	In Earth orbit
S47536	2021-007E	Yaogan 31 hao 02 zu 03 xing	2021 Jan 29 0500:00	ZZB	CN	1091	1095	63.41	In Earth orbit
S47546	2021-008A	Kosmos-2549	2021 Feb 2 2055:00	KVR	RU	901	909	67.15	In Earth orbit
S47548	2021-009A	Starlink 1782	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47549	2021-009B	Starlink 1806	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47550	2021-009C	Starlink 1909	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47551	2021-009D	Starlink 1938	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47552	2021-009E	Starlink 1940	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47553	2021-009F	Starlink 1951	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47554	2021-009G	Starlink 1953	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47555	2021-009H	Starlink 1954	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47556	2021-009J	Starlink 1955	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47557	2021-009K	Starlink 1956	2021 Feb 4 0724:00	SPXS	US	299	303	53.05	In Earth orbit
S47558	2021-009L	Starlink 1957	2021 Feb 4 0724:00	SPXS	US	298	302	53.05	In Earth orbit
S47559	2021-009M	Starlink 1958	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47560	2021-009N	Starlink 1959	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47561	2021-009P	Starlink 1960	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47562	2021-009Q	Starlink 1961	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47563	2021-009R	Starlink 1962	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47564	2021-009S	Starlink 1963	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47565	2021-009T	Starlink 1964	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47566	2021-009U	Starlink 1965	2021 Feb 4 0724:00	SPXS	US	299	300	53.05	In Earth orbit
S47567	2021-009V	Starlink 1966	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47568	2021-009W	Starlink 1967	2021 Feb 4 0724:00	SPXS	US	301	302	53.05	In Earth orbit
S47569	2021-009X	Starlink 1968	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47570	2021-009Y	Starlink 1969	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47571	2021-009Z	Starlink 1970	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47572	2021-009AA	Starlink 1971	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47573	2021-009AB	Starlink 1975	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47574	2021-009AC	Starlink 1976	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47575	2021-009AD	Starlink 1977	2021 Feb 4 0724:00	SPXS	US	298	304	53.05	In Earth orbit
S47576	2021-009AE	Starlink 1978	2021 Feb 4 0724:00	SPXS	US	298	301	53.05	In Earth orbit
S47577	2021-009AF	Starlink 1979	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47578	2021-009AG	Starlink 1980	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47579	2021-009AH	Starlink 1981	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47580	2021-009AJ	Starlink 1982	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47581	2021-009AK	Starlink 1984	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit

S47582	2021-009AL	Starlink 1986	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47583	2021-009AM	Starlink 1987	2021 Feb 4 0724:00	SPXS	US	298	303	53.05	In Earth orbit
S47584	2021-009AN	Starlink 1988	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47585	2021-009AP	Starlink 1989	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47586	2021-009AQ	Starlink 1990	2021 Feb 4 0724:00	SPXS	US	301	302	53.05	In Earth orbit
S47587	2021-009AR	Starlink 1991	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47588	2021-009AS	Starlink 1993	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47589	2021-009AT	Starlink 1994	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47590	2021-009AU	Starlink 1995	2021 Feb 4 0724:00	SPXS	US	300	303	53.05	In Earth orbit
S47591	2021-009AV	Starlink 1996	2021 Feb 4 0724:00	SPXS	US	298	303	53.05	In Earth orbit
S47592	2021-009AW	Starlink 1997	2021 Feb 4 0724:00	SPXS	US	299	303	53.05	In Earth orbit
S47593	2021-009AX	Starlink 1998	2021 Feb 4 0724:00	SPXS	US	299	303	53.05	In Earth orbit
S47594	2021-009AY	Starlink 1999	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47595	2021-009AZ	Starlink 2000	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47596	2021-009BA	Starlink 2001	2021 Feb 4 0724:00	SPXS	US	300	302	53.05	In Earth orbit
S47597	2021-009BB	Starlink 2002	2021 Feb 4 0724:00	SPXS	US	299	303	53.05	In Earth orbit
S47598	2021-009BC	Starlink 2003	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47599	2021-009BD	Starlink 2004	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47600	2021-009BE	Starlink 2005	2021 Feb 4 0724:00	SPXS	US	298	302	53.05	In Earth orbit
S47601	2021-009BF	Starlink 2006	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47602	2021-009BG	Starlink 2007	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47603	2021-009BH	Starlink 2008	2021 Feb 4 0724:00	SPXS	US	299	303	53.05	In Earth orbit
S47604	2021-009BJ	Starlink 2021	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47605	2021-009BK	Starlink 2023	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47606	2021-009BL	Starlink 2024	2021 Feb 4 0724:00	SPXS	US	300	301	53.05	In Earth orbit
S47607	2021-009BM	Starlink 2025	2021 Feb 4 0724:00	SPXS	US	299	301	53.05	In Earth orbit
S47613	2021-010A	Tongxin Jishu Shiyan 6	2021 Feb 4 1601:00	CASC	CN	35774	35797	1.00	In Earth orbit
S47618	2021-011A	Progress MS-16	2021 Feb 15 0453:00	RKKE	RU	418	422	51.64	Reentered Att to Pirs
S47620	2021-012A	Starlink 1528	2021 Feb 16 0504:00	SPXS	US	283	286	53.05	In Earth orbit
S47621	2021-012B	Starlink 1609	2021 Feb 16 0504:00	SPXS	US	281	287	53.05	In Earth orbit
S47622	2021-012C	Starlink 1645	2021 Feb 16 0504:00	SPXS	US	282	286	53.05	In Earth orbit
S47623	2021-012D	Starlink 1655	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47624	2021-012E	Starlink 1669	2021 Feb 16 0504:00	SPXS	US	259	279	53.05	In Earth orbit
S47625	2021-012F	Starlink 1704	2021 Feb 16 0504:00	SPXS	US	282	287	53.05	In Earth orbit
S47626	2021-012G	Starlink 1761	2021 Feb 16 0504:00	SPXS	US	282	286	53.05	In Earth orbit
S47627	2021-012H	Starlink 1972	2021 Feb 16 0504:00	SPXS	US	256	278	53.05	In Earth orbit
S47628	2021-012J	Starlink 1973	2021 Feb 16 0504:00	SPXS	US	281	287	53.05	In Earth orbit
S47629	2021-012K	Starlink 1974	2021 Feb 16 0504:00	SPXS	US	256	278	53.05	In Earth orbit
S47630	2021-012L	Starlink 1983	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47631	2021-012M	Starlink 1985	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47632	2021-012N	Starlink 1992	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47633	2021-012P	Starlink 2009	2021 Feb 16 0504:00	SPXS	US	281	286	53.05	In Earth orbit
S47634	2021-012Q	Starlink 2010	2021 Feb 16 0504:00	SPXS	US	283	286	53.05	In Earth orbit
S47635	2021-012R	Starlink 2012	2021 Feb 16 0504:00	SPXS	US	255	279	53.05	In Earth orbit
S47636	2021-012S	Starlink 2013	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47637	2021-012T	Starlink 2014	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47638	2021-012U	Starlink 2015	2021 Feb 16 0504:00	SPXS	US	257	279	53.05	In Earth orbit
S47639	2021-012V	Starlink 2016	2021 Feb 16 0504:00	SPXS	US	256	280	53.05	In Earth orbit
S47640	2021-012W	Starlink 2018	2021 Feb 16 0504:00	SPXS	US	282	287	53.05	In Earth orbit
S47641	2021-012X	Starlink 2019	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47642	2021-012Y	Starlink 2020	2021 Feb 16 0504:00	SPXS	US	282	285	53.05	In Earth orbit
S47643	2021-012Z	Starlink 2022	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47644	2021-012AA	Starlink 2026	2021 Feb 16 0504:00	SPXS	US	281	287	53.05	In Earth orbit
S47645	2021-012AB	Starlink 2027	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47646	2021-012AC	Starlink 2028	2021 Feb 16 0504:00	SPXS	US	257	279	53.05	In Earth orbit
S47647	2021-012AD	Starlink 2030	2021 Feb 16 0504:00	SPXS	US	281	287	53.05	In Earth orbit
S47648	2021-012AE	Starlink 2031	2021 Feb 16 0504:00	SPXS	US	258	280	53.05	In Earth orbit
S47649	2021-012AF	Starlink 2032	2021 Feb 16 0504:00	SPXS	US	257	279	53.05	In Earth orbit
S47650	2021-012AG	Starlink 2033	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47651	2021-012AH	Starlink 2035	2021 Feb 16 0504:00	SPXS	US	281	286	53.05	In Earth orbit
S47652	2021-012AJ	Starlink 2036	2021 Feb 16 0504:00	SPXS	US	282	285	53.05	In Earth orbit
S47653	2021-012AK	Starlink 2037	2021 Feb 16 0504:00	SPXS	US	258	280	53.05	In Earth orbit
S47654	2021-012AL	Starlink 2038	2021 Feb 16 0504:00	SPXS	US	281	286	53.05	In Earth orbit
S47655	2021-012AM	Starlink 2039	2021 Feb 16 0504:00	SPXS	US	281	286	53.05	In Earth orbit
S47656	2021-012AN	Starlink 2040	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47657	2021-012AP	Starlink 2041	2021 Feb 16 0504:00	SPXS	US	281	287	53.05	In Earth orbit

S47658	2021-012AQ	Starlink 2042	2021 Feb 16 0504:00	SPXS	US	282	285	53.05	In Earth orbit
S47659	2021-012AR	Starlink 2043	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47660	2021-012AS	Starlink 2044	2021 Feb 16 0504:00	SPXS	US	255	278	53.05	In Earth orbit
S47661	2021-012AT	Starlink 2051	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47662	2021-012AU	Starlink 2052	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47663	2021-012AV	Starlink 2053	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47664	2021-012AW	Starlink 2054	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47665	2021-012AX	Starlink 2056	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47666	2021-012AY	Starlink 2057	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47667	2021-012AZ	Starlink 2058	2021 Feb 16 0504:00	SPXS	US	284	285	53.05	In Earth orbit
S47668	2021-012BA	Starlink 2059	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47669	2021-012BB	Starlink 2060	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47670	2021-012BC	Starlink 2062	2021 Feb 16 0504:00	SPXS	US	258	280	53.05	In Earth orbit
S47671	2021-012BD	Starlink 2064	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47672	2021-012BE	Starlink 2065	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47673	2021-012BF	Starlink 2066	2021 Feb 16 0504:00	SPXS	US	258	280	53.05	In Earth orbit
S47674	2021-012BG	Starlink 2067	2021 Feb 16 0504:00	SPXS	US	257	280	53.05	In Earth orbit
S47675	2021-012BH	Starlink 2078	2021 Feb 16 0504:00	SPXS	US	256	280	53.05	In Earth orbit
S47676	2021-012BJ	Starlink 2083	2021 Feb 16 0504:00	SPXS	US	256	279	53.05	In Earth orbit
S47677	2021-012BK	Starlink 2090	2021 Feb 16 0504:00	SPXS	US	281	288	53.05	In Earth orbit
S47678	2021-012BL	Starlink 2091	2021 Feb 16 0504:00	SPXS	US	255	279	53.05	Reentered
S47679	2021-012BM	Starlink 2095	2021 Feb 16 0504:00	SPXS	US	282	287	53.05	In Earth orbit
S47689	2021-013A	S.S. Katherine Johnson	2021 Feb 20 1745:00	NGIS	US	418	422	51.64	Deorbited
S47924	1998-067SA	Nichirin	2021 Mar 14 1150:00	WARP	J	415	419	51.64	In Earth orbit
S47925	1998-067SB	Selfie-sh	2021 Mar 14 1120:00	RSP	J	415	419	51.64	In Earth orbit
S47926	1998-067SC	TAU-Sat-1	2021 Mar 14 1430:00	TAU	IL	413	420	51.64	In Earth orbit
S47927	1998-067SD	Tsuru	2021 Mar 14 1120:00	KYUT	J	415	419	51.64	In Earth orbit
S47928	1998-067SE	Sanko	2021 Mar 14 1500:00	SHIZ	J	413	421	51.64	In Earth orbit
S47929	1998-067SF	Maya-2	2021 Mar 14 1120:00	DOST	PH	415	419	51.64	In Earth orbit
S47930	1998-067SG	Hirogari	2021 Mar 14 1120:00	OPU/MUKD	J	414	421	51.64	In Earth orbit
S47931	1998-067SH	GuaraniSat	2021 Mar 14 1120:00	AEP	PY	415	419	51.64	In Earth orbit
S47976	1998-067SJ	Lawkanat 1	2021 Mar 22 0830:00	MAEU/HOKK	MYM	416	421	51.64	In Earth orbit
S49013	2021-013C	ORCA-7	2021 Jun 30 1630:00	DARPA	US	492	501	51.64	In Earth orbit
S49014	2021-013D	Gunsmoke-J 2	2021 Jun 30 1500:00	SMDC/TSEPT	US	487	503	51.64	In Earth orbit
S49015	2021-013E	ORCA-6	2021 Jun 30 1630:00	DARPA	US	492	501	51.64	In Earth orbit
S49016	2021-013F	DhabiSat	2021 Jun 29 2250:00	MASDAR	UAE	488	502	51.64	In Earth orbit
S49017	2021-013G	IT-SPINS	2021 Jun 29 2250:00	MSU	US	489	503	51.64	In Earth orbit
A09696	2021-013	ThinSat-2A	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09697	2021-013	ThinSat-2B	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09698	2021-013	ThinSat-2C	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09699	2021-013	ThinSat-2D	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09700	2021-013	ThinSat-2E	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09701	2021-013	ThinSat-2F	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09702	2021-013	ThinSat-2G	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09703	2021-013	ThinSat-2H	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
A09704	2021-013	ThinSat-2I	2021 Feb 20 1750:00	VCSFA	US	182	340	51.64	Reentered
S47691	2021-014A	Yaogan 31 hao 03 zu 01 xing	2021 Feb 24 0235:00	ZZB	CN	1090	1100	63.41	In Earth orbit
S47693	2021-014C	Yaogan 31 hao 03 zu 02 xing	2021 Feb 24 0235:00	ZZB	CN	1089	1098	63.41	In Earth orbit
S47695	2021-014E	Yaogan 31 hao 03 zu 03 xing	2021 Feb 24 0235:00	ZZB	CN	1094	1116	63.41	In Earth orbit
S47699	2021-015A	Amazonia-1	2021 Feb 28 0511:00	INPE	BR	741	757	98.51	In Earth orbit
S47701	2021-015C	NanoConnect-2/SAI-1	2021 Feb 28 0646:00	UNAM/SAIUS	MX	492	507	97.47	In Earth orbit
S47702	2021-015D ?	Sindhu Netra	2021 Feb 28 0645:00	PESU/DRDO	IN	491	506	97.47	In Earth orbit
S47703	2021-015E	SpaceBEE-87	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47704	2021-015F	SpaceBEE-86	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47705	2021-015G	SpaceBEE-85	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47706	2021-015H	SpaceBEE-84	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47707	2021-015J	SpaceBEE-83	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47708	2021-015K	SpaceBEE-82	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47709	2021-015L	SpaceBEE-81	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47710	2021-015M	SpaceBEE-78	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47711	2021-015N	SpaceBEE-76	2021 Feb 28 0648:00	SWARM	US	496	508	97.46	In Earth orbit
S47712	2021-015P	SpaceBEE-80	2021 Feb 28 0648:00	SWARM	US	495	509	97.46	In Earth orbit
S47714	2021-015Q	SpaceBEE-77	2021 Feb 28 0648:00	SWARM	US	494	510	97.46	In Earth orbit
S47715	2021-015R	SpaceBEE-79	2021 Feb 28 0648:00	SWARM	US	495	510	97.47	In Earth orbit
S47716	2021-015S ?	Sri Shakthi Sat	2021 Feb 28 0649:00	SIET	IN	496	509	97.47	In Earth orbit
S47717	2021-015T ?	GHRCEsat	2021 Feb 28 0649:00	GHRCE	IN	496	510	97.47	In Earth orbit

S47718	2021-015U ?	JITsat	2021 Feb 28 0649:00	JIT	IN	496	510	97.46	In Earth orbit
S47721	2021-015V	Satish Dhawan SAT	2021 Feb 28 0645:00	SKI	IN	498	511	97.47	In Earth orbit
S47719	2021-016A ?	Arktika-M No. 1	2021 Feb 28 0905:00	RAKA	RU	1025	39754	63.34	In Earth orbit
S47722	2021-017A	Starlink 2068	2021 Mar 4 0929:00	SPXS	US	259	280	53.05	In Earth orbit
S47723	2021-017B	Starlink 2107	2021 Mar 4 0929:00	SPXS	US	259	280	53.05	In Earth orbit
S47724	2021-017C	Starlink 2116	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47725	2021-017D	Starlink 2125	2021 Mar 4 0929:00	SPXS	US	259	280	53.05	In Earth orbit
S47726	2021-017E	Starlink 2126	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47727	2021-017F	Starlink 2129	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47728	2021-017G	Starlink 2131	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47729	2021-017H	Starlink 2132	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47730	2021-017J	Starlink 2140	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47731	2021-017K	Starlink 2141	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47732	2021-017L	Starlink 2142	2021 Mar 4 0929:00	SPXS	US	259	282	53.05	In Earth orbit
S47733	2021-017M	Starlink 2143	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47734	2021-017N	Starlink 2144	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47735	2021-017P	Starlink 2146	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47736	2021-017Q	Starlink 2147	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47737	2021-017R	Starlink 2148	2021 Mar 4 0929:00	SPXS	US	259	280	53.05	In Earth orbit
S47738	2021-017S	Starlink 2149	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47739	2021-017T	Starlink 2150	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47740	2021-017U	Starlink 2152	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47741	2021-017V	Starlink 2154	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47742	2021-017W	Starlink 2156	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47743	2021-017X	Starlink 2157	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47744	2021-017Y	Starlink 2158	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47745	2021-017Z	Starlink 2159	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47746	2021-017AA	Starlink 2160	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47747	2021-017AB	Starlink 2161	2021 Mar 4 0929:00	SPXS	US	259	280	53.05	In Earth orbit
S47748	2021-017AC	Starlink 2162	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47749	2021-017AD	Starlink 2163	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47750	2021-017AE	Starlink 2164	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47751	2021-017AF	Starlink 2168	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47752	2021-017AG	Starlink 2169	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47753	2021-017AH	Starlink 2170	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47754	2021-017AJ	Starlink 2171	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47755	2021-017AK	Starlink 2172	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47756	2021-017AL	Starlink 2174	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47757	2021-017AM	Starlink 2175	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47758	2021-017AN	Starlink 2176	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47759	2021-017AP	Starlink 2177	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47760	2021-017AQ	Starlink 2178	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47761	2021-017AR	Starlink 2179	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47762	2021-017AS	Starlink 2180	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47763	2021-017AT	Starlink 2181	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47764	2021-017AU	Starlink 2182	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47765	2021-017AV	Starlink 2183	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47766	2021-017AW	Starlink 2184	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47767	2021-017AX	Starlink 2185	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47768	2021-017AY	Starlink 2189	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47769	2021-017AZ	Starlink 2192	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47770	2021-017BA	Starlink 2193	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47771	2021-017BB	Starlink 2194	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47772	2021-017BC	Starlink 2195	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47773	2021-017BD	Starlink 2196	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47774	2021-017BE	Starlink 2197	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47775	2021-017BF	Starlink 2198	2021 Mar 4 0929:00	SPXS	US	261	283	53.05	In Earth orbit
S47776	2021-017BG	Starlink 2209	2021 Mar 4 0929:00	SPXS	US	260	281	53.05	In Earth orbit
S47777	2021-017BH	Starlink 2210	2021 Mar 4 0929:00	SPXS	US	261	282	53.05	In Earth orbit
S47778	2021-017BJ	Starlink 2211	2021 Mar 4 0929:00	SPXS	US	240	269	53.05	In Earth orbit
S47779	2021-017BK	Starlink 2212	2021 Mar 4 0929:00	SPXS	US	260	282	53.05	In Earth orbit
S47780	2021-017BL	Starlink 2213	2021 Mar 4 0929:00	SPXS	US	255	282	53.05	In Earth orbit
S47781	2021-017BM	Starlink 2223	2021 Mar 4 0929:00	SPXS	US	259	281	53.05	In Earth orbit
S47787	2021-018A	Starlink 2257	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47788	2021-018B	Starlink 2314	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47789	2021-018C	Starlink 2315	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit

S47790	2021-018D	Starlink 2319	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47791	2021-018E	Starlink 2322	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47792	2021-018F	Starlink 2334	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47793	2021-018G	Starlink 2338	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47794	2021-018H	Starlink 2341	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47795	2021-018J	Starlink 2347	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47796	2021-018K	Starlink 2373	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47797	2021-018L	Starlink 2377	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47798	2021-018M	Starlink 2379	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47799	2021-018N	Starlink 2380	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47800	2021-018P	Starlink 2381	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47801	2021-018Q	Starlink 2382	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47802	2021-018R	Starlink 2383	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47803	2021-018S	Starlink 2384	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47804	2021-018T	Starlink 2385	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47805	2021-018U	Starlink 2386	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47806	2021-018V	Starlink 2387	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47807	2021-018W	Starlink 2388	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47808	2021-018X	Starlink 2389	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47809	2021-018Y	Starlink 2390	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47810	2021-018Z	Starlink 2391	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47811	2021-018AA	Starlink 2392	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47812	2021-018AB	Starlink 2393	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47813	2021-018AC	Starlink 2394	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47814	2021-018AD	Starlink 2395	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47815	2021-018AE	Starlink 2396	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47816	2021-018AF	Starlink 2399	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47817	2021-018AG	Starlink 2400	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47818	2021-018AH	Starlink 2401	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47819	2021-018AJ	Starlink 2402	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47820	2021-018AK	Starlink 2403	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47821	2021-018AL	Starlink 2406	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47822	2021-018AM	Starlink 2407	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47823	2021-018AN	Starlink 2408	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47824	2021-018AP	Starlink 2409	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47825	2021-018AQ	Starlink 2410	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47826	2021-018AR	Starlink 2411	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47827	2021-018AS	Starlink 2413	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47828	2021-018AT	Starlink 2415	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47829	2021-018AU	Starlink 2416	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47830	2021-018AV	Starlink 2419	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47831	2021-018AW	Starlink 2420	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47832	2021-018AX	Starlink 2422	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47833	2021-018AY	Starlink 2423	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47834	2021-018AZ	Starlink 2424	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47835	2021-018BA	Starlink 2425	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47836	2021-018BB	Starlink 2426	2021 Mar 11 0914:00	SPXS	US	258	279	53.05	In Earth orbit
S47837	2021-018BC	Starlink 2427	2021 Mar 11 0914:00	SPXS	US	258	279	53.05	In Earth orbit
S47838	2021-018BD	Starlink 2429	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47839	2021-018BE	Starlink 2431	2021 Mar 11 0914:00	SPXS	US	258	279	53.05	In Earth orbit
S47840	2021-018BF	Starlink 2432	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47841	2021-018BG	Starlink 2433	2021 Mar 11 0914:00	SPXS	US	258	279	53.05	In Earth orbit
S47842	2021-018BH	Starlink 2434	2021 Mar 11 0914:00	SPXS	US	257	278	53.05	In Earth orbit
S47843	2021-018BJ	Starlink 2435	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47844	2021-018BK	Starlink 2446	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47845	2021-018BL	Starlink 2453	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47846	2021-018BM	Starlink 2456	2021 Mar 11 0914:00	SPXS	US	258	278	53.05	In Earth orbit
S47851	2021-019A	Shiyan 9	2021 Mar 11 1821:00	CAST	CN	473	35828	19.57	In Earth orbit
S47854	2021-020A	Yaogan 31 hao 04 zu 01 xing	2021 Mar 13 0232:00	ZZB	CN	1092	1098	63.41	In Earth orbit
S47856	2021-020C	Yaogan 31 hao 04 zu 02 xing	2021 Mar 13 0232:00	ZZB	CN	1090	1095	63.41	In Earth orbit
S47857	2021-020D	Yaogan 31 hao 04 zu 03 xing	2021 Mar 13 0232:00	ZZB	CN	1090	1096	63.41	In Earth orbit
S47860	2021-021A	Starlink 2258	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47861	2021-021B	Starlink 2280	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47862	2021-021C	Starlink 2291	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47863	2021-021D	Starlink 2293	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47864	2021-021E	Starlink 2304	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit

S47865	2021-021F	Starlink 2310	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47866	2021-021G	Starlink 2320	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47867	2021-021H	Starlink 2321	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47868	2021-021J	Starlink 2323	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47869	2021-021K	Starlink 2324	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47870	2021-021L	Starlink 2326	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47871	2021-021M	Starlink 2327	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47872	2021-021N	Starlink 2328	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47873	2021-021P	Starlink 2329	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47874	2021-021Q	Starlink 2330	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47875	2021-021R	Starlink 2331	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47876	2021-021S	Starlink 2332	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47877	2021-021T	Starlink 2333	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47878	2021-021U	Starlink 2335	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47879	2021-021V	Starlink 2336	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47880	2021-021W	Starlink 2337	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47881	2021-021X	Starlink 2339	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47882	2021-021Y	Starlink 2340	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47883	2021-021Z	Starlink 2342	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47884	2021-021AA	Starlink 2343	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47885	2021-021AB	Starlink 2344	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47886	2021-021AC	Starlink 2345	2021 Mar 14 1106:00	SPXS	US	254	285	53.05	In Earth orbit
S47887	2021-021AD	Starlink 2346	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47888	2021-021AE	Starlink 2348	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47889	2021-021AF	Starlink 2349	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47890	2021-021AG	Starlink 2350	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47891	2021-021AH	Starlink 2351	2021 Mar 14 1106:00	SPXS	US	255	284	53.05	In Earth orbit
S47892	2021-021AJ	Starlink 2352	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47893	2021-021AK	Starlink 2353	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	Reentered
S47894	2021-021AL	Starlink 2354	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47895	2021-021AM	Starlink 2355	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47896	2021-021AN	Starlink 2356	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47897	2021-021AP	Starlink 2357	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47898	2021-021AQ	Starlink 2358	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47899	2021-021AR	Starlink 2359	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47900	2021-021AS	Starlink 2360	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47901	2021-021AT	Starlink 2361	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47902	2021-021AU	Starlink 2362	2021 Mar 14 1106:00	SPXS	US	255	284	53.05	In Earth orbit
S47903	2021-021AV	Starlink 2363	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47904	2021-021AW	Starlink 2364	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47905	2021-021AX	Starlink 2365	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47906	2021-021AY	Starlink 2366	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47907	2021-021AZ	Starlink 2367	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47908	2021-021BA	Starlink 2368	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47909	2021-021BB	Starlink 2369	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47910	2021-021BC	Starlink 2370	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47911	2021-021BD	Starlink 2371	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47912	2021-021BE	Starlink 2372	2021 Mar 14 1106:00	SPXS	US	254	285	53.05	In Earth orbit
S47913	2021-021BF	Starlink 2374	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47914	2021-021BG	Starlink 2375	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47915	2021-021BH	Starlink 2376	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47916	2021-021BJ	Starlink 2378	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47917	2021-021BK	Starlink 2397	2021 Mar 14 1106:00	SPXS	US	254	284	53.05	In Earth orbit
S47918	2021-021BL	Starlink 2398	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47919	2021-021BM	Starlink 2405	2021 Mar 14 1106:00	SPXS	US	255	285	53.05	In Earth orbit
S47932	2021-022A	CAS500-1	2021 Mar 22 0710:00	KARI	KR	494	509	97.40	In Earth orbit
S47933	2021-022B	GRUS 1C	2021 Mar 22 0835:00	AXEL	J	578	605	97.74	In Earth orbit
S47934	2021-022C	GRUS 1B	2021 Mar 22 0835:00	AXEL	J	579	604	97.73	In Earth orbit
S47935	2021-022D	GRUS 1E	2021 Mar 22 0835:00	AXEL	J	579	604	97.73	In Earth orbit
S47936	2021-022E	Suisen	2021 Mar 22 0835:00	FUKUI	J	578	604	97.73	In Earth orbit
S47937	2021-022F ?	SAMSON 1	2021 Mar 22 1030:00	TECN	IL	538	561	97.56	In Earth orbit
S47938	2021-022G ?	PUMBAA	2021 Mar 22 1030:00	YONS	KR	535	558	97.56	In Earth orbit
S47939	2021-022H ?	SAMSON 2	2021 Mar 22 1030:00	TECN	IL	539	559	97.57	In Earth orbit
S47940	2021-022J	DMSat-1	2021 Mar 22 1030:00	MBRSC	UAE	536	564	97.59	In Earth orbit
S47941	2021-022K	WildTrackCube-SIMBA	2021 Mar 22 1030:00	ROSAP/NAIR	I	535	564	97.56	In Earth orbit
S47942	2021-022L	Hiber 3	2021 Mar 22 1030:00	HIBER	NL	534	559	97.56	In Earth orbit

S47943	2021-022M ?	SAMSON 3	2021 Mar 22 1030:00	TECN	IL	537	561	97.56	In Earth orbit
S47944	2021-022N	ELSA-d Chaser	2021 Mar 22 1030:00	ASTSC	J	534	557	97.57	In Earth orbit
S47945	2021-022P	Unisat 7	2021 Mar 22 1030:00	GAUSS	I	535	558	97.56	In Earth orbit
S47947	2021-022R ?	Najm-1	2021 Mar 22 1030:00	KACST	SA	534	558	97.56	In Earth orbit
S47948	2021-022S	LacunaSat 2b	2021 Mar 22 1030:00	LACU/OCOS	UK	535	564	97.56	In Earth orbit
S47949	2021-022T	C3PO	2021 Mar 22 1030:00	KEPLER	CA	536	563	97.56	In Earth orbit
S47950	2021-022U	KMSL	2021 Mar 22 1030:00	CHOSU	KR	536	563	97.56	In Earth orbit
S47951	2021-022V	Sirius-DZZ	2021 Mar 22 1030:00	VSHE/SIROTS	RU	535	557	97.56	In Earth orbit
S47952	2021-022W	NIU VsHE-DZZ	2021 Mar 22 1030:00	VSHE	RU	535	563	97.57	In Earth orbit
S47953	2021-022X ?	BEESAT 8	2021 Mar 22 1030:00	TUB	D	535	556	97.56	In Earth orbit
S47954	2021-022Y	KSU-Cubesat	2021 Mar 22 1030:00	KSU	SA	536	562	97.57	In Earth orbit
S47955	2021-022Z	Rocinante	2021 Mar 22 1030:00	KEPLER	CA	534	563	97.56	In Earth orbit
S47956	2021-022AA	ChallengeOne	2021 Mar 22 1030:00	TELTN	TN	535	564	97.57	In Earth orbit
S47957	2021-022AB ?	BEESAT 6	2021 Mar 22 1030:00	TUB	D	535	562	97.57	In Earth orbit
S47959	2021-022AD	GRB-Alpha	2021 Mar 22 1030:00	TUKE	SK	535	562	97.57	In Earth orbit
S47960	2021-022AE	OrbiKraft-Zorkiy	2021 Mar 22 1030:00	SPUT	RU	535	563	97.57	In Earth orbit
S47961	2021-022AF	3B5GSAT	2021 Mar 22 1030:00	OCOS/STIOT	UK	535	563	97.56	In Earth orbit
S47962	2021-022AG	STECCO	2021 Mar 25 0000:00	ROSAP	I	535	564	97.56	In Earth orbit
S47963	2021-022AH	DIY-OSCAR-111	2021 Mar 25 0000:00	DIYS	AR	533	559	97.56	In Earth orbit
S47964	2021-022AJ	Magyar-OSCAR-106	2021 Mar 25 0000:00	BME	HU	533	559	97.56	In Earth orbit
S48041	2021-022AK	BCCSAT-1	2021 Mar 25 0000:00	BCCT/KMUTNB	T	537	558	97.57	In Earth orbit
S48082	2021-022AL	FEES	2021 Mar 25 0000:00	GPAP	I	537	558	97.56	In Earth orbit
S48083	2021-022AM ?	BEESAT 5	2021 Mar 22 1030:00	TUB	D	535	558	97.56	In Earth orbit
S48084	2021-022AN ?	BEESAT 7	2021 Mar 22 1030:00	TUB	D	535	562	97.56	In Earth orbit
S48085	2021-022AP	NanoSatC-Br 2	2021 Mar 22 1030:00	INPE	BR	534	557	97.56	In Earth orbit
S47965	2021-023A	Veery Hatchling v0.2	2021 Mar 22 2324:00	CAREWX	US	538	558	45.00	In Earth orbit
S47966	2021-023B	Centauri 3	2021 Mar 22 2323:00	FLEET	AU	542	558	45.00	In Earth orbit
S47967	2021-023C	RAAF M2 A	2021 Mar 22 2322:00	RAAF/UNSW	AU	544	559	45.00	In Earth orbit
S47968	2021-023D	Myriota 7	2021 Mar 22 2325:00	MYRI	AU	543	558	45.00	In Earth orbit
S47969	2021-023E	Gunsmoke-J 3	2021 Mar 22 2324:00	SMDC/TSEPT	US	547	558	45.00	In Earth orbit
S47971	2021-023G	Global-9	2021 Mar 23 0019:00	BSKG	US	448	460	45.00	In Earth orbit
S47973	2021-023J	RAAF M2 B	2021 Sep 10 0455:00	RAAF/UNSW	AU	545	558	45.00	In Earth orbit
S47977	2021-024A	Starlink 2087	2021 Mar 24 0931:00	SPXS	US	290	294	53.05	In Earth orbit
S47978	2021-024B	Starlink 1647	2021 Mar 24 0931:00	SPXS	US	291	293	53.05	In Earth orbit
S47979	2021-024C	Starlink 2325	2021 Mar 24 0931:00	SPXS	US	291	293	53.05	In Earth orbit
S47980	2021-024D	Starlink 2312	2021 Mar 24 0931:00	SPXS	US	290	294	53.05	In Earth orbit
S47981	2021-024E	Starlink 2303	2021 Mar 24 0931:00	SPXS	US	290	294	53.05	In Earth orbit
S47982	2021-024F	Starlink 2317	2021 Mar 24 0931:00	SPXS	US	291	293	53.05	In Earth orbit
S47983	2021-024G	Starlink 2289	2021 Mar 24 0931:00	SPXS	US	291	293	53.05	In Earth orbit
S47984	2021-024H	Starlink 2316	2021 Mar 24 0931:00	SPXS	US	289	294	53.05	In Earth orbit
S47985	2021-024J	Starlink 2308	2021 Mar 24 0931:00	SPXS	US	289	294	53.05	In Earth orbit
S47986	2021-024K	Starlink 2313	2021 Mar 24 0931:00	SPXS	US	290	293	53.05	In Earth orbit
S47987	2021-024L	Starlink 2311	2021 Mar 24 0931:00	SPXS	US	291	293	53.05	Reentered
S47988	2021-024M	Starlink 2306	2021 Mar 24 0931:00	SPXS	US	288	295	53.05	In Earth orbit
S47989	2021-024N	Starlink 2305	2021 Mar 24 0931:00	SPXS	US	289	294	53.05	In Earth orbit
S47990	2021-024P	Starlink 2307	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S47991	2021-024Q	Starlink 2279	2021 Mar 24 0931:00	SPXS	US	290	293	53.05	In Earth orbit
S47992	2021-024R	Starlink 2229	2021 Mar 24 0931:00	SPXS	US	290	293	53.05	In Earth orbit
S47993	2021-024S	Starlink 2273	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S47994	2021-024T	Starlink 2290	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S47995	2021-024U	Starlink 2309	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S47996	2021-024V	Starlink 2260	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S47997	2021-024W	Starlink 2266	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S47998	2021-024X	Starlink 2296	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S47999	2021-024Y	Starlink 2218	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S48000	2021-024Z	Starlink 2270	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S48001	2021-024AA	Starlink 2262	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	Reentered
S48002	2021-024AB	Starlink 2265	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48003	2021-024AC	Starlink 2263	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48004	2021-024AD	Starlink 2261	2021 Mar 24 0931:00	SPXS	US	291	292	53.05	In Earth orbit
S48005	2021-024AE	Starlink 2254	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48006	2021-024AF	Starlink 2277	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	Reentered
S48007	2021-024AG	Starlink 2259	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	Reentered
S48008	2021-024AH	Starlink 2271	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48009	2021-024AJ	Starlink 2153	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48010	2021-024AK	Starlink 2226	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit

S48011	2021-024AL	Starlink 2272	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48012	2021-024AM	Starlink 2216	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48013	2021-024AN	Starlink 2243	2021 Mar 24 0931:00	SPXS	US	289	293	53.05	In Earth orbit
S48014	2021-024AP	Starlink 2283	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48015	2021-024AQ	Starlink 2281	2021 Mar 24 0931:00	SPXS	US	288	293	53.05	In Earth orbit
S48016	2021-024AR	Starlink 2284	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48017	2021-024AS	Starlink 2239	2021 Mar 24 0931:00	SPXS	US	290	292	53.05	In Earth orbit
S48018	2021-024AT	Starlink 2282	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48019	2021-024AU	Starlink 2285	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48020	2021-024AV	Starlink 2294	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48021	2021-024AW	Starlink 2301	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48022	2021-024AX	Starlink 2298	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48023	2021-024AY	Starlink 2292	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48024	2021-024AZ	Starlink 2302	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48025	2021-024BA	Starlink 2318	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48026	2021-024BB	Starlink 2278	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48027	2021-024BC	Starlink 2300	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48028	2021-024BD	Starlink 2264	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48029	2021-024BE	Starlink 2299	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48030	2021-024BF	Starlink 2268	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48031	2021-024BG	Starlink 2267	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48032	2021-024BH	Starlink 2297	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48033	2021-024BJ	Starlink 2286	2021 Mar 24 0931:00	SPXS	US	289	291	53.05	In Earth orbit
S48034	2021-024BK	Starlink 2288	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48035	2021-024BL	Starlink 2287	2021 Mar 24 0931:00	SPXS	US	290	291	53.05	In Earth orbit
S48036	2021-024BM	Starlink 2295	2021 Mar 24 0931:00	SPXS	US	289	291	53.05	In Earth orbit
S48042	2021-025A	OneWeb SL0115	2021 Mar 25 0444:00	ONEWEB	UK	440	446	87.40	In Earth orbit
S48043	2021-025B	OneWeb SL0152	2021 Mar 25 0522:00	ONEWEB	UK	442	451	87.40	In Earth orbit
S48044	2021-025C	OneWeb SL0153	2021 Mar 25 0600:00	ONEWEB	UK	445	454	87.40	In Earth orbit
S48045	2021-025D	OneWeb SL0154	2021 Mar 25 0639:00	ONEWEB	UK	449	454	87.40	In Earth orbit
S48046	2021-025E	OneWeb SL0116	2021 Mar 25 0444:00	ONEWEB	UK	441	446	87.40	In Earth orbit
S48047	2021-025F	OneWeb SL0150	2021 Mar 25 0522:00	ONEWEB	UK	442	448	87.40	In Earth orbit
S48048	2021-025G	OneWeb SL0107	2021 Mar 25 0600:00	ONEWEB	UK	444	454	87.40	In Earth orbit
S48049	2021-025H	OneWeb SL0101	2021 Mar 25 0639:00	ONEWEB	UK	450	456	87.40	In Earth orbit
S48050	2021-025J	OneWeb SL0113	2021 Mar 25 0522:00	ONEWEB	UK	442	450	87.40	In Earth orbit
S48051	2021-025K	OneWeb SL0112	2021 Mar 25 0444:00	ONEWEB	UK	442	446	87.40	In Earth orbit
S48052	2021-025L	OneWeb SL0156	2021 Mar 25 0600:00	ONEWEB	UK	444	453	87.40	In Earth orbit
S48053	2021-025M	OneWeb SL0161	2021 Mar 25 0639:00	ONEWEB	UK	449	454	87.40	In Earth orbit
S48054	2021-025N	OneWeb SL0158	2021 Mar 25 0444:00	ONEWEB	UK	440	446	87.40	In Earth orbit
S48055	2021-025P	OneWeb SL0157	2021 Mar 25 0522:00	ONEWEB	UK	442	449	87.40	In Earth orbit
S48056	2021-025Q	OneWeb SL0162	2021 Mar 25 0639:00	ONEWEB	UK	449	455	87.40	In Earth orbit
S48057	2021-025R	OneWeb SL0155	2021 Mar 25 0425:00	ONEWEB	UK	437	446	87.40	In Earth orbit
S48058	2021-025S	OneWeb SL0149	2021 Mar 25 0600:00	ONEWEB	UK	445	454	87.40	In Earth orbit
S48059	2021-025T	OneWeb SL0148	2021 Mar 25 0541:00	ONEWEB	UK	442	452	87.39	In Earth orbit
S48060	2021-025U	OneWeb SL0160	2021 Mar 25 0620:00	ONEWEB	UK	449	454	87.40	In Earth orbit
S48061	2021-025V	OneWeb SL0163	2021 Mar 25 0425:00	ONEWEB	UK	436	446	87.40	In Earth orbit
S48062	2021-025W	OneWeb SL0159	2021 Mar 25 0503:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48063	2021-025X	OneWeb SL0164	2021 Mar 25 0541:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S48064	2021-025Y	OneWeb SL0167	2021 Mar 25 0620:00	ONEWEB	UK	447	454	87.40	In Earth orbit
S48065	2021-025Z	OneWeb SL0166	2021 Mar 25 0425:00	ONEWEB	UK	435	446	87.40	In Earth orbit
S48066	2021-025AA	OneWeb SL0151	2021 Mar 25 0503:00	ONEWEB	UK	442	446	87.40	In Earth orbit
S48067	2021-025AB	OneWeb SL0170	2021 Mar 25 0541:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S48068	2021-025AC	OneWeb SL0168	2021 Mar 25 0620:00	ONEWEB	UK	448	454	87.40	In Earth orbit
S48069	2021-025AD	OneWeb SL0173	2021 Mar 25 0503:00	ONEWEB	UK	442	446	87.40	In Earth orbit
S48070	2021-025AE	OneWeb SL0171	2021 Mar 25 0425:00	ONEWEB	UK	437	446	87.40	In Earth orbit
S48071	2021-025AF	OneWeb SL0172	2021 Mar 25 0503:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48072	2021-025AG	OneWeb SL0174	2021 Mar 25 0405:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48073	2021-025AH	OneWeb SL0175	2021 Mar 25 0620:00	ONEWEB	UK	447	454	87.40	In Earth orbit
S48074	2021-025AJ	OneWeb SL0177	2021 Mar 25 0405:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48075	2021-025AK	OneWeb SL0178	2021 Mar 25 0405:00	ONEWEB	UK	434	445	87.40	In Earth orbit
S48076	2021-025AL	OneWeb SL0108	2021 Mar 25 0405:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48077	2021-025AM	OneWeb SL0169	2021 Mar 25 0541:00	ONEWEB	UK	442	452	87.40	In Earth orbit
S48079	2021-026A	Gao Fen 12-02	2021 Mar 30 2307:00	ZZB	CN	593	599	97.84	In Earth orbit
S48092	2021-027A	Starlink 2048	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48093	2021-027B	Starlink 2404	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48094	2021-027C	Starlink 2412	2021 Apr 7 1737:00	SPXS	US	268	275	53.05	In Earth orbit

S48095	2021-027D	Starlink 2414	2021 Apr 7 1737:00	SPXS	US	269	275	53.05	In Earth orbit
S48096	2021-027E	Starlink 2417	2021 Apr 7 1737:00	SPXS	US	269	275	53.05	In Earth orbit
S48097	2021-027F	Starlink 2418	2021 Apr 7 1737:00	SPXS	US	271	278	53.05	In Earth orbit
S48098	2021-027G	Starlink 2421	2021 Apr 7 1737:00	SPXS	US	269	276	53.05	In Earth orbit
S48099	2021-027H	Starlink 2428	2021 Apr 7 1737:00	SPXS	US	269	276	53.05	In Earth orbit
S48100	2021-027J	Starlink 2430	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48101	2021-027K	Starlink 2436	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48102	2021-027L	Starlink 2437	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48103	2021-027M	Starlink 2438	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48104	2021-027N	Starlink 2439	2021 Apr 7 1737:00	SPXS	US	272	279	53.05	In Earth orbit
S48105	2021-027P	Starlink 2440	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48106	2021-027Q	Starlink 2442	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48107	2021-027R	Starlink 2443	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48108	2021-027S	Starlink 2444	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48109	2021-027T	Starlink 2445	2021 Apr 7 1737:00	SPXS	US	270	277	53.05	In Earth orbit
S48110	2021-027U	Starlink 2447	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48111	2021-027V	Starlink 2448	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48112	2021-027W	Starlink 2449	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48113	2021-027X	Starlink 2450	2021 Apr 7 1737:00	SPXS	US	269	276	53.05	In Earth orbit
S48114	2021-027Y	Starlink 2451	2021 Apr 7 1737:00	SPXS	US	269	276	53.05	In Earth orbit
S48115	2021-027Z	Starlink 2452	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48116	2021-027AA	Starlink 2454	2021 Apr 7 1737:00	SPXS	US	269	275	53.05	In Earth orbit
S48117	2021-027AB	Starlink 2455	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48118	2021-027AC	Starlink 2458	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48119	2021-027AD	Starlink 2459	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48120	2021-027AE	Starlink 2460	2021 Apr 7 1737:00	SPXS	US	268	275	53.05	In Earth orbit
S48121	2021-027AF	Starlink 2462	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48122	2021-027AG	Starlink 2463	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48123	2021-027AH	Starlink 2464	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48124	2021-027AJ	Starlink 2465	2021 Apr 7 1737:00	SPXS	US	271	278	53.05	In Earth orbit
S48125	2021-027AK	Starlink 2466	2021 Apr 7 1737:00	SPXS	US	269	276	53.05	In Earth orbit
S48126	2021-027AL	Starlink 2467	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48127	2021-027AM	Starlink 2468	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48128	2021-027AN	Starlink 2469	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48129	2021-027AP	Starlink 2471	2021 Apr 7 1737:00	SPXS	US	269	275	53.05	In Earth orbit
S48130	2021-027AQ	Starlink 2472	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48131	2021-027AR	Starlink 2473	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48132	2021-027AS	Starlink 2474	2021 Apr 7 1737:00	SPXS	US	269	275	53.05	In Earth orbit
S48133	2021-027AT	Starlink 2475	2021 Apr 7 1737:00	SPXS	US	270	277	53.05	In Earth orbit
S48134	2021-027AU	Starlink 2476	2021 Apr 7 1737:00	SPXS	US	268	275	53.05	In Earth orbit
S48135	2021-027AV	Starlink 2478	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48136	2021-027AW	Starlink 2479	2021 Apr 7 1737:00	SPXS	US	270	277	53.05	In Earth orbit
S48137	2021-027AX	Starlink 2480	2021 Apr 7 1737:00	SPXS	US	272	278	53.05	In Earth orbit
S48138	2021-027AY	Starlink 2481	2021 Apr 7 1737:00	SPXS	US	270	277	53.05	In Earth orbit
S48139	2021-027AZ	Starlink 2482	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48140	2021-027BA	Starlink 2483	2021 Apr 7 1737:00	SPXS	US	269	275	53.05	In Earth orbit
S48141	2021-027BB	Starlink 2484	2021 Apr 7 1737:00	SPXS	US	270	277	53.05	In Earth orbit
S48142	2021-027BC	Starlink 2485	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48143	2021-027BD	Starlink 2486	2021 Apr 7 1737:00	SPXS	US	272	279	53.05	In Earth orbit
S48144	2021-027BE	Starlink 2487	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48145	2021-027BF	Starlink 2488	2021 Apr 7 1737:00	SPXS	US	271	277	53.05	In Earth orbit
S48146	2021-027BG	Starlink 2489	2021 Apr 7 1737:00	SPXS	US	270	277	53.05	In Earth orbit
S48147	2021-027BH	Starlink 2490	2021 Apr 7 1737:00	SPXS	US	268	275	53.05	In Earth orbit
S48148	2021-027BJ	Starlink 2491	2021 Apr 7 1737:00	SPXS	US	269	275	53.05	In Earth orbit
S48149	2021-027BK	Starlink 2492	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48150	2021-027BL	Starlink 2493	2021 Apr 7 1737:00	SPXS	US	272	279	53.05	In Earth orbit
S48151	2021-027BM	Starlink 2503	2021 Apr 7 1737:00	SPXS	US	270	276	53.05	In Earth orbit
S48157	2021-028A	Shiyan 6-03	2021 Apr 8 2313:00	CNSA	CN	989	1001	99.51	In Earth orbit
S48159	2021-029A	Soyuz MS-18	2021 Apr 9 0751:30	RKKE	RU	192	228	51.65	Landed
S48209	2021-030A	Endeavour (SpX Crew-2)	2021 Apr 23 1001:00	SPX	US	414	420	51.64	Landed
S48210	2021-031A	OneWeb SL0176	2021 Apr 26 0010:00	ONEWEB	UK	440	446	87.40	In Earth orbit
S48211	2021-031B	OneWeb SL0184	2021 Apr 26 0049:00	ONEWEB	UK	442	451	87.40	In Earth orbit
S48212	2021-031C	OneWeb SL0179	2021 Apr 26 0127:00	ONEWEB	UK	444	454	87.40	In Earth orbit
S48213	2021-031D	OneWeb SL0180	2021 Apr 26 0205:00	ONEWEB	UK	449	454	87.40	In Earth orbit
S48214	2021-031E	OneWeb SL0218	2021 Apr 25 2332:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48215	2021-031F	OneWeb SL0209	2021 Apr 25 2351:00	ONEWEB	UK	436	446	87.40	In Earth orbit

S48216	2021-031G	OneWeb SL0198	2021 Apr 26 0029:00	ONEWEB	UK	441	446	87.40	In Earth orbit
S48217	2021-031H	OneWeb SL0189	2021 Apr 26 0108:00	ONEWEB	UK	442	452	87.39	In Earth orbit
S48218	2021-031J	OneWeb SL0196	2021 Apr 26 0146:00	ONEWEB	UK	448	454	87.40	In Earth orbit
S48219	2021-031K	OneWeb SL0183	2021 Apr 26 0010:00	ONEWEB	UK	441	446	87.40	In Earth orbit
S48220	2021-031L	OneWeb SL0185	2021 Apr 26 0049:00	ONEWEB	UK	442	450	87.40	In Earth orbit
S48221	2021-031M	OneWeb SL0187	2021 Apr 26 0127:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S48222	2021-031N	OneWeb SL0192	2021 Apr 26 0205:00	ONEWEB	UK	449	455	87.40	In Earth orbit
S48223	2021-031P	OneWeb SL0219	2021 Apr 25 2332:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48224	2021-031Q	OneWeb SL0202	2021 Apr 25 2351:00	ONEWEB	UK	435	446	87.40	In Earth orbit
S48225	2021-031R	OneWeb SL0204	2021 Apr 26 0029:00	ONEWEB	UK	442	446	87.40	In Earth orbit
S48226	2021-031S	OneWeb SL0205	2021 Apr 26 0108:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S48227	2021-031T	OneWeb SL0206	2021 Apr 26 0146:00	ONEWEB	UK	448	454	87.40	In Earth orbit
S48228	2021-031U	OneWeb SL0182	2021 Apr 26 0010:00	ONEWEB	UK	441	446	87.40	In Earth orbit
S48229	2021-031V	OneWeb SL0186	2021 Apr 26 0049:00	ONEWEB	UK	442	449	87.40	In Earth orbit
S48230	2021-031W	OneWeb SL0181	2021 Apr 26 0127:00	ONEWEB	UK	444	454	87.40	In Earth orbit
S48231	2021-031X	OneWeb SL0188	2021 Apr 26 0205:00	ONEWEB	UK	449	456	87.40	In Earth orbit
S48232	2021-031Y	OneWeb SL0220	2021 Apr 25 2332:00	ONEWEB	UK	433	445	87.40	In Earth orbit
S48233	2021-031Z	OneWeb SL0165	2021 Apr 25 2351:00	ONEWEB	UK	436	446	87.40	In Earth orbit
S48234	2021-031AA	OneWeb SL0199	2021 Apr 26 0029:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48235	2021-031AB	OneWeb SL0203	2021 Apr 26 0108:00	ONEWEB	UK	442	453	87.40	In Earth orbit
S48236	2021-031AC	OneWeb SL0197	2021 Apr 26 0146:00	ONEWEB	UK	446	454	87.40	In Earth orbit
S48237	2021-031AD	OneWeb SL0194	2021 Apr 26 0010:00	ONEWEB	UK	439	446	87.40	In Earth orbit
S48238	2021-031AE	OneWeb SL0193	2021 Apr 26 0049:00	ONEWEB	UK	442	449	87.40	In Earth orbit
S48239	2021-031AF	OneWeb SL0191	2021 Apr 26 0127:00	ONEWEB	UK	445	454	87.40	In Earth orbit
S48240	2021-031AG	OneWeb SL0195	2021 Apr 26 0205:00	ONEWEB	UK	449	455	87.40	In Earth orbit
S48241	2021-031AH	OneWeb SL0201	2021 Apr 25 2332:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48242	2021-031AJ	OneWeb SL0207	2021 Apr 25 2351:00	ONEWEB	UK	437	446	87.40	In Earth orbit
S48243	2021-031AK	OneWeb SL0208	2021 Apr 26 0029:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48244	2021-031AL	OneWeb SL0200	2021 Apr 26 0108:00	ONEWEB	UK	442	452	87.40	In Earth orbit
S48245	2021-031AM	OneWeb SL0217	2021 Apr 26 0146:00	ONEWEB	UK	447	454	87.40	In Earth orbit
S48247	2021-032A	USA 314	2021 Apr 26 2102:00	NROC	US	524	758	98.02	In Earth orbit
S48248	2021-033A ?	Qilu-1	2021 Apr 27 0338:00	SDIIT/SHANDZ	CN	496	510	97.40	In Earth orbit
S48249	2021-033B ?	Qilu-4	2021 Apr 27 0338:00	SDIIT/SHANDZ	CN	495	510	97.40	In Earth orbit
S48250	2021-033C ?	Foshan 1	2021 Apr 27 0338:00	JIHUA	CN	494	511	97.40	In Earth orbit
S48251	2021-033D ?	Zhongan Guotong 1	2021 Apr 27 0338:00	ZGWK	CN	495	508	97.40	In Earth orbit
S48252	2021-033E ?	Tianqi Xingzuo 09	2021 Apr 27 0338:00	GUOG	CN	495	508	97.40	In Earth orbit
S48253	2021-033F ?	NEO-1	2021 Apr 27 0338:00	QTK	CN	494	509	97.39	In Earth orbit
S48254	2021-033G ?	Jin Zijing 1-01	2021 Apr 27 0338:00	LINGZ/HKATG	CN	494	508	97.39	In Earth orbit
S48255	2021-033H ?	Jin Zijing 1-02	2021 Apr 27 0338:00	LINGZ/HKATG	CN	494	509	97.39	In Earth orbit
S48256	2021-033J ?	Taijing 2-01	2021 Apr 27 0338:00	WEINA	CN	494	505	97.39	In Earth orbit
S48268	2021-034A	Pleiades Neo 3	2021 Apr 29 0244:00	ADSTI	F	623	626	97.90	In Earth orbit
S48269	2021-034B	Lemur-2-Amanda-Svante	2021 Apr 29 0332:00	SPIRE	US	607	610	97.79	In Earth orbit
S48270	2021-034C	AII-Bravo	2021 Apr 29 0332:00	AUINS/NANAV	US	609	613	97.79	In Earth orbit
S48271	2021-034D	ELO Alpha	2021 Apr 29 0332:00	EUTSA	F	607	614	97.79	In Earth orbit
S48272	2021-034E	NorSat-3	2021 Apr 29 0331:00	NSC	N	609	613	97.79	In Earth orbit
S48273	2021-034F	Lemur-2-SpecialK	2021 Apr 29 0332:00	SPIRE	US	608	612	97.79	In Earth orbit
S48274	2021-035A	Tianhe	2021 Apr 29 0331:00	CMSEO	CN	170	381	41.47	In Earth orbit
S48276	2021-036A	Starlink 2567	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48277	2021-036B	Starlink 2569	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48278	2021-036C	Starlink 2543	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48279	2021-036D	Starlink 2580	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48280	2021-036E	Starlink 2565	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48281	2021-036F	Starlink 2520	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48282	2021-036G	Starlink 2558	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48283	2021-036H	Starlink 2516	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48284	2021-036J	Starlink 2564	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48285	2021-036K	Starlink 2548	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48286	2021-036L	Starlink 2547	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48287	2021-036M	Starlink 2566	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48288	2021-036N	Starlink 2562	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48289	2021-036P	Starlink 2545	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48290	2021-036Q	Starlink 2540	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48291	2021-036R	Starlink 2555	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48292	2021-036S	Starlink 2542	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48293	2021-036T	Starlink 2550	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48294	2021-036U	Starlink 2533	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit

S48295	2021-036V	Starlink 2535	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48296	2021-036W	Starlink 2546	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48297	2021-036X	Starlink 2544	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48298	2021-036Y	Starlink 2559	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48299	2021-036Z	Starlink 2557	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48300	2021-036AA	Starlink 2538	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48301	2021-036AB	Starlink 2537	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48302	2021-036AC	Starlink 2556	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48303	2021-036AD	Starlink 2530	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48304	2021-036AE	Starlink 2524	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48305	2021-036AF	Starlink 2519	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48306	2021-036AG	Starlink 2523	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48307	2021-036AH	Starlink 2528	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48308	2021-036AJ	Starlink 2532	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48309	2021-036AK	Starlink 2517	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48310	2021-036AL	Starlink 2536	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48311	2021-036AM	Starlink 2534	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48312	2021-036AN	Starlink 2061	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48313	2021-036AP	Starlink 2541	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48314	2021-036AQ	Starlink 2549	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48315	2021-036AR	Starlink 2506	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48316	2021-036AS	Starlink 2507	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48317	2021-036AT	Starlink 2513	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48318	2021-036AU	Starlink 2509	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48319	2021-036AV	Starlink 2512	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48320	2021-036AW	Starlink 2029	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48321	2021-036AX	Starlink 2457	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48322	2021-036AY	Starlink 2477	2021 Apr 29 0448:00	SPXS	US	257	282	53.05	In Earth orbit
S48323	2021-036AZ	Starlink 2515	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48324	2021-036BA	Starlink 2527	2021 Apr 29 0448:00	SPXS	US	256	279	53.05	In Earth orbit
S48325	2021-036BB	Starlink 2495	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48326	2021-036BC	Starlink 2498	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48327	2021-036BD	Starlink 2502	2021 Apr 29 0448:00	SPXS	US	257	281	53.05	In Earth orbit
S48328	2021-036BE	Starlink 2504	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48329	2021-036BF	Starlink 2510	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48330	2021-036BG	Starlink 2501	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48331	2021-036BH	Starlink 2514	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48332	2021-036BJ	Starlink 2511	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48333	2021-036BK	Starlink 2518	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48334	2021-036BL	Starlink 2470	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48335	2021-036BM	Starlink 2441	2021 Apr 29 0448:00	SPXS	US	256	281	53.05	In Earth orbit
S48340	2021-037A	Yaogan 34	2021 Apr 30 0740:00	ZZB	CN	1092	1095	63.41	In Earth orbit
S48353	2021-038A	Starlink 2613	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48354	2021-038B	Starlink 2674	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48355	2021-038C	Starlink 2635	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48356	2021-038D	Starlink 2637	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48357	2021-038E	Starlink 2636	2021 May 4 2004:00	SPXS	US	266	278	53.05	In Earth orbit
S48358	2021-038F	Starlink 2624	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48359	2021-038G	Starlink 2628	2021 May 4 2004:00	SPXS	US	266	278	53.05	In Earth orbit
S48360	2021-038H	Starlink 2622	2021 May 4 2004:00	SPXS	US	266	278	53.05	In Earth orbit
S48361	2021-038J	Starlink 2591	2021 May 4 2004:00	SPXS	US	266	278	53.05	In Earth orbit
S48362	2021-038K	Starlink 2578	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48363	2021-038L	Starlink 2626	2021 May 4 2004:00	SPXS	US	265	277	53.05	In Earth orbit
S48364	2021-038M	Starlink 2611	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48365	2021-038N	Starlink 2608	2021 May 4 2004:00	SPXS	US	265	277	53.05	In Earth orbit
S48366	2021-038P	Starlink 2631	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48367	2021-038Q	Starlink 2643	2021 May 4 2004:00	SPXS	US	260	280	53.05	In Earth orbit
S48368	2021-038R	Starlink 2623	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48369	2021-038S	Starlink 2641	2021 May 4 2004:00	SPXS	US	260	280	53.05	In Earth orbit
S48370	2021-038T	Starlink 2621	2021 May 4 2004:00	SPXS	US	260	280	53.05	In Earth orbit
S48371	2021-038U	Starlink 2589	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48372	2021-038V	Starlink 2572	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48373	2021-038W	Starlink 2609	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48374	2021-038X	Starlink 2604	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48375	2021-038Y	Starlink 2603	2021 May 4 2004:00	SPXS	US	265	277	53.05	In Earth orbit
S48376	2021-038Z	Starlink 2610	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit

S48377	2021-038AA	Starlink 2499	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48378	2021-038AB	Starlink 2526	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48379	2021-038AC	Starlink 2612	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48380	2021-038AD	Starlink 2614	2021 May 4 2004:00	SPXS	US	261	276	53.05	In Earth orbit
S48381	2021-038AE	Starlink 2630	2021 May 4 2004:00	SPXS	US	260	276	53.05	In Earth orbit
S48382	2021-038AF	Starlink 2585	2021 May 4 2004:00	SPXS	US	260	276	53.05	In Earth orbit
S48383	2021-038AG	Starlink 2599	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48384	2021-038AH	Starlink 2601	2021 May 4 2004:00	SPXS	US	265	277	53.05	In Earth orbit
S48385	2021-038AJ	Starlink 2598	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48386	2021-038AK	Starlink 2606	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48387	2021-038AL	Starlink 2600	2021 May 4 2004:00	SPXS	US	265	277	53.05	In Earth orbit
S48388	2021-038AM	Starlink 2594	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48389	2021-038AN	Starlink 1904	2021 May 4 2004:00	SPXS	US	265	277	53.05	In Earth orbit
S48390	2021-038AP	Starlink 2586	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48391	2021-038AQ	Starlink 2607	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48392	2021-038AR	Starlink 2605	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48393	2021-038AS	Starlink 2602	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48394	2021-038AT	Starlink 2573	2021 May 4 2004:00	SPXS	US	264	277	53.05	In Earth orbit
S48395	2021-038AU	Starlink 2574	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48396	2021-038AV	Starlink 2575	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48397	2021-038AW	Starlink 2590	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48398	2021-038AX	Starlink 2588	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48399	2021-038AY	Starlink 2587	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48400	2021-038AZ	Starlink 2576	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48401	2021-038BA	Starlink 2571	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48402	2021-038BB	Starlink 2560	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48403	2021-038BC	Starlink 2561	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48404	2021-038BD	Starlink 2593	2021 May 4 2004:00	SPXS	US	259	280	53.05	In Earth orbit
S48405	2021-038BE	Starlink 2570	2021 May 4 2004:00	SPXS	US	262	276	53.05	In Earth orbit
S48406	2021-038BF	Starlink 2568	2021 May 4 2004:00	SPXS	US	262	276	53.05	In Earth orbit
S48407	2021-038BG	Starlink 2595	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48408	2021-038BH	Starlink 2592	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48409	2021-038BJ	Starlink 2596	2021 May 4 2004:00	SPXS	US	262	276	53.05	In Earth orbit
S48410	2021-038BK	Starlink 2563	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48411	2021-038BL	Starlink 2505	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48412	2021-038BM	Starlink 2581	2021 May 4 2004:00	SPXS	US	263	276	53.05	In Earth orbit
S48423	2021-039A	Yaogan 30 hao 08 zu 01 xing	2021 May 6 1823:00	ZZB	CN	591	601	34.99	In Earth orbit
S48424	2021-039B	Yaogan 30 hao 08 zu 02 xing	2021 May 6 1823:00	ZZB	CN	591	601	35.00	In Earth orbit
S48425	2021-039C	Yaogan 30 hao 08 zu 03 xing	2021 May 6 1823:00	ZZB	CN	591	601	35.00	In Earth orbit
S48426	2021-039D	Tianqi Xingzuo 12	2021 May 6 1823:00	GUOG	CN	589	597	35.01	In Earth orbit
S48428	2021-040A	Starlink 2461	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48429	2021-040B	Starlink 2749	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48430	2021-040C	Starlink 2729	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48431	2021-040D	Starlink 2700	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48432	2021-040E	Starlink 2680	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48433	2021-040F	Starlink 2699	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48434	2021-040G	Starlink 2692	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48435	2021-040H	Starlink 2633	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48436	2021-040J	Starlink 2639	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48437	2021-040K	Starlink 2642	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48438	2021-040L	Starlink 2640	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48439	2021-040M	Starlink 2583	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48440	2021-040N	Starlink 2682	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48441	2021-040P	Starlink 2702	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48442	2021-040Q	Starlink 2644	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48443	2021-040R	Starlink 2663	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48444	2021-040S	Starlink 2645	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48445	2021-040T	Starlink 2634	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48446	2021-040U	Starlink 2247	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48447	2021-040V	Starlink 2269	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48448	2021-040W	Starlink 2632	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48449	2021-040X	Starlink 2655	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48450	2021-040Y	Starlink 2660	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48451	2021-040Z	Starlink 2652	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48452	2021-040AA	Starlink 2703	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48453	2021-040AB	Starlink 2620	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit

S48454	2021-040AC	Starlink 2654	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48455	2021-040AD	Starlink 2497	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48456	2021-040AE	Starlink 2508	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48457	2021-040AF	Starlink 2529	2021 May 9 0745:00	SPXS	US	260	279	53.05	Reentered
S48458	2021-040AG	Starlink 2698	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48459	2021-040AH	Starlink 2579	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48460	2021-040AJ	Starlink 2582	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48461	2021-040AK	Starlink 2693	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48462	2021-040AL	Starlink 2683	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48463	2021-040AM	Starlink 2689	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48464	2021-040AN	Starlink 2686	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48465	2021-040AP	Starlink 2681	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48466	2021-040AQ	Starlink 2687	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48467	2021-040AR	Starlink 2659	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48468	2021-040AS	Starlink 2685	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48469	2021-040AT	Starlink 2661	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48470	2021-040AU	Starlink 2675	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48471	2021-040AV	Starlink 2684	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48472	2021-040AW	Starlink 2722	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48473	2021-040AX	Starlink 2658	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48474	2021-040AY	Starlink 2697	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48475	2021-040AZ	Starlink 2619	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48476	2021-040BA	Starlink 2723	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48477	2021-040BB	Starlink 2638	2021 May 9 0745:00	SPXS	US	260	279	53.05	Reentered
S48478	2021-040BC	Starlink 2728	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48479	2021-040BD	Starlink 2755	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48480	2021-040BE	Starlink 2690	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48481	2021-040BF	Starlink 2706	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48482	2021-040BG	Starlink 2525	2021 May 9 0745:00	SPXS	US	259	279	53.05	In Earth orbit
S48483	2021-040BH	Starlink 2531	2021 May 9 0745:00	SPXS	US	259	279	53.05	In Earth orbit
S48484	2021-040BJ	Starlink 2696	2021 May 9 0745:00	SPXS	US	259	279	53.05	In Earth orbit
S48485	2021-040BK	Starlink 2500	2021 May 9 0745:00	SPXS	US	260	279	53.05	In Earth orbit
S48486	2021-040BL	Starlink 2496	2021 May 9 0745:00	SPXS	US	259	279	53.05	In Earth orbit
S48487	2021-040BM	Starlink 2494	2021 May 9 0745:00	SPXS	US	259	279	53.05	In Earth orbit
S48553	2021-041A	Starlink 2063	2021 May 16 0034:00	SPXS	US	565	583	53.04	In Earth orbit
S48554	2021-041B	Starlink 2139	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48555	2021-041C	Starlink 2145	2021 May 16 0034:00	SPXS	US	566	584	53.04	In Earth orbit
S48556	2021-041D	Starlink 2151	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48557	2021-041E	Starlink 2155	2021 May 16 0034:00	SPXS	US	565	583	53.04	In Earth orbit
S48558	2021-041F	Starlink 2166	2021 May 16 0034:00	SPXS	US	565	583	53.04	In Earth orbit
S48559	2021-041G	Starlink 2167	2021 May 16 0034:00	SPXS	US	565	583	53.04	In Earth orbit
S48560	2021-041H	Starlink 2173	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48561	2021-041J	Starlink 2186	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48562	2021-041K	Starlink 2187	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48563	2021-041L	Starlink 2188	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48564	2021-041M	Starlink 2190	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48565	2021-041N	Starlink 2191	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48566	2021-041P	Starlink 2214	2021 May 16 0034:00	SPXS	US	566	585	53.04	In Earth orbit
S48567	2021-041Q	Starlink 2215	2021 May 16 0034:00	SPXS	US	566	584	53.04	In Earth orbit
S48568	2021-041R	Starlink 2217	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48569	2021-041S	Starlink 2219	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48570	2021-041T	Starlink 2220	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48571	2021-041U	Starlink 2221	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48572	2021-041V	Starlink 2222	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48573	2021-041W	Starlink 2224	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48574	2021-041X	Starlink 2225	2021 May 16 0034:00	SPXS	US	564	581	53.04	In Earth orbit
S48575	2021-041Y	Starlink 2227	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48576	2021-041Z	Starlink 2228	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48577	2021-041AA	Starlink 2231	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48578	2021-041AB	Starlink 2232	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48579	2021-041AC	Starlink 2233	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48580	2021-041AD	Starlink 2234	2021 May 16 0034:00	SPXS	US	563	581	53.04	In Earth orbit
S48581	2021-041AE	Starlink 2235	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48582	2021-041AF	Starlink 2236	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48583	2021-041AG	Starlink 2237	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48584	2021-041AH	Starlink 2238	2021 May 16 0034:00	SPXS	US	566	584	53.04	In Earth orbit

S48585	2021-041AJ	Starlink 2240	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48586	2021-041AK	Starlink 2241	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48587	2021-041AL	Starlink 2242	2021 May 16 0034:00	SPXS	US	566	585	53.04	In Earth orbit
S48588	2021-041AM	Starlink 2244	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48589	2021-041AN	Starlink 2245	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48590	2021-041AP	Starlink 2246	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48591	2021-041AQ	Starlink 2248	2021 May 16 0034:00	SPXS	US	565	583	53.04	In Earth orbit
S48592	2021-041AR	Starlink 2249	2021 May 16 0034:00	SPXS	US	566	584	53.04	In Earth orbit
S48593	2021-041AS	Starlink 2250	2021 May 16 0034:00	SPXS	US	566	584	53.04	In Earth orbit
S48594	2021-041AT	Starlink 2251	2021 May 16 0034:00	SPXS	US	563	581	53.04	In Earth orbit
S48595	2021-041AU	Starlink 2252	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48596	2021-041AV	Starlink 2253	2021 May 16 0034:00	SPXS	US	566	584	53.04	In Earth orbit
S48597	2021-041AW	Starlink 2255	2021 May 16 0034:00	SPXS	US	566	584	53.04	In Earth orbit
S48598	2021-041AX	Starlink 2256	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48599	2021-041AY	Starlink 2274	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48600	2021-041AZ	Starlink 2275	2021 May 16 0034:00	SPXS	US	564	582	53.04	In Earth orbit
S48601	2021-041BA	Starlink 2276	2021 May 16 0034:00	SPXS	US	564	582	53.04	Reentered
S48602	2021-041BB	Starlink 2713	2021 May 16 0034:00	SPXS	US	564	581	53.04	In Earth orbit
S48603	2021-041BC	Starlink 2714	2021 May 16 0034:00	SPXS	US	564	581	53.04	In Earth orbit
S48604	2021-041BD	Starlink 2757	2021 May 16 0034:00	SPXS	US	566	583	53.04	In Earth orbit
S48605	2021-041BE	Capella 6	2021 May 15 2356:00	CAPSP	US	566	587	53.04	In Earth orbit
S48606	2021-041BF	Tyvak-0130	2021 May 15 2352:00	TYVAK/LLNL	US	568	586	53.04	In Earth orbit
S48618	2021-042A C	SBIRS GEO-5	2021 May 18 1819:00	USSF	US	896	35733	21.15	In Earth orbit
S48619	2021-042B	TDO 3	2021 May 18 1752:00	SMC/USAFA	US	179	4518	26.16	In Earth orbit
S48620	2021-042C	TDO 4	2021 May 18 1753:00	SMC/USAFA	US	180	4516	26.15	In Earth orbit
S48621	2021-043A	Hai Yang 2-04	2021 May 19 0415:00	GYZ/CASC	CN	927	951	65.90	In Earth orbit
S48638	2021-044A	Starlink 2758	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48639	2021-044B	Starlink 2739	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48640	2021-044C	Starlink 2736	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48641	2021-044D	Starlink 2754	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48642	2021-044E	Starlink 2646	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48643	2021-044F	Starlink 2704	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48644	2021-044G	Starlink 2695	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48645	2021-044H	Starlink 2733	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48646	2021-044J	Starlink 2732	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48647	2021-044K	Starlink 2691	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48648	2021-044L	Starlink 2521	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48649	2021-044M	Starlink 2673	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48650	2021-044N	Starlink 2672	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48651	2021-044P	Starlink 2731	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48652	2021-044Q	Starlink 2727	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48653	2021-044R	Starlink 2720	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48654	2021-044S	Starlink 2651	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48655	2021-044T	Starlink 2657	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48656	2021-044U	Starlink 2701	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48657	2021-044V	Starlink 2734	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48658	2021-044W	Starlink 2647	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48659	2021-044X	Starlink 2717	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48660	2021-044Y	Starlink 2688	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48661	2021-044Z	Starlink 2708	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48662	2021-044AA	Starlink 2726	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48663	2021-044AB	Starlink 2667	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48664	2021-044AC	Starlink 2709	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48665	2021-044AD	Starlink 2653	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48666	2021-044AE	Starlink 2666	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48667	2021-044AF	Starlink 2735	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48668	2021-044AG	Starlink 2738	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48669	2021-044AH	Starlink 2707	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48670	2021-044AJ	Starlink 2763	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48671	2021-044AK	Starlink 2745	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48672	2021-044AL	Starlink 2705	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48673	2021-044AM	Starlink 2711	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48674	2021-044AN	Starlink 2712	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48675	2021-044AP	Starlink 2737	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48676	2021-044AQ	Starlink 2746	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48677	2021-044AR	Starlink 2719	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit

S48678	2021-044AS	Starlink 2615	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48679	2021-044AT	Starlink 2648	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48680	2021-044AU	Starlink 2649	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48681	2021-044AV	Starlink 2725	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48682	2021-044AW	Starlink 2743	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48683	2021-044AX	Starlink 2756	2021 May 26 2002:00	SPXS	US	258	281	53.05	In Earth orbit
S48684	2021-044AY	Starlink 2741	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48685	2021-044AZ	Starlink 2751	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48686	2021-044BA	Starlink 2629	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48687	2021-044BB	Starlink 2627	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48688	2021-044BC	Starlink 2742	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48689	2021-044BD	Starlink 2617	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48690	2021-044BE	Starlink 2740	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48691	2021-044BF	Starlink 2750	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48692	2021-044BG	Starlink 2752	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48693	2021-044BH	Starlink 2618	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48694	2021-044BJ	Starlink 2748	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48695	2021-044BK	Starlink 2616	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48696	2021-044BL	Starlink 2753	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48697	2021-044BM	Starlink 2715	2021 May 26 2002:00	SPXS	US	257	281	53.05	In Earth orbit
S48767	2021-045A	OneWeb SL0211	2021 May 28 1935:00	ONEWEB	UK	440	446	87.40	In Earth orbit
S48768	2021-045B	OneWeb SL0223	2021 May 28 1857:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48769	2021-045C	OneWeb SL0230	2021 May 28 2130:00	ONEWEB	UK	444	451	87.40	In Earth orbit
S48770	2021-045D	OneWeb SL0237	2021 May 28 2032:00	ONEWEB	UK	438	449	87.40	In Earth orbit
S48771	2021-045E	OneWeb SL0235	2021 May 28 2111:00	ONEWEB	UK	444	450	87.40	In Earth orbit
S48772	2021-045F	OneWeb SL0242	2021 May 28 1916:00	ONEWEB	UK	436	446	87.40	In Earth orbit
S48773	2021-045G	OneWeb SL0241	2021 May 28 1954:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48774	2021-045H	OneWeb SL0243	2021 May 28 2032:00	ONEWEB	UK	439	449	87.40	In Earth orbit
S48775	2021-045J	OneWeb SL0222	2021 May 28 1916:00	ONEWEB	UK	435	445	87.40	In Earth orbit
S48776	2021-045K	OneWeb SL0244	2021 May 28 1954:00	ONEWEB	UK	442	446	87.40	In Earth orbit
S48777	2021-045L	OneWeb SL0247	2021 May 28 1954:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48778	2021-045M	OneWeb SL0245	2021 May 28 2032:00	ONEWEB	UK	438	449	87.40	In Earth orbit
S48779	2021-045N	OneWeb SL0229	2021 May 28 1935:00	ONEWEB	UK	441	446	87.40	In Earth orbit
S48780	2021-045P	OneWeb SL0228	2021 May 28 2013:00	ONEWEB	UK	442	450	87.40	In Earth orbit
S48781	2021-045Q	OneWeb SL0232	2021 May 28 2052:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S48782	2021-045R	OneWeb SL0231	2021 May 28 1935:00	ONEWEB	UK	439	446	87.40	In Earth orbit
S48783	2021-045S	OneWeb SL0234	2021 May 28 2013:00	ONEWEB	UK	442	449	87.40	In Earth orbit
S48784	2021-045T	OneWeb SL0238	2021 May 28 1916:00	ONEWEB	UK	436	446	87.40	In Earth orbit
S48785	2021-045U	OneWeb SL0240	2021 May 28 1954:00	ONEWEB	UK	441	446	87.40	In Earth orbit
S48786	2021-045V	OneWeb SL0246	2021 May 28 2111:00	ONEWEB	UK	443	449	87.40	In Earth orbit
S48787	2021-045W	OneWeb SL0210	2021 May 28 2013:00	ONEWEB	UK	442	450	87.40	In Earth orbit
S48788	2021-045X	OneWeb SL0214	2021 May 28 2130:00	ONEWEB	UK	444	450	87.40	In Earth orbit
S48789	2021-045Y	OneWeb SL0221	2021 May 28 1857:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48790	2021-045Z	OneWeb SL0213	2021 May 28 1857:00	ONEWEB	UK	434	445	87.40	In Earth orbit
S48791	2021-045AA	OneWeb SL0212	2021 May 28 1857:00	ONEWEB	UK	433	445	87.40	In Earth orbit
S48792	2021-045AB	OneWeb SL0227	2021 May 28 2013:00	ONEWEB	UK	442	448	87.40	In Earth orbit
S48793	2021-045AC	OneWeb SL0226	2021 May 28 2052:00	ONEWEB	UK	444	453	87.40	In Earth orbit
S48794	2021-045AD	OneWeb SL0224	2021 May 28 2130:00	ONEWEB	UK	444	452	87.40	In Earth orbit
S48795	2021-045AE	OneWeb SL0233	2021 May 28 2130:00	ONEWEB	UK	444	451	87.40	In Earth orbit
S48796	2021-045AF	OneWeb SL0190	2021 May 28 2052:00	ONEWEB	UK	445	453	87.40	In Earth orbit
S48797	2021-045AG	OneWeb SL0236	2021 May 28 2111:00	ONEWEB	UK	443	450	87.40	In Earth orbit
S48798	2021-045AH	OneWeb SL0248	2021 May 28 1916:00	ONEWEB	UK	437	446	87.40	In Earth orbit
S48799	2021-045AJ	OneWeb SL0225	2021 May 28 1935:00	ONEWEB	UK	440	446	87.40	In Earth orbit
S48800	2021-045AK	OneWeb SL0215	2021 May 28 2052:00	ONEWEB	UK	445	454	87.40	In Earth orbit
S48801	2021-045AL	OneWeb SL0216	2021 May 28 2111:00	ONEWEB	UK	442	449	87.40	In Earth orbit
S48802	2021-045AM	OneWeb SL0239	2021 May 28 2032:00	ONEWEB	UK	439	450	87.40	In Earth orbit
S48803	2021-046A	Tianzhou-2	2021 May 29 1305:00	CMSEO	CN	387	377	41.47	Attached to Tianhe
S48808	2021-047A	Feng Yun 4B	2021 Jun 2 1642:00	NSMC	CN	35780	35782	0.08	In Earth orbit
S48831	2021-048A	Dragon CRS-22	2021 Jun 3 1740:00	SPX	US	192	211	51.64	Landed
S48850	1998-067SL	RamSat	2021 Jun 14 0505:00	ROBMS	US	414	421	51.64	In Earth orbit
S48851	1998-067SM	SOAR	2021 Jun 14 0505:00	MANU	UK	414	421	51.64	In Earth orbit
S48867	1998-067SN	G-SATELLITE 2	2021 Jun 22 1230:00	OTEAM/TOK	J	415	419	51.64	In Earth orbit
S48868	1998-067SP	MirSat-OSCAR-112	2021 Jun 22 1055:00	MRIC	MU	415	419	51.64	In Earth orbit
S48838	2021-049A	SXM-8	2021 Jun 6 0457:00	SIRX	US	18449	35759	4.20	In Earth orbit
S48840	2021-050A ?	Beijing-3	2021 Jun 11 0314:00	21AT	CN	487	502	97.51	In Earth orbit
S48841	2021-050B ?	Yangwang 1	2021 Jun 11 0314:00	QTK	CN	487	502	97.51	In Earth orbit

S48842	2021-050C ?	Haisi-2	2021 Jun 11 0314:00	XIAM	CN	487	502	97.51	In Earth orbit
S48843	2021-050D ?	Tianjian	2021 Jun 11 0314:00	HTGC	CN	488	503	97.51	In Earth orbit
S48844	2021-051A	Odyssey	2021 Jun 13 0822:00	SMC	US	405	450	97.48	In Earth orbit
S48846	2021-052A C	USA 316	2021 Jun 15 1346:00	NROC	US	589	604	55.00	In Earth orbit
S48847	2021-052B C	USA 317	2021 Jun 15 1346:00	NROC	US	589	602	55.00	In Earth orbit
S48848	2021-052C C	USA 318	2021 Jun 15 1346:00	NROC	US	589	603	55.00	In Earth orbit
S48852	2021-053A	Shenzhou 12	2021 Jun 17 0132:00	CMSEO	CN	193	486	41.35	Landed
S48859	2021-054A	GPS III SV05	2021 Jun 17 1738:00	SMC	US	20168	20198	54.99	In Earth orbit
S48860	2021-055A	Yaogan 30 hao 09 zu 01 xing	2021 Jun 18 0642:00	ZZB	CN	592	601	35.00	In Earth orbit
S48861	2021-055B	Yaogan 30 hao 09 zu 02 xing	2021 Jun 18 0642:00	ZZB	CN	591	602	34.99	In Earth orbit
S48863	2021-055D	Yaogan 30 hao 09 zu 03 xing	2021 Jun 18 0642:00	ZZB	CN	590	601	35.00	In Earth orbit
S48864	2021-055E	Jiaxing	2021 Jun 18 0642:00	GUOG	CN	587	599	35.01	In Earth orbit
S48865	2021-056A	Kosmos-2550	2021 Jun 25 2000:00	VKSR	RU	194	465	67.14	In Earth orbit
S48869	2021-057A	Progress MS-17	2021 Jun 29 2336:00	RKKE	RU	282	382	51.65	Deorbited
S48872	2021-058B	MARTA	2021 Jun 30 1530:00	SATRV	PL	495	525	60.69	In Earth orbit
S48873	2021-058C	STORK 4	2021 Jun 30 1530:00	SATRV	PL	495	522	60.69	In Earth orbit
S48874	2021-058D	CNCE 3	2021 Jun 30 1527:00	MDA	US	494	521	60.69	In Earth orbit
S48875	2021-058E	CNCE 1	2021 Jun 30 1527:00	MDA	US	494	521	60.69	In Earth orbit
S48876	2021-058F	Brik-II	2021 Jun 30 1530:00	RNAF	NL	495	521	60.70	In Earth orbit
S48877	2021-058G	Halo-NET Free Flyer	2021 Jun 30 1527:00	SPAWAR	US	494	521	60.69	In Earth orbit
S48878	2021-058H	Gunsmoke-J 4	2021 Jun 30 1527:00	SMDC/TSEPT	US	494	521	60.69	In Earth orbit
S48879	2021-059A	Starlink 3003	2021 Jun 30 2058:00	SPXS	US	515	536	97.51	In Earth orbit
S48880	2021-059B	Starlink 3004	2021 Jun 30 2058:00	SPXS	US	514	535	97.51	In Earth orbit
S48881	2021-059C	Starlink 3005	2021 Jun 30 2058:00	SPXS	US	514	535	97.51	In Earth orbit
S48882	2021-059D	SpaceBEE NZ-10	2021 Jun 30 2038:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48883	2021-059E	SpaceBEE-100	2021 Jun 30 2038:00	SWARM	US	517	535	97.51	In Earth orbit
S48884	2021-059F	SpaceBEE-101	2021 Jun 30 2038:00	SWARM	US	519	535	97.51	In Earth orbit
S48885	2021-059G	Lemur-2 Jackson	2021 Jun 30 2300:00	SPIRE	US	512	536	97.51	In Earth orbit
S48886	2021-059H	SpaceBEE-102	2021 Jun 30 2038:00	SWARM	US	513	539	97.51	In Earth orbit
S48887	2021-059J	SpaceBEE NZ-9	2021 Jun 30 2038:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48888	2021-059K	SpaceBEE-103	2021 Jun 30 2038:00	SWARM	US	515	536	97.51	In Earth orbit
S48889	2021-059L	SpaceBEE NZ-7	2021 Jun 30 2038:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48890	2021-059M	SpaceBEE-104	2021 Jun 30 2038:00	SWARM	US	514	536	97.51	In Earth orbit
S48891	2021-059N	SpaceBEE NZ-8	2021 Jun 30 2038:00	SWARNZ	NZ	512	536	97.51	In Earth orbit
S48892	2021-059P	EG-3	2021 Jun 30 2029:00	ECHOAU	AU	521	535	97.50	In Earth orbit
S48893	2021-059Q	SpaceBEE-106	2021 Jun 30 2038:00	SWARM	US	514	535	97.52	In Earth orbit
S48894	2021-059R	SpaceBEE-107	2021 Jun 30 2038:00	SWARM	US	513	537	97.51	In Earth orbit
S48895	2021-059S	SpaceBEE-108	2021 Jun 30 2038:00	SWARM	US	514	535	97.51	In Earth orbit
S48896	2021-059T	SpaceBEE-105	2021 Jun 30 2038:00	SWARM	US	513	537	97.51	In Earth orbit
S48897	2021-059U	SpaceBEE-109	2021 Jun 30 2038:00	SWARM	US	514	536	97.51	In Earth orbit
S48898	2021-059V	Centauri 4	2021 Jun 30 2031:00	FLEET	AU	521	536	97.51	In Earth orbit
S48899	2021-059W	SpaceBEE-110	2021 Jun 30 2038:00	SWARM	US	512	536	97.51	In Earth orbit
S48900	2021-059X	TUBIN	2021 Jun 30 2031:00	TUB	D	522	536	97.52	In Earth orbit
S48901	2021-059Y	TROPICS Pathfinder	2021 Jun 30 2029:00	MIT/GSFC	US	524	536	97.51	In Earth orbit
S48902	2021-059Z	LINCS 1	2021 Jun 30 2035:00	GACO/SDA	US	521	536	97.51	In Earth orbit
S48903	2021-059AA	LINCS 2	2021 Jun 30 2032:00	GACO/SDA	US	521	536	97.51	In Earth orbit
S48904	2021-059AB	SpaceBEE-111	2021 Jun 30 2038:00	SWARM	US	512	536	97.51	In Earth orbit
S48905	2021-059AC	Rosalind	2021 Jun 30 2028:00	URUGUS	UY	524	536	97.51	In Earth orbit
S48906	2021-059AD	Umbra-SAR 2001	2021 Jun 30 2031:00	UMBRA	US	522	535	97.51	In Earth orbit
S48907	2021-059AE	Mandrake 2A	2021 Jun 30 2035:00	SDA/DARPA	US	522	536	97.51	In Earth orbit
S48908	2021-059AF	Mandrake 2B	2021 Jun 30 2040:00	SDA/DARPA	US	522	536	97.51	In Earth orbit
S48909	2021-059AG	PACE-1	2021 Jun 30 2028:00	ARC	US	524	536	97.51	In Earth orbit
S48910	2021-059AH	GNOMES-2	2021 Jun 30 2029:00	PLANQ	US	522	536	97.51	In Earth orbit
S48911	2021-059AJ	YAM-2	2021 Jun 30 2038:00	LOFT	US	523	536	97.52	In Earth orbit
S48912	2021-059AK	ION SVC03 Dauntless David	2021 Jun 30 2031:00	DORBIT	I	524	536	97.51	In Earth orbit
S48913	2021-059AL	Capella 5	2021 Jun 30 2033:00	CAPSP	US	521	536	97.52	In Earth orbit
S48914	2021-059AM	ICEYE-X12	2021 Jun 30 2030:00	ICEYE	FI	523	536	97.52	In Earth orbit
S48915	2021-059AN	YAM-3	2021 Jun 30 2031:00	LOFT	US	522	536	97.51	In Earth orbit
S48916	2021-059AP	ICEYE-X13	2021 Jun 30 2033:00	ICEYE	FI	523	536	97.51	In Earth orbit
S48917	2021-059AQ	ICEYE-X15	2021 Jun 30 2036:00	ICEYE	FI	523	536	97.52	In Earth orbit
S48918	2021-059AR	ICEYE-X11	2021 Jun 30 2029:00	ICEYE	FI	523	536	97.52	In Earth orbit
S48919	2021-059AS	Sofya	2021 Jun 30 2038:00	URUGUS	UY	523	536	97.52	In Earth orbit
S48920	2021-059AT	Elisa	2021 Jun 30 2033:00	URUGUS	UY	523	536	97.51	In Earth orbit
S48921	2021-059AU	Grace	2021 Jun 30 2033:00	URUGUS	UY	523	536	97.52	In Earth orbit
S48922	2021-059AV	D2/AtlaCom-1	2021 Jun 30 2038:00	NANAV	LT	524	536	97.51	In Earth orbit
S48923	2021-059AW	Lemur-2 AnnaBanana	2021 Jun 30 2300:00	SPIRE	US	512	535	97.51	In Earth orbit

S48924	2021-059AX	Faraday Phoenix	2021 Jun 30 2300:00	INSPM	UK	513	532	97.51	In Earth orbit
S48925	2021-059AY	Lemur-2 John-Treires	2021 Jun 30 2038:00	SPIRE	US	524	536	97.51	In Earth orbit
S48926	2021-059AZ	KSF1-B	2021 Jun 30 2300:00	KLEOS	L	513	535	97.51	In Earth orbit
S48927	2021-059BA	Lemur-2 AC-Cubed	2021 Jun 30 2300:00	SPIRE	US	512	533	97.51	In Earth orbit
S48928	2021-059BB	PAINANI-2	2021 Jun 30 2300:00	SEDENA	MX	532	537	97.49	In Earth orbit
S48929	2021-059BC	Lemur-2 Merima	2021 Jun 30 2038:00	SPIRE	US	524	536	97.52	In Earth orbit
S48930	2021-059BD	KSF1-A	2021 Jun 30 2300:00	KLEOS	L	513	534	97.51	In Earth orbit
S48931	2021-059BE	Hawk 3B	2021 Jun 30 2300:00	HE360	US	512	535	97.51	In Earth orbit
S48932	2021-059BF	SpaceBEE-92	2021 Jun 30 2038:00	SWARM	US	519	536	97.51	In Earth orbit
S48933	2021-059BG	SpaceBEE-89	2021 Jun 30 2038:00	SWARM	US	520	536	97.51	In Earth orbit
S48934	2021-059BH	SpaceBEE-96	2021 Jun 30 2038:00	SWARM	US	519	536	97.51	In Earth orbit
S48935	2021-059BJ	SpaceBEE-88	2021 Jun 30 2038:00	SWARM	US	520	536	97.52	In Earth orbit
S48936	2021-059BK	SpaceBEE-97	2021 Jun 30 2038:00	SWARM	US	519	536	97.51	In Earth orbit
S48937	2021-059BL	SpaceBEE-94	2021 Jun 30 2038:00	SWARM	US	519	536	97.51	In Earth orbit
S48938	2021-059BM	Shannon	2021 Jun 30 2300:00	LYNK	US	512	536	97.51	In Earth orbit
S48939	2021-059BN	SpaceBEE-93	2021 Jun 30 2038:00	SWARM	US	520	535	97.51	In Earth orbit
S48940	2021-059BP	SpaceBEE-91	2021 Jun 30 2038:00	SWARM	US	520	535	97.51	In Earth orbit
S48941	2021-059BQ	SHERPA-LTE 1	2021 Jun 30 2052:00	SFLIN	US	524	536	97.51	In Earth orbit
S48942	2021-059BR	KSF1-C	2021 Jun 30 2300:00	KLEOS	L	512	534	97.51	In Earth orbit
S48943	2021-059BS	QMR-KWT	2021 Jul 16 0000:00	ORBSKW	KW	519	533	97.51	In Earth orbit
S48944	2021-059BT	Ayan-21	2021 Jun 30 2300:00	OQTR	RW	513	535	97.51	In Earth orbit
S48945	2021-059BU	SpaceBEE-95	2021 Jun 30 2038:00	SWARM	US	519	536	97.51	In Earth orbit
S48946	2021-059BV	SpaceBEE-99	2021 Jun 30 2038:00	SWARM	US	518	535	97.51	In Earth orbit
S48947	2021-059BW	SpaceBEE-90	2021 Jun 30 2038:00	SWARM	US	520	535	97.51	In Earth orbit
S48948	2021-059BX	Hawk 3C	2021 Jun 30 2300:00	HE360	US	512	535	97.51	In Earth orbit
S48949	2021-059BY	SpaceBEE-98	2021 Jun 30 2038:00	SWARM	US	519	535	97.51	In Earth orbit
S48950	2021-059BZ	KSF1-D	2021 Jun 30 2300:00	KLEOS	L	513	533	97.51	In Earth orbit
S48951	2021-059CA	Tanker-001 Tenzing	2021 Jun 30 2300:00	ADIG/OFAB	US	512	536	97.51	In Earth orbit
S48952	2021-059CB	Astrocast-0204	2021 Jun 30 2300:00	ACAST	CH	513	536	97.51	In Earth orbit
S48953	2021-059CC	Arthur	2021 Jun 30 2300:00	ASPLB	B	512	535	97.52	In Earth orbit
S48954	2021-059CD	Astrocast-0201	2021 Jun 30 2300:00	ACAST	CH	512	535	97.52	In Earth orbit
S48955	2021-059CE	Astrocast-0203	2021 Jun 30 2300:00	ACAST	CH	511	536	97.51	In Earth orbit
S48956	2021-059CF	Shasta	2021 Jun 30 2300:00	ADIG/ORBSK	US	514	535	97.51	In Earth orbit
S48957	2021-059CG	Hawk 3A	2021 Jun 30 2300:00	HE360	US	513	534	97.51	In Earth orbit
S48958	2021-059CH	SHERPA-FX 2	2021 Jun 30 2052:00	SFLIN	US	524	536	97.51	In Earth orbit
S48959	2021-059CJ	Lemur-2 CarlSantaMari	2021 Jun 30 2300:00	SPIRE	US	512	535	97.51	In Earth orbit
S48960	2021-059CK	Astrocast-0205	2021 Jun 30 2300:00	ACAST	CH	513	535	97.51	In Earth orbit
S48961	2021-059CL	Astrocast-0202	2021 Jun 30 2300:00	ACAST	CH	511	536	97.51	In Earth orbit
S48962	2021-059CM	Ghalib	2021 Jul 16 0000:00	MARINT	UAE	520	533	97.51	In Earth orbit
S48963	2021-059CN	NAPA-2	2021 Jul 18 0000:00	RTAF	T	519	540	97.51	In Earth orbit
S48964	2021-059CP	SPARTAN	2021 Jul 21 0000:00	ENDUR	BGN	519	532	97.51	In Earth orbit
S48965	2021-059CQ	W-Cube	2021 Jul 22 0000:00	REAKT	FI	519	539	97.51	In Earth orbit
S48966	2021-059CR	Neptuno	2021 Jul 24 0000:00	ELDEC	E	519	533	97.50	In Earth orbit
S48967	2021-060A	OneWeb SL0249	2021 Jul 1 1445:00	ONEWEB	UK	441	447	87.40	In Earth orbit
S48968	2021-060B	OneWeb SL0250	2021 Jul 1 1523:00	ONEWEB	UK	442	449	87.40	In Earth orbit
S48969	2021-060C	OneWeb SL0251	2021 Jul 1 1601:00	ONEWEB	UK	444	454	87.40	In Earth orbit
S48970	2021-060D	OneWeb SL0252	2021 Jul 1 1426:00	ONEWEB	UK	436	446	87.40	In Earth orbit
S48971	2021-060E	OneWeb SL0253	2021 Jul 1 1640:00	ONEWEB	UK	450	456	87.40	In Earth orbit
S48972	2021-060F	OneWeb SL0254	2021 Jul 1 1601:00	ONEWEB	UK	444	454	87.40	In Earth orbit
S48973	2021-060G	OneWeb SL0255	2021 Jul 1 1445:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48974	2021-060H	OneWeb SL0256	2021 Jul 1 1542:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S48975	2021-060J	OneWeb SL0257	2021 Jul 1 1523:00	ONEWEB	UK	442	450	87.40	In Earth orbit
S48976	2021-060K	OneWeb SL0258	2021 Jul 1 1640:00	ONEWEB	UK	449	455	87.40	In Earth orbit
S48977	2021-060L	OneWeb SL0259	2021 Jul 1 1426:00	ONEWEB	UK	435	446	87.40	In Earth orbit
S48978	2021-060M	OneWeb SL0260	2021 Jul 1 1640:00	ONEWEB	UK	450	455	87.40	In Earth orbit
S48979	2021-060N	OneWeb SL0261	2021 Jul 1 1426:00	ONEWEB	UK	436	446	87.40	In Earth orbit
S48980	2021-060P	OneWeb SL0262	2021 Jul 1 1445:00	ONEWEB	UK	439	447	87.40	In Earth orbit
S48981	2021-060Q	OneWeb SL0263	2021 Jul 1 1523:00	ONEWEB	UK	442	450	87.40	In Earth orbit
S48982	2021-060R	OneWeb SL0264	2021 Jul 1 1601:00	ONEWEB	UK	445	455	87.40	In Earth orbit
S48983	2021-060S	OneWeb SL0265	2021 Jul 1 1504:00	ONEWEB	UK	442	446	87.40	In Earth orbit
S48984	2021-060T	OneWeb SL0266	2021 Jul 1 1542:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S48985	2021-060U	OneWeb SL0267	2021 Jul 1 1621:00	ONEWEB	UK	448	455	87.40	In Earth orbit
S48986	2021-060V	OneWeb SL0268	2021 Jul 1 1621:00	ONEWEB	UK	448	455	87.40	In Earth orbit
S48987	2021-060W	OneWeb SL0269	2021 Jul 1 1504:00	ONEWEB	UK	442	448	87.40	In Earth orbit
S48988	2021-060X	OneWeb SL0270	2021 Jul 1 1406:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S48989	2021-060Y	OneWeb SL0271	2021 Jul 1 1621:00	ONEWEB	UK	446	455	87.40	In Earth orbit

S48990	2021-060Z	OneWeb SL0272	2021 Jul 1 1504:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S48991	2021-060AA	OneWeb SL0273	2021 Jul 1 1542:00	ONEWEB	UK	443	454	87.40	In Earth orbit
S48992	2021-060AB	OneWeb SL0274	2021 Jul 1 1445:00	ONEWEB	UK	440	447	87.40	In Earth orbit
S48993	2021-060AC	OneWeb SL0275	2021 Jul 1 1621:00	ONEWEB	UK	447	455	87.40	In Earth orbit
S48994	2021-060AD	OneWeb SL0276	2021 Jul 1 1523:00	ONEWEB	UK	442	451	87.40	In Earth orbit
S48995	2021-060AE	OneWeb SL0277	2021 Jul 1 1601:00	ONEWEB	UK	445	454	87.40	In Earth orbit
S48996	2021-060AF	OneWeb SL0278	2021 Jul 1 1406:00	ONEWEB	UK	433	445	87.40	In Earth orbit
S48997	2021-060AG	OneWeb SL0279	2021 Jul 1 1542:00	ONEWEB	UK	442	452	87.40	In Earth orbit
S48998	2021-060AH	OneWeb SL0280	2021 Jul 1 1640:00	ONEWEB	UK	449	454	87.40	In Earth orbit
S48999	2021-060AJ	OneWeb SL0281	2021 Jul 1 1426:00	ONEWEB	UK	437	447	87.40	In Earth orbit
S49000	2021-060AK	OneWeb SL0282	2021 Jul 1 1406:00	ONEWEB	UK	434	445	87.40	In Earth orbit
S49001	2021-060AL	OneWeb SL0283	2021 Jul 1 1406:00	ONEWEB	UK	434	445	87.40	In Earth orbit
S49002	2021-060AM	OneWeb SL0284	2021 Jul 1 1504:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S49003	2021-061A ?	Neimenggu 1	2021 Jul 3 0302:00	CGSTL	CN	530	545	97.54	In Earth orbit
S49004	2021-061B ?	Jilin-1 GaoFen 03D 01 xing	2021 Jul 3 0302:00	CGSTL	CN	528	543	97.54	In Earth orbit
S49005	2021-061C ?	Jilin-1 GaoFen 03D 02 xing	2021 Jul 3 0302:00	CGSTL	CN	529	544	97.54	In Earth orbit
S49006	2021-061D ?	Jilin-1 GaoFen 03D 03 xing	2021 Jul 3 0302:00	CGSTL	CN	528	544	97.54	In Earth orbit
S49007	2021-061E ?	Guangdong Hengjian	2021 Jul 3 0302:00	GUOX	CN	528	544	97.54	In Earth orbit
S49008	2021-062A	Feng Yun 3E	2021 Jul 4 2348:00	NSMC	CN	781	820	98.69	In Earth orbit
S49011	2021-063A	Tian Lian 1-05	2021 Jul 6 1618:00	CAST	CN	35779	35791	2.93	In Earth orbit
S49018	2021-064A	Zhongzi 02 zu 01 xing	2021 Jul 9 1211:00	NINGX/CASC	CN	857	866	45.00	In Earth orbit
S49019	2021-064B	Zhongzi 02 zu 02 xing	2021 Jul 9 1211:00	NINGX/CASC	CN	856	866	45.00	In Earth orbit
S49020	2021-064C	Zhongzi 02 zu 03 xing	2021 Jul 9 1211:00	NINGX/CASC	CN	855	866	45.00	In Earth orbit
S49021	2021-064D	Zhongzi 02 zu 04 xing	2021 Jul 9 1211:00	NINGX/CASC	CN	854	867	45.00	In Earth orbit
S49022	2021-064E	Zhongzi 02 zu 05 xing	2021 Jul 9 1211:00	NINGX/CASC	CN	853	866	45.00	In Earth orbit
S49026	2021-065A	Yaogan 30 hao 10 zu 01 xing	2021 Jul 19 0031:00	ZZB	CN	591	601	34.99	In Earth orbit
S49027	2021-065B	Ruijin	2021 Jul 19 0031:00	GUOG	CN	587	599	35.00	In Earth orbit
S49028	2021-065C	Yaogan 30 hao 10 zu 02 xing	2021 Jul 19 0031:00	ZZB	CN	591	601	34.99	In Earth orbit
S49029	2021-065D	Yaogan 30 hao 10 zu 03 xing	2021 Jul 19 0031:00	ZZB	CN	591	601	34.99	In Earth orbit
S49044	2021-066A	Nauka	2021 Jul 21 1508:00	RKKE	RU	224	362	51.58	In Earth orbit
A09890	2021-U01	CZ Orbital RV	2021 Jul 27 0000:00	PLA	CN	150	200	137.00	Deorbited
S49049	2021-067A	Tianhui 1-04	2021 Jul 29 0412:00	GCDX	CN	487	503	97.48	In Earth orbit
S49052	2021-068A	Monolith	2021 Jul 29 0700:00	STP	US	598	609	37.02	In Earth orbit
S49055	2021-069A	Star One D2	2021 Jul 30 2128:00	STONE	BR	35709	35793	0.09	In Earth orbit
S49056	2021-069B	Eutelsat Quantum	2021 Jul 30 2136:00	EUTSA	F	35728	35772	0.06	In Earth orbit
S49059	2021-070A	KL-Beta-A	2021 Aug 4 1118:00	KLEO	D	899	907	88.99	In Earth orbit
S49060	2021-070B	KL-Beta-B	2021 Aug 4 1118:00	KLEO	D	899	907	88.99	In Earth orbit
S49062	2021-071A	Zhongxing 2E	2021 Aug 5 1655:00	ZZB	CN	35783	35790	0.29	In Earth orbit
S49064	2021-072A	S.S. Ellison Onizuka	2021 Aug 10 2210:00	NGIS	US	216	336	51.63	Deorbited
S49066	2021-073A	BRO-4	2021 Aug 17 0331:00	UNSEEN	F	522	561	97.56	In Earth orbit
S49067	2021-073B	RADCUBE	2021 Aug 17 0332:00	CERHU/C3S	HU	526	563	97.56	In Earth orbit
S49068	2021-073C	Sunstorm	2021 Aug 17 0331:00	REAKT/ESA	FI	526	563	97.56	In Earth orbit
S49069	2021-073D	LEDSAT	2021 Aug 17 0331:00	ROSAP	I	526	563	97.56	In Earth orbit
S49070	2021-073E	Pleiades Neo 4	2021 Aug 17 0241:00	ADSTI	F	615	617	97.90	In Earth orbit
S49071	2021-074A	Tianhui-2 02-01	2021 Aug 18 2245:00	GCDX	CN	492	506	97.44	In Earth orbit
S49072	2021-074B	Tianhui-2 02-02	2021 Aug 18 2245:00	GCDX	CN	496	506	97.45	In Earth orbit
S49075	2021-075A	OneWeb SL0285	2021 Aug 22 0042:00	ONEWEB	UK	443	466	87.40	In Earth orbit
S49076	2021-075B	OneWeb SL0286	2021 Aug 22 0003:00	ONEWEB	UK	440	465	87.40	In Earth orbit
S49077	2021-075C	OneWeb SL0287	2021 Aug 22 0158:00	ONEWEB	UK	450	473	87.40	In Earth orbit
S49078	2021-075D	OneWeb SL0288	2021 Aug 22 0003:00	ONEWEB	UK	440	465	87.40	In Earth orbit
S49079	2021-075E	OneWeb SL0289	2021 Aug 22 0120:00	ONEWEB	UK	444	472	87.40	In Earth orbit
S49080	2021-075F	OneWeb SL0290	2021 Aug 22 0120:00	ONEWEB	UK	445	473	87.40	In Earth orbit
S49081	2021-075G	OneWeb SL0291	2021 Aug 22 0042:00	ONEWEB	UK	444	467	87.40	In Earth orbit
S49082	2021-075H	OneWeb SL0293	2021 Aug 22 0120:00	ONEWEB	UK	444	472	87.40	In Earth orbit
S49083	2021-075J	OneWeb SL0294	2021 Aug 21 2344:00	ONEWEB	UK	437	464	87.40	In Earth orbit
S49084	2021-075K	OneWeb SL0295	2021 Aug 22 0158:00	ONEWEB	UK	449	473	87.40	In Earth orbit
S49085	2021-075L	OneWeb SL0296	2021 Aug 22 0003:00	ONEWEB	UK	438	465	87.40	In Earth orbit
S49086	2021-075M	OneWeb SL0297	2021 Aug 22 0042:00	ONEWEB	UK	444	466	87.40	In Earth orbit
S49087	2021-075N	OneWeb SL0298	2021 Aug 22 0101:00	ONEWEB	UK	444	470	87.40	In Earth orbit
S49088	2021-075P	OneWeb SL0299	2021 Aug 22 0158:00	ONEWEB	UK	449	473	87.40	In Earth orbit
S49089	2021-075Q	OneWeb SL0300	2021 Aug 22 0022:00	ONEWEB	UK	441	465	87.40	In Earth orbit
S49090	2021-075R	OneWeb SL0301	2021 Aug 21 2344:00	ONEWEB	UK	437	464	87.40	In Earth orbit
S49091	2021-075S	OneWeb SL0302	2021 Aug 21 2344:00	ONEWEB	UK	436	463	87.40	In Earth orbit
S49092	2021-075T	OneWeb SL0304	2021 Aug 22 0139:00	ONEWEB	UK	448	473	87.40	In Earth orbit
S49093	2021-075U	OneWeb SL0305	2021 Aug 22 0101:00	ONEWEB	UK	443	470	87.40	In Earth orbit
S49094	2021-075V	OneWeb SL0308	2021 Aug 22 0003:00	ONEWEB	UK	439	465	87.40	In Earth orbit

S49095	2021-075W	OneWeb SL0309	2021 Aug 22 0139:00	ONEWEB	UK	446	473	87.40	In Earth orbit
S49096	2021-075X	OneWeb SL0310	2021 Aug 22 0022:00	ONEWEB	UK	442	465	87.40	In Earth orbit
S49097	2021-075Y	OneWeb SL0311	2021 Aug 22 0042:00	ONEWEB	UK	444	467	87.40	In Earth orbit
S49098	2021-075Z	OneWeb SL0312	2021 Aug 22 0120:00	ONEWEB	UK	444	472	87.40	In Earth orbit
S49099	2021-075AA	OneWeb SL0313	2021 Aug 22 0101:00	ONEWEB	UK	444	469	87.40	In Earth orbit
S49100	2021-075AB	OneWeb SL0314	2021 Aug 22 0158:00	ONEWEB	UK	448	474	87.39	In Earth orbit
S49101	2021-075AC	OneWeb SL0315	2021 Aug 22 0022:00	ONEWEB	UK	443	465	87.40	In Earth orbit
S49102	2021-075AD	OneWeb SL0316	2021 Aug 21 2325:00	ONEWEB	UK	436	460	87.40	In Earth orbit
S49103	2021-075AE	OneWeb SL0317	2021 Aug 22 0022:00	ONEWEB	UK	443	465	87.40	In Earth orbit
S49104	2021-075AF	OneWeb SL0318	2021 Aug 21 2325:00	ONEWEB	UK	436	460	87.40	In Earth orbit
S49105	2021-075AG	OneWeb SL0319	2021 Aug 22 0101:00	ONEWEB	UK	444	471	87.40	In Earth orbit
S49106	2021-075AH	OneWeb SL0323	2021 Aug 21 2344:00	ONEWEB	UK	436	463	87.40	In Earth orbit
S49107	2021-075AJ	OneWeb SL0329	2021 Aug 22 0139:00	ONEWEB	UK	447	473	87.40	In Earth orbit
S49108	2021-075AK	OneWeb SL0330	2021 Aug 22 0139:00	ONEWEB	UK	446	473	87.40	In Earth orbit
S49112	2021-076A	Ronghe Shiyan Weixing 1	2021 Aug 24 1215:00	CAST	CN	1085	1106	86.40	In Earth orbit
S49113	2021-076B	Test satellite	2021 Aug 24 1215:00	CAST	CN	1084	1108	86.40	In Earth orbit
S49114	2021-076C	Ronghe Shiyan Weixing 2	2021 Aug 24 1215:00	CAST	CN	1085	1111	86.40	In Earth orbit
S49115	2021-077A	Tongxin Jishu Shiyan 7	2021 Aug 24 1605:00	CASC	CN	35780	35791	1.00	In Earth orbit
S49117	2021-078A	Dragon CRS-23	2021 Aug 29 0726:00	SPX	US	209	240	51.66	Landed
S49272	1998-067SR	Binar-1	2021 Oct 6 0920:00	CURTIN	AU	413	421	51.64	In Earth orbit
S49273	1998-067SS	Maya-3	2021 Oct 6 0920:00	DOST/UPD	PH	414	421	51.64	In Earth orbit
S49274	1998-067ST	Maya-4	2021 Oct 6 0920:00	DOST/UPD	PH	413	421	51.64	In Earth orbit
S49275	1998-067SU	CUAVA-1	2021 Oct 6 1055:00	USYD/UNSW	AU	414	419	51.64	In Earth orbit
S49276	1998-067SV	CAPSat	2021 Oct 12 1100:00	UIUC	US	419	423	51.64	In Earth orbit
S49277	1998-067SW ?	PR-CuNaR2	2021 Oct 12 1230:00	UIPRB	PR	419	423	51.64	In Earth orbit
S49278	1998-067SX ?	SPACE HAUC	2021 Oct 12 1230:00	UMAL	US	419	423	51.64	In Earth orbit
S49122	2021-079A	Gao Fen 5-02	2021 Sep 7 0323:00	GWHYZ	CN	688	695	98.28	In Earth orbit
S49125	2021-080A	Zhongxing 9B	2021 Sep 9 1215:00	CHISAE	CN	35768	35804	0.06	In Earth orbit
S49127	2021-081A	Kosmos-2551	2021 Sep 9 2008:00	MORF	RU	294	307	96.34	Reentered
S49131	2021-082B	Starlink 3096	2021 Sep 14 0411:00	SPXS	US	228	334	70.00	In Earth orbit
S49132	2021-082C	Starlink 3090	2021 Sep 14 0411:00	SPXS	US	226	334	70.00	In Earth orbit
S49133	2021-082D	Starlink 3077	2021 Sep 14 0411:00	SPXS	US	227	335	70.00	In Earth orbit
S49134	2021-082E	Starlink 3078	2021 Sep 14 0411:00	SPXS	US	242	333	70.00	In Earth orbit
S49135	2021-082F	Starlink 3073	2021 Sep 14 0411:00	SPXS	US	241	334	70.00	In Earth orbit
S49136	2021-082G	Starlink 3084	2021 Sep 14 0411:00	SPXS	US	242	334	70.00	In Earth orbit
S49137	2021-082H	Starlink 3055	2021 Sep 14 0411:00	SPXS	US	241	334	70.00	In Earth orbit
S49138	2021-082J	Starlink 3058	2021 Sep 14 0411:00	SPXS	US	227	334	70.00	In Earth orbit
S49139	2021-082K	Starlink 3057	2021 Sep 14 0411:00	SPXS	US	241	334	70.00	In Earth orbit
S49140	2021-082L	Starlink 3118	2021 Sep 14 0411:00	SPXS	US	224	335	70.00	In Earth orbit
S49141	2021-082M	Starlink 3093	2021 Sep 14 0411:00	SPXS	US	224	334	70.00	In Earth orbit
S49142	2021-082N	Starlink 3042	2021 Sep 14 0411:00	SPXS	US	226	334	70.00	In Earth orbit
S49143	2021-082P	Starlink 3109	2021 Sep 14 0411:00	SPXS	US	226	333	70.00	In Earth orbit
S49144	2021-082Q	Starlink 3100	2021 Sep 14 0411:00	SPXS	US	223	334	70.00	In Earth orbit
S49145	2021-082R	Starlink 3119	2021 Sep 14 0411:00	SPXS	US	222	334	70.00	In Earth orbit
S49146	2021-082S	Starlink 3116	2021 Sep 14 0411:00	SPXS	US	239	333	70.00	In Earth orbit
S49147	2021-082T	Starlink 3071	2021 Sep 14 0411:00	SPXS	US	240	333	70.00	In Earth orbit
S49148	2021-082U	Starlink 3048	2021 Sep 14 0411:00	SPXS	US	225	333	70.00	In Earth orbit
S49149	2021-082V	Starlink 3053	2021 Sep 14 0411:00	SPXS	US	225	333	70.00	In Earth orbit
S49150	2021-082W	Starlink 3104	2021 Sep 14 0411:00	SPXS	US	221	334	70.00	In Earth orbit
S49151	2021-082X	Starlink 3102	2021 Sep 14 0411:00	SPXS	US	239	333	70.00	In Earth orbit
S49152	2021-082Y	Starlink 3081	2021 Sep 14 0411:00	SPXS	US	238	332	70.00	In Earth orbit
S49153	2021-082Z	Starlink 3072	2021 Sep 14 0411:00	SPXS	US	238	333	70.00	In Earth orbit
S49154	2021-082AA	Starlink 3068	2021 Sep 14 0411:00	SPXS	US	238	332	70.00	In Earth orbit
S49155	2021-082AB	Starlink 3060	2021 Sep 14 0411:00	SPXS	US	221	334	70.00	In Earth orbit
S49156	2021-082AC	Starlink 3085	2021 Sep 14 0411:00	SPXS	US	237	332	70.00	In Earth orbit
S49157	2021-082AD	Starlink 3051	2021 Sep 14 0411:00	SPXS	US	237	332	70.00	In Earth orbit
S49158	2021-082AE	Starlink 3083	2021 Sep 14 0411:00	SPXS	US	233	332	70.00	In Earth orbit
S49159	2021-082AF	Starlink 3056	2021 Sep 14 0411:00	SPXS	US	223	333	70.00	In Earth orbit
S49160	2021-082AG	Starlink 3095	2021 Sep 14 0411:00	SPXS	US	219	333	70.00	In Earth orbit
S49161	2021-082AH	Starlink 3080	2021 Sep 14 0411:00	SPXS	US	237	333	70.00	In Earth orbit
S49162	2021-082AJ	Starlink 3082	2021 Sep 14 0411:00	SPXS	US	232	332	70.00	In Earth orbit
S49163	2021-082AK	Starlink 3088	2021 Sep 14 0411:00	SPXS	US	236	333	70.00	In Earth orbit
S49164	2021-082AL	Starlink 3106	2021 Sep 14 0411:00	SPXS	US	220	333	70.00	In Earth orbit
S49165	2021-082AM	Starlink 3052	2021 Sep 14 0411:00	SPXS	US	218	334	70.00	In Earth orbit
S49166	2021-082AN	Starlink 3089	2021 Sep 14 0411:00	SPXS	US	221	333	70.00	In Earth orbit
S49167	2021-082AP	Starlink 3054	2021 Sep 14 0411:00	SPXS	US	232	332	70.00	In Earth orbit

S49168	2021-082AQ	Starlink 3101	2021 Sep 14 0411:00	SPXS	US	216	333	70.00	In Earth orbit
S49169	2021-082AR	Starlink 3046	2021 Sep 14 0411:00	SPXS	US	220	333	70.00	In Earth orbit
S49170	2021-082AS	Starlink 3074	2021 Sep 14 0411:00	SPXS	US	219	333	70.00	In Earth orbit
S49171	2021-082AT	Starlink 3107	2021 Sep 14 0411:00	SPXS	US	219	334	70.00	In Earth orbit
S49172	2021-082AU	Starlink 3091	2021 Sep 14 0411:00	SPXS	US	210	338	70.00	In Earth orbit
S49173	2021-082AV	Starlink 3045	2021 Sep 14 0411:00	SPXS	US	211	335	70.00	In Earth orbit
S49174	2021-082AW	Starlink 3047	2021 Sep 14 0411:00	SPXS	US	219	333	70.00	In Earth orbit
S49175	2021-082AX	Starlink 3087	2021 Sep 14 0411:00	SPXS	US	233	332	70.00	In Earth orbit
S49176	2021-082AY	Starlink 3069	2021 Sep 14 0411:00	SPXS	US	229	332	70.00	In Earth orbit
S49177	2021-082AZ	Starlink 3103	2021 Sep 14 0411:00	SPXS	US	229	331	70.00	In Earth orbit
S49178	2021-082BA	Starlink 3086	2021 Sep 14 0411:00	SPXS	US	215	332	70.00	In Earth orbit
S49179	2021-082BB	Starlink 3043	2021 Sep 14 0411:00	SPXS	US	233	332	70.00	In Earth orbit
S49180	2021-082BC	Starlink 3050	2021 Sep 14 0411:00	SPXS	US	218	332	70.00	In Earth orbit
S49181	2021-082BD	Starlink 3059	2021 Sep 14 0411:00	SPXS	US	217	332	70.00	In Earth orbit
S49186	2021-083A	OneWeb SL0292	2021 Sep 14 1957:00	ONEWEB	UK	440	465	87.40	In Earth orbit
S49187	2021-083B	OneWeb SL0303	2021 Sep 14 2152:00	ONEWEB	UK	450	473	87.40	In Earth orbit
S49188	2021-083C	OneWeb SL0306	2021 Sep 14 2113:00	ONEWEB	UK	445	472	87.40	In Earth orbit
S49189	2021-083D	OneWeb SL0307	2021 Sep 14 2035:00	ONEWEB	UK	444	465	87.40	In Earth orbit
S49190	2021-083E	OneWeb SL0320	2021 Sep 14 2152:00	ONEWEB	UK	451	473	87.40	In Earth orbit
S49191	2021-083F	OneWeb SL0321	2021 Sep 14 1957:00	ONEWEB	UK	439	465	87.40	In Earth orbit
S49192	2021-083G	OneWeb SL0322	2021 Sep 14 1957:00	ONEWEB	UK	441	465	87.40	In Earth orbit
S49193	2021-083H	OneWeb SL0324	2021 Sep 14 2133:00	ONEWEB	UK	447	473	87.40	In Earth orbit
S49194	2021-083J	OneWeb SL0325	2021 Sep 14 2152:00	ONEWEB	UK	450	473	87.40	In Earth orbit
S49195	2021-083K	OneWeb SL0326	2021 Sep 14 2113:00	ONEWEB	UK	444	471	87.40	In Earth orbit
S49196	2021-083L	OneWeb SL0327	2021 Sep 14 2113:00	ONEWEB	UK	445	473	87.40	In Earth orbit
S49197	2021-083M	OneWeb SL0328	2021 Sep 14 2016:00	ONEWEB	UK	442	465	87.40	In Earth orbit
S49198	2021-083N	OneWeb SL0331	2021 Sep 14 2133:00	ONEWEB	UK	446	473	87.40	In Earth orbit
S49199	2021-083P	OneWeb SL0333	2021 Sep 14 2016:00	ONEWEB	UK	443	465	87.40	In Earth orbit
S49200	2021-083Q	OneWeb SL0334	2021 Sep 14 1938:00	ONEWEB	UK	437	463	87.40	In Earth orbit
S49201	2021-083R	OneWeb SL0335	2021 Sep 14 2054:00	ONEWEB	UK	444	470	87.40	In Earth orbit
S49202	2021-083S	OneWeb SL0336	2021 Sep 14 2035:00	ONEWEB	UK	445	467	87.40	In Earth orbit
S49203	2021-083T	OneWeb SL0337	2021 Sep 14 2054:00	ONEWEB	UK	444	471	87.40	In Earth orbit
S49204	2021-083U	OneWeb SL0338	2021 Sep 14 1957:00	ONEWEB	UK	440	465	87.40	In Earth orbit
S49205	2021-083V	OneWeb SL0339	2021 Sep 14 2035:00	ONEWEB	UK	444	466	87.40	In Earth orbit
S49206	2021-083W	OneWeb SL0340	2021 Sep 14 2152:00	ONEWEB	UK	449	473	87.40	In Earth orbit
S49207	2021-083X	OneWeb SL0341	2021 Sep 14 2133:00	ONEWEB	UK	448	473	87.40	In Earth orbit
S49208	2021-083Y	OneWeb SL0342	2021 Sep 14 1938:00	ONEWEB	UK	437	463	87.40	In Earth orbit
S49209	2021-083Z	OneWeb SL0343	2021 Sep 14 2113:00	ONEWEB	UK	445	472	87.40	In Earth orbit
S49210	2021-083AA	OneWeb SL0344	2021 Sep 14 2054:00	ONEWEB	UK	444	469	87.40	In Earth orbit
S49211	2021-083AB	OneWeb SL0345	2021 Sep 14 2054:00	ONEWEB	UK	444	468	87.40	In Earth orbit
S49212	2021-083AC	OneWeb SL0346	2021 Sep 14 2133:00	ONEWEB	UK	448	473	87.40	In Earth orbit
S49213	2021-083AD	OneWeb SL0348	2021 Sep 14 1938:00	ONEWEB	UK	438	464	87.40	In Earth orbit
S49214	2021-083AE	OneWeb SL0350	2021 Sep 14 2016:00	ONEWEB	UK	444	465	87.40	In Earth orbit
S49215	2021-083AF	OneWeb SL0351	2021 Sep 14 1918:00	ONEWEB	UK	437	459	87.40	In Earth orbit
S49216	2021-083AG	OneWeb SL0352	2021 Sep 14 2035:00	ONEWEB	UK	444	466	87.40	In Earth orbit
S49217	2021-083AH	OneWeb SL0354	2021 Sep 14 1918:00	ONEWEB	UK	437	459	87.40	In Earth orbit
S49218	2021-083AJ	OneWeb SL0355	2021 Sep 14 2016:00	ONEWEB	UK	443	465	87.40	In Earth orbit
S49219	2021-083AK	OneWeb SL0357	2021 Sep 14 1938:00	ONEWEB	UK	438	464	87.40	In Earth orbit
S49220	2021-084A	Inspiration4	2021 Sep 16 0015:00	SPX	US	569	579	51.64	Landed
S49222	2021-085A	Tianzhou-3	2021 Sep 20 0720:12	CMSEO	CN	380	386	41.47	Attached to Tianhe
S49256	2021-086A	Jilin-1 Gaofen 02D	2021 Sep 27 0636:00	CGSTL	CN	531	545	97.54	In Earth orbit
S49258	2021-087A	Shiyan 10	2021 Sep 27 0845:00	YWZB	CN	173	40101	51.09	In Earth orbit
S49260	2021-088A	Landsat 9	2021 Sep 27 1932:40	USGS/GSFC	US	670	686	98.22	In Earth orbit
S49261	2021-088B	Cesium Satellite 1	2021 Sep 27 2030:00	CESIUM	US	550	580	97.62	In Earth orbit
S49262	2021-088C	Cesium Satellite 2	2021 Sep 27 2030:00	CESIUM	US	550	580	97.62	In Earth orbit
S49263	2021-088D	CUTE	2021 Sep 27 2030:00	UCO	US	550	574	97.63	In Earth orbit
S49264	2021-088E	CuPID	2021 Sep 27 2030:00	BU	US	550	573	97.62	In Earth orbit
S49269	2021-089A	Soyuz MS-19	2021 Oct 5 0903:52	RKKE	RU	195	227	51.64	Attached to Rassvet
S49279	2021-090A	OneWeb SL0332	2021 Oct 14 1215:00	ONEWEB	UK	442	450	87.39	In Earth orbit
S49280	2021-090B	OneWeb SL0347	2021 Oct 14 1253:00	ONEWEB	UK	445	455	87.39	In Earth orbit
S49281	2021-090C	OneWeb SL0349	2021 Oct 14 1117:00	ONEWEB	UK	435	446	87.40	In Earth orbit
S49282	2021-090D	OneWeb SL0353	2021 Oct 14 1234:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S49283	2021-090E	OneWeb SL0356	2021 Oct 14 1136:00	ONEWEB	UK	441	447	87.40	In Earth orbit
S49284	2021-090F	OneWeb SL0358	2021 Oct 14 1215:00	ONEWEB	UK	442	449	87.39	In Earth orbit
S49285	2021-090G	OneWeb SL0359	2021 Oct 14 1253:00	ONEWEB	UK	444	454	87.39	In Earth orbit
S49286	2021-090H ?	OneWeb SL0360	2021 Oct 14 1155:00	ONEWEB	UK	442	446	87.40	In Earth orbit

S49287	2021-090J	OneWeb SL0361	2021 Oct 14 1136:00	ONEWEB	UK	439	447	87.40	In Earth orbit
S49288	2021-090K	OneWeb SL0362	2021 Oct 14 1331:00	ONEWEB	UK	449	455	87.40	In Earth orbit
S49289	2021-090L	OneWeb SL0363	2021 Oct 14 1136:00	ONEWEB	UK	441	447	87.40	In Earth orbit
S49290	2021-090M	OneWeb SL0364	2021 Oct 14 1253:00	ONEWEB	UK	444	454	87.39	In Earth orbit
S49291	2021-090N	OneWeb SL0365	2021 Oct 14 1331:00	ONEWEB	UK	450	456	87.40	In Earth orbit
S49292	2021-090P	OneWeb SL0366	2021 Oct 14 1215:00	ONEWEB	UK	442	450	87.39	In Earth orbit
S49293	2021-090Q	OneWeb SL0367	2021 Oct 14 1155:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S49294	2021-090R	OneWeb SL0368	2021 Oct 14 1234:00	ONEWEB	UK	443	453	87.40	In Earth orbit
S49295	2021-090S	OneWeb SL0369	2021 Oct 14 1331:00	ONEWEB	UK	449	455	87.40	In Earth orbit
S49296	2021-090T	OneWeb SL0370	2021 Oct 14 1117:00	ONEWEB	UK	437	446	87.40	In Earth orbit
S49297	2021-090U	OneWeb SL0371	2021 Oct 14 1312:00	ONEWEB	UK	448	454	87.40	In Earth orbit
S49298	2021-090V	OneWeb SL0372	2021 Oct 14 1117:00	ONEWEB	UK	436	446	87.40	In Earth orbit
S49299	2021-090W	OneWeb SL0373	2021 Oct 14 1215:00	ONEWEB	UK	442	451	87.40	In Earth orbit
S49300	2021-090X	OneWeb SL0374	2021 Oct 14 1312:00	ONEWEB	UK	446	454	87.40	In Earth orbit
S49301	2021-090Y	OneWeb SL0375	2021 Oct 14 1155:00	ONEWEB	UK	442	448	87.40	In Earth orbit
S49302	2021-090Z	OneWeb SL0376	2021 Oct 14 1331:00	ONEWEB	UK	449	454	87.40	In Earth orbit
S49303	2021-090AA	OneWeb SL0377	2021 Oct 14 1253:00	ONEWEB	UK	445	454	87.40	In Earth orbit
S49304	2021-090AB	OneWeb SL0378	2021 Oct 14 1058:00	ONEWEB	UK	433	444	87.40	In Earth orbit
S49305	2021-090AC	OneWeb SL0379	2021 Oct 14 1234:00	ONEWEB	UK	443	454	87.40	In Earth orbit
S49306	2021-090AD	OneWeb SL0380	2021 Oct 14 1312:00	ONEWEB	UK	447	454	87.40	In Earth orbit
S49307	2021-090AE	OneWeb SL0381	2021 Oct 14 1136:00	ONEWEB	UK	440	447	87.40	In Earth orbit
S49308	2021-090AF	OneWeb SL0382	2021 Oct 14 1058:00	ONEWEB	UK	434	445	87.40	In Earth orbit
S49309	2021-090AG	OneWeb SL0383	2021 Oct 14 1234:00	ONEWEB	UK	442	452	87.40	In Earth orbit
S49310	2021-090AH	OneWeb SL0384	2021 Oct 14 1058:00	ONEWEB	UK	434	445	87.40	In Earth orbit
S49311	2021-090AJ	OneWeb SL0385	2021 Oct 14 1058:00	ONEWEB	UK	433	445	87.40	In Earth orbit
S49312	2021-090AK	OneWeb SL0386	2021 Oct 14 1155:00	ONEWEB	UK	442	447	87.40	In Earth orbit
S49313	2021-090AL	OneWeb SL0387	2021 Oct 14 1117:00	ONEWEB	UK	437	447	87.40	In Earth orbit
S49314	2021-090AM	OneWeb SL0388	2021 Oct 14 1312:00	ONEWEB	UK	447	454	87.40	In Earth orbit
S49315	2021-091A ?	Xihe	2021 Oct 14 1101:00	NJU/SAST	CN	500	519	97.48	In Earth orbit
S49316	2021-091B ?	QX-1	2021 Oct 14 1102:00	DFHS	CN	503	522	97.46	In Earth orbit
S49317	2021-091C ?	Tianshu-1	2021 Oct 14 1102:00	HUOYAN	CN	503	522	97.46	In Earth orbit
S49318	2021-091D ?	JTSY	2021 Oct 14 1102:00	SISE	CN	503	522	97.46	In Earth orbit
S49319	2021-091E ?	HEAD-2E	2021 Oct 14 1102:00	HEAD	CN	503	522	97.46	In Earth orbit
S49320	2021-091F ?	MD-1	2021 Oct 14 1102:00	DFHS	CN	503	522	97.46	In Earth orbit
S49321	2021-091G ?	SSS-1	2021 Oct 14 1102:00	APSCO/BUAA	CN	502	522	97.47	In Earth orbit
S49322	2021-091H ?	HEAD-2F	2021 Oct 14 1103:00	HEAD	CN	502	522	97.46	In Earth orbit
S49323	2021-091J ?	Tianyuan-1	2021 Oct 14 1103:00	NJUST	CN	502	523	97.46	In Earth orbit
S49324	2021-091K ?	Jin Zijing Weixing 2	2021 Oct 14 1103:00	LINGZ/HKATG	CN	502	522	97.45	In Earth orbit
S49325	2021-091L ?	SSS-2A	2021 Oct 14 1103:00	APSCO/SJTU	CN	500	523	97.47	In Earth orbit
S49326	2021-092A	Shenzhou 13	2021 Oct 15 1633:24	CMSEO	CN	328	335	42.41	Attached to Tianhe
S49328	2021-093A	Lucy	2021 Oct 16 1032:00	GSFC/SWRI	US	208	-40809	31.34	Deep Space
S49330	2021-094A	Shi Jian 21	2021 Oct 24 0152:00	SAST	CN	35861	35887	8.11	In Earth orbit
S49382	2021-094C	SJ-21 subsatellite	2021 Nov 1 1500:00	SAST	CN	35860	35874	8.11	In Earth orbit
S49332	2021-095A	SES-17	2021 Oct 24 0239:00	SESSL	UK	668	35864	5.90	In Earth orbit
S49333	2021-095B	Syracuse 4A	2021 Oct 24 0248:00	DGA	F	522	35738	5.92	In Earth orbit
S49336	2021-096A	Michibiki Shogoki Kokei-ki	2021 Oct 26 0247:00	NUSS/JAXA	J	32647	38964	34.03	In Earth orbit
S49338	2021-097A	Jilin-1 Gaofen 02F	2021 Oct 27 0636:00	CGSTL	CN	532	546	97.54	In Earth orbit
S49379	2021-098A	Progress MS-18	2021 Oct 28 0009:21	RKKE	RU	321	326	51.64	Attached to Zvezda
S49383	2021-099A	Yaogan 32 hao 02 zu 01 xing	2021 Nov 3 0756:00	ZZB	CN	689	703	98.09	In Earth orbit
S49384	2021-099B	Yaogan 32 hao 02 zu 02 xing	2021 Nov 3 0758:00	ZZB	CN	689	703	98.09	In Earth orbit
S49387	2021-100A	SDGSAT-1	2021 Nov 5 0236:00	CAS	CN	501	513	97.50	In Earth orbit
S49390	2021-101A	Yaogan 35A	2021 Nov 6 0314:00	CASC	CN	493	498	34.99	In Earth orbit
S49391	2021-101B	Yaogan 35B	2021 Nov 6 0314:00	CASC	CN	490	495	34.99	In Earth orbit
S49392	2021-101C	Yaogan 35C	2021 Nov 6 0314:00	CASC	CN	494	499	34.99	In Earth orbit
S49395	2021-102A ?	RAISE-2	2021 Nov 9 0147:50	JAXA	J	561	573	97.58	In Earth orbit
S49396	2021-102B	Ororu	2021 Nov 9 0201:46	TEIK	J	558	574	97.57	In Earth orbit
S49397	2021-102C ?	Asutarisuku	2021 Nov 9 0202:09	CHIBA	J	556	573	97.57	In Earth orbit
S49398	2021-102D ?	DRUMS	2021 Nov 9 0205:45	KAWA	J	549	572	97.57	In Earth orbit
S49399	2021-102E	Z-SAT	2021 Nov 9 0205:26	MHIME	J	552	572	97.57	In Earth orbit
S49400	2021-102F ?	Hibari	2021 Nov 9 0206:08	TIT	J	548	572	97.56	In Earth orbit
S49401	2021-102G ?	NanoDragon	2021 Nov 9 0206:54	VNSC/MEISEI	VN	543	572	97.56	In Earth orbit
S49402	2021-102H	KOSEN-1	2021 Nov 9 0206:31	KOCHI	J	543	572	97.56	In Earth orbit
S49403	2021-102J ?	ARICA	2021 Nov 9 0206:31	AOGD	J	547	572	97.57	In Earth orbit
S49407	2021-103A	Endurance (SpX Crew-3)	2021 Nov 11 0215:40	SPX	US	190	212	51.64	Attached to IDA-2
S49408	2021-104A	Starlink 3151	2021 Nov 13 1234:26	SPXS	US	223	330	53.22	In Earth orbit
S49409	2021-104B	Starlink 3075	2021 Nov 13 1234:26	SPXS	US	224	330	53.22	In Earth orbit

S49410	2021-104C	Starlink 3147	2021 Nov 13 1234:26	SPXS	US	224	330	53.22	In Earth orbit
S49411	2021-104D	Starlink 3162	2021 Nov 13 1234:26	SPXS	US	224	330	53.22	In Earth orbit
S49412	2021-104E	Starlink 3144	2021 Nov 13 1234:26	SPXS	US	224	330	53.22	In Earth orbit
S49413	2021-104F	Starlink 3157	2021 Nov 13 1234:26	SPXS	US	224	329	53.22	In Earth orbit
S49414	2021-104G	Starlink 3146	2021 Nov 13 1234:26	SPXS	US	224	330	53.22	In Earth orbit
S49415	2021-104H	Starlink 3159	2021 Nov 13 1234:26	SPXS	US	224	329	53.22	In Earth orbit
S49416	2021-104J	Starlink 3133	2021 Nov 13 1234:26	SPXS	US	224	330	53.22	In Earth orbit
S49417	2021-104K	Starlink 3154	2021 Nov 13 1234:26	SPXS	US	224	329	53.22	In Earth orbit
S49418	2021-104L	Starlink 3111	2021 Nov 13 1234:26	SPXS	US	224	329	53.22	In Earth orbit
S49419	2021-104M	Starlink 3120	2021 Nov 13 1234:26	SPXS	US	224	329	53.22	In Earth orbit
S49420	2021-104N	Starlink 3110	2021 Nov 13 1234:26	SPXS	US	224	329	53.22	In Earth orbit
S49421	2021-104P	Starlink 3112	2021 Nov 13 1234:26	SPXS	US	224	329	53.22	In Earth orbit
S49422	2021-104Q	Starlink 3161	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49423	2021-104R	Starlink 3149	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49424	2021-104S	Starlink 3135	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49425	2021-104T	Starlink 3139	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49426	2021-104U	Starlink 3114	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49427	2021-104V	Starlink 3131	2021 Nov 13 1234:26	SPXS	US	219	330	53.22	In Earth orbit
S49428	2021-104W	Starlink 3121	2021 Nov 13 1234:26	SPXS	US	218	330	53.22	In Earth orbit
S49429	2021-104X	Starlink 3123	2021 Nov 13 1234:26	SPXS	US	203	303	53.22	Reentered
S49430	2021-104Y	Starlink 3138	2021 Nov 13 1234:26	SPXS	US	234	328	53.22	In Earth orbit
S49431	2021-104Z	Starlink 3153	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49432	2021-104AA	Starlink 3158	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49433	2021-104AB	Starlink 3079	2021 Nov 13 1234:26	SPXS	US	218	330	53.22	In Earth orbit
S49434	2021-104AC	Starlink 3134	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49435	2021-104AD	Starlink 3117	2021 Nov 13 1234:26	SPXS	US	223	327	53.22	In Earth orbit
S49436	2021-104AE	Starlink 3049	2021 Nov 13 1234:26	SPXS	US	219	330	53.22	In Earth orbit
S49437	2021-104AF	Starlink 3130	2021 Nov 13 1234:26	SPXS	US	222	329	53.22	In Earth orbit
S49438	2021-104AG	Starlink 3044	2021 Nov 13 1234:26	SPXS	US	223	329	53.22	In Earth orbit
S49439	2021-104AH	Starlink 3108	2021 Nov 13 1234:26	SPXS	US	222	329	53.22	In Earth orbit
S49440	2021-104AJ	Starlink 3105	2021 Nov 13 1234:26	SPXS	US	218	330	53.22	In Earth orbit
S49441	2021-104AK	Starlink 3128	2021 Nov 13 1234:26	SPXS	US	217	330	53.22	In Earth orbit
S49442	2021-104AL	Starlink 3098	2021 Nov 13 1234:26	SPXS	US	218	330	53.22	In Earth orbit
S49443	2021-104AM	Starlink 3136	2021 Nov 13 1234:26	SPXS	US	222	329	53.22	In Earth orbit
S49444	2021-104AN	Starlink 3126	2021 Nov 13 1234:26	SPXS	US	220	330	53.22	In Earth orbit
S49445	2021-104AP	Starlink 3122	2021 Nov 13 1234:26	SPXS	US	215	330	53.22	In Earth orbit
S49446	2021-104AQ	Starlink 3099	2021 Nov 13 1234:26	SPXS	US	217	330	53.22	In Earth orbit
S49447	2021-104AR	Starlink 3115	2021 Nov 13 1234:26	SPXS	US	218	329	53.22	In Earth orbit
S49448	2021-104AS	Starlink 3097	2021 Nov 13 1234:26	SPXS	US	222	329	53.22	In Earth orbit
S49449	2021-104AT	Starlink 3137	2021 Nov 13 1234:26	SPXS	US	222	329	53.22	In Earth orbit
S49450	2021-104AU	Starlink 3127	2021 Nov 13 1234:26	SPXS	US	217	329	53.22	In Earth orbit
S49451	2021-104AV	Starlink 3125	2021 Nov 13 1234:26	SPXS	US	218	329	53.22	In Earth orbit
S49452	2021-104AW	Starlink 3150	2021 Nov 13 1234:26	SPXS	US	221	329	53.22	In Earth orbit
S49453	2021-104AX	Starlink 3129	2021 Nov 13 1234:26	SPXS	US	220	329	53.22	In Earth orbit
S49454	2021-104AY	Starlink 3160	2021 Nov 13 1234:26	SPXS	US	217	329	53.22	In Earth orbit
S49455	2021-104AZ	Starlink 3145	2021 Nov 13 1234:26	SPXS	US	221	329	53.22	In Earth orbit
S49456	2021-104BA	Starlink 3124	2021 Nov 13 1234:26	SPXS	US	220	329	53.22	In Earth orbit
S49457	2021-104BB	Starlink 3132	2021 Nov 13 1234:26	SPXS	US	221	328	53.22	In Earth orbit
S49458	2021-104BC	Starlink 3156	2021 Nov 13 1234:26	SPXS	US	221	328	53.22	In Earth orbit
S49459	2021-104BD	Starlink 3141	2021 Nov 13 1234:26	SPXS	US	221	328	53.22	In Earth orbit
S49460	2021-104BE	Starlink 3140	2021 Nov 13 1234:26	SPXS	US	216	330	53.22	In Earth orbit
S49464	2021-105A	CERES 1	2021 Nov 16 1024:39	DGA/CNES	F	669	672	75.00	In Earth orbit
S49465	2021-105B	CERES 2	2021 Nov 16 1024:39	DGA/CNES	F	671	672	74.85	In Earth orbit
S49466	2021-105C	CERES 3	2021 Nov 16 1024:39	DGA/CNES	F	670	673	75.00	In Earth orbit
S49469	2021-106A	Global-14	2021 Nov 18 0232:00	BSKG	US	428	439	42.02	In Earth orbit
S49470	2021-106B	Global-15	2021 Nov 18 0233:00	BSKG	US	426	438	42.02	In Earth orbit
S49492	2021-107A	Gao Fen 11-03	2021 Nov 20 0205:00	YWZB	CN	243	695	97.45	In Earth orbit
S49495	2021-109A	Gao Fen 3-02	2021 Nov 23 0007:00	GWHYZ	CN	737	745	98.42	In Earth orbit
S49497	2021-110A	DART	2021 Nov 24 0716:42	APL/MSFC	US	263	-135350	64.65	Deep Space
S49499	2021-111A	Prichal	2021 Nov 24 1315:58	RKKE	RU	323	351	51.64	Attached to Nauka
A09906	2021-111A	Progress M-UM PAO	2021 Dec 22 2303:00	RKKE	RU	179	207	51.64	Deorbited
S49501	2021-112A	Shiyan 11	2021 Nov 24 2358:00	CASC	CN	489	502	97.45	In Earth orbit
S49503	2021-113A	Kosmos-2552	2021 Nov 25 0531:00	KVR	RU	1664	38596	63.74	In Earth orbit
S49505	2021-114A	Zhongxing 1D	2021 Nov 26 0000:00	ZZB	CN	35781	35791	1.95	In Earth orbit
S49724	2021-115A	Starlink 3219	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49725	2021-115B	Starlink 3218	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit

S49726	2021-115C	Starlink 3237	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49727	2021-115D	Starlink 3242	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49728	2021-115E	Starlink 3240	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49729	2021-115F	Starlink 3251	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49730	2021-115G	Starlink 3249	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49731	2021-115H	Starlink 3228	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49732	2021-115J	Starlink 3246	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49733	2021-115K	Starlink 3252	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49734	2021-115L	Starlink 3238	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49735	2021-115M	Starlink 3113	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49736	2021-115N	Starlink 3148	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49737	2021-115P	Starlink 3225	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49738	2021-115Q	Starlink 3143	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49739	2021-115R	Starlink 3155	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49740	2021-115S	Starlink 3226	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49741	2021-115T	Starlink 3244	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49742	2021-115U	Starlink 3202	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49743	2021-115V	Starlink 3239	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49744	2021-115W	Starlink 3231	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49745	2021-115X	Starlink 3241	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49746	2021-115Y	Starlink 3233	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49747	2021-115Z	Starlink 3247	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49748	2021-115AA	Starlink 3248	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49749	2021-115AB	Starlink 3250	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49750	2021-115AC	Starlink 3236	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49751	2021-115AD	Starlink 3229	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49752	2021-115AE	Starlink 3209	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49753	2021-115AF	Starlink 3200	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49754	2021-115AG	Starlink 3193	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49755	2021-115AH	Starlink 3210	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49756	2021-115AJ	Starlink 3207	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49757	2021-115AK	Starlink 3197	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49758	2021-115AL	Starlink 3194	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49759	2021-115AM	Starlink 3204	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49760	2021-115AN	Starlink 3199	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49761	2021-115AP	Starlink 3203	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49762	2021-115AQ	Starlink 3195	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49763	2021-115AR	Starlink 3198	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49764	2021-115AS	Starlink 3206	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49765	2021-115AT	Starlink 3227	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49766	2021-115AU	Starlink 3190	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49767	2021-115AV	Starlink 3192	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49768	2021-115AW	Starlink 3196	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49769	2021-115AX	Starlink 3208	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49770	2021-115AY	Starlink 3191	2021 Dec 3 0041:00	SPXS	US	424	440	53.22	In Earth orbit
S49771	2021-115AZ	Starlink 3201	2021 Dec 3 0041:00	SPXS	US	434	442	53.22	In Earth orbit
S49772	2021-115BA	Global-12	2021 Dec 3 0015:00	BSKG	US	426	443	53.21	In Earth orbit
S49773	2021-115BB	Global-13	2021 Dec 3 0018:00	BSKG	US	424	443	53.21	In Earth orbit
S49809	2021-116A	GalileoSat-27	2021 Dec 5 0411:00	GSAEU	I-EU	23380	23518	57.11	In Earth orbit
S49810	2021-116B	GalileoSat-28	2021 Dec 5 0411:00	GSAEU	I-EU	23515	23571	57.07	In Earth orbit
S49812	2021-117A ?	Tianjin Daxue 1	2021 Dec 7 0425:00	TIANJU	CN	483	501	97.41	In Earth orbit
S49813	2021-117B ?	Lize 1	2021 Dec 7 0425:00	CTYK/YINGSH	CN	485	501	97.39	In Earth orbit
S49814	2021-117C ?	Baoyun	2021 Dec 7 0425:00	CTYK	CN	472	502	97.41	In Earth orbit
S49815	2021-117D ?	Jin Zijing 5	2021 Dec 7 0425:00	HKATG	CN	473	503	97.40	In Earth orbit
S49816	2021-117E ?	Jin Zijing 1-03	2021 Dec 7 0425:00	HKATG	CN	479	501	97.40	In Earth orbit
S49817	2021-118A	STPSAT-6	2021 Dec 7 1649:00	STP	US	36097	36110	0.03	In Earth orbit
S49818	2021-118B	LDPE 1	2021 Dec 7 1729:00	AFRL	US	36084	36125	0.03	In Earth orbit
S50214	2021-118D	USA 3xx (or debris?)	2021 Dec 19 0000:00	AFRL	US	35990	36116	0.07	In Earth orbit
S49922	2021-119A	Soyuz MS-20	2021 Dec 8 0747:07	RKKE	RU	194	220	51.64	Landed
S49949	2021-120A	Global-16	2021 Dec 9 0055:00	BSKG	US	430	439	42.01	In Earth orbit
S49950	2021-120B	Global-17	2021 Dec 9 0056:00	BSKG	US	433	440	42.01	In Earth orbit
S49954	2021-121A	IXPE	2021 Dec 9 0639:22	MSFC	US	588	603	0.23	In Earth orbit
S49961	2021-122A	Shi Jian 6/5B	2021 Dec 10 0023:00	CASC	CN	454	468	97.36	In Earth orbit
S49962	2021-122B	Shi Jian 6/5A	2021 Dec 10 0022:00	CASC	CN	456	470	97.36	In Earth orbit
S50001	2021-123A ?	Ekspress-AMU3	2021 Dec 14 0614:00	KS	RU	16325	52810	1.68	In Earth orbit
S50002	2021-123B ?	Ekspress-AMU7	2021 Dec 14 0557:00	KS	RU	16335	52810	1.65	In Earth orbit

S50005	2021-124A	Tian Lian 2-02	2021 Dec 13 1634:00	CAST	CN	35775	35803	2.99	In Earth orbit
S50156	2021-125A	Starlink 3317	2021 Dec 18 1257:16	SPXS	US	209	339	53.22	In Earth orbit
S50157	2021-125B	Starlink 3313	2021 Dec 18 1257:16	SPXS	US	209	339	53.22	In Earth orbit
S50158	2021-125C	Starlink 3309	2021 Dec 18 1257:16	SPXS	US	209	339	53.22	In Earth orbit
S50159	2021-125D	Starlink 3297	2021 Dec 18 1257:16	SPXS	US	209	339	53.22	In Earth orbit
S50160	2021-125E	Starlink 3288	2021 Dec 18 1257:16	SPXS	US	209	339	53.22	In Earth orbit
S50161	2021-125F	Starlink 3304	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50162	2021-125G	Starlink 3303	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50163	2021-125H	Starlink 3306	2021 Dec 18 1257:16	SPXS	US	209	337	53.22	In Earth orbit
S50164	2021-125J	Starlink 3307	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50165	2021-125K	Starlink 3298	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50166	2021-125L	Starlink 3305	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50167	2021-125M	Starlink 3271	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50168	2021-125N	Starlink 3296	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50169	2021-125P	Starlink 3301	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50170	2021-125Q	Starlink 3245	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50171	2021-125R	Starlink 3286	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50172	2021-125S	Starlink 3287	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50173	2021-125T	Starlink 3289	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50174	2021-125U	Starlink 3292	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50175	2021-125V	Starlink 3291	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50176	2021-125W	Starlink 3293	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50177	2021-125X	Starlink 3282	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50178	2021-125Y	Starlink 3284	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50179	2021-125Z	Starlink 3283	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50180	2021-125AA	Starlink 3265	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50181	2021-125AB	Starlink 3285	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50182	2021-125AC	Starlink 3277	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50183	2021-125AD	Starlink 3281	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50184	2021-125AE	Starlink 3280	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50185	2021-125AF	Starlink 3279	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50186	2021-125AG	Starlink 3274	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50187	2021-125AH	Starlink 3272	2021 Dec 18 1257:16	SPXS	US	210	341	53.22	In Earth orbit
S50188	2021-125AJ	Starlink 3275	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50189	2021-125AK	Starlink 3276	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50190	2021-125AL	Starlink 3268	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50191	2021-125AM	Starlink 3273	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50192	2021-125AN	Starlink 3259	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50193	2021-125AP	Starlink 3261	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50194	2021-125AQ	Starlink 3269	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50195	2021-125AR	Starlink 3266	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50196	2021-125AS	Starlink 3263	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50197	2021-125AT	Starlink 3267	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50198	2021-125AU	Starlink 3264	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50199	2021-125AV	Starlink 3270	2021 Dec 18 1257:16	SPXS	US	208	334	53.22	In Earth orbit
S50200	2021-125AW	Starlink 3235	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50201	2021-125AX	Starlink 3255	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50202	2021-125AY	Starlink 3256	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50203	2021-125AZ	Starlink 3257	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50204	2021-125BA	Starlink 3254	2021 Dec 18 1257:16	SPXS	US	209	334	53.22	In Earth orbit
S50205	2021-125BB	Starlink 3260	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50206	2021-125BC	Starlink 3258	2021 Dec 18 1257:16	SPXS	US	209	338	53.22	In Earth orbit
S50207	2021-125BD	Starlink 3262	2021 Dec 18 1257:16	SPXS	US	210	340	53.22	In Earth orbit
S50212	2021-126A	Turksat 5B	2021 Dec 19 0433:29	TURKS	TR	198	68931	27.12	In Earth orbit
S50318	2021-127A	Dragon CRS-24	2021 Dec 21 1018:59	SPX	US	212	362	51.64	Attached to IDA-3
S50319	2021-128A	Inmarsat 6 F1	2021 Dec 22 1558:20	INMRL	UK	179	64689	30.04	In Earth orbit
S50321	2021-129A	Shiyan 12-01	2021 Dec 23 1042:00	CAST	CN	35784	35787	0.54	In Earth orbit
S50322	2021-129B	Shiyan 12-02	2021 Dec 23 1042:00	CAST	CN	208	35711	19.46	In Earth orbit
S50463	2021-130A	JWST	2021 Dec 25 1247:14	GSFC/ESA	US	315	1048000	4.17	Deep Space
S50465	2021-131A	Zi Yuan 1-02E	2021 Dec 26 0331:00	ZZWYZ	CN	764	768	98.59	In Earth orbit
S50466	2021-131B	Hope-OSCAR-113	2021 Dec 26 0335:58	CAMSAT	CN	761	766	98.60	In Earth orbit
S50469	2021-132A	OneWeb SL0389	2021 Dec 27 1500:37	ONEWEB	UK	451	475	87.40	In Earth orbit
S50470	2021-132B	OneWeb SL0390	2021 Dec 27 1538:57	ONEWEB	UK	445	468	87.40	In Earth orbit
S50471	2021-132C	OneWeb SL0391	2021 Dec 27 1500:37	ONEWEB	UK	438	465	87.40	In Earth orbit
S50472	2021-132D	OneWeb SL0392	2021 Dec 27 1538:57	ONEWEB	UK	444	467	87.40	In Earth orbit
S50473	2021-132E	OneWeb SL0393	2021 Dec 27 1500:37	ONEWEB	UK	441	467	87.40	In Earth orbit

S50474	2021-132F	OneWeb SL0394	2021 Dec 27 1617:17	ONEWEB	UK	445	474	87.40	In Earth orbit
S50475	2021-132G	OneWeb SL0395	2021 Dec 27 1655:37	ONEWEB	UK	451	475	87.40	In Earth orbit
S50476	2021-132H	OneWeb SL0396	2021 Dec 27 1617:17	ONEWEB	UK	445	473	87.40	In Earth orbit
S50477	2021-132J	OneWeb SL0397	2021 Dec 27 1617:17	ONEWEB	UK	446	475	87.40	In Earth orbit
S50478	2021-132K	OneWeb SL0398	2021 Dec 27 1655:37	ONEWEB	UK	450	475	87.40	In Earth orbit
S50479	2021-132L	OneWeb SL0399	2021 Dec 27 1655:37	ONEWEB	UK	451	475	87.40	In Earth orbit
S50480	2021-132M	OneWeb SL0400	2021 Dec 27 1441:27	ONEWEB	UK	441	467	87.40	In Earth orbit
S50481	2021-132N	OneWeb SL0401	2021 Dec 27 1558:07	ONEWEB	UK	445	471	87.40	In Earth orbit
S50482	2021-132P	OneWeb SL0402	2021 Dec 27 1538:57	ONEWEB	UK	445	468	87.40	In Earth orbit
S50483	2021-132Q	OneWeb SL0403	2021 Dec 27 1519:47	ONEWEB	UK	444	467	87.40	In Earth orbit
S50484	2021-132R	OneWeb SL0404	2021 Dec 27 1655:37	ONEWEB	UK	449	475	87.40	In Earth orbit
S50485	2021-132S	OneWeb SL0405	2021 Dec 27 1538:57	ONEWEB	UK	445	469	87.40	In Earth orbit
S50486	2021-132T	OneWeb SL0406	2021 Dec 27 1558:07	ONEWEB	UK	445	470	87.40	In Earth orbit
S50487	2021-132U	OneWeb SL0407	2021 Dec 27 1519:47	ONEWEB	UK	442	467	87.40	In Earth orbit
S50488	2021-132V	OneWeb SL0409	2021 Dec 27 1635:27	ONEWEB	UK	449	475	87.40	In Earth orbit
S50489	2021-132W	OneWeb SL0412	2021 Dec 27 1635:27	ONEWEB	UK	447	475	87.40	In Earth orbit
S50490	2021-132X	OneWeb SL0413	2021 Dec 27 1441:27	ONEWEB	UK	445	474	87.40	In Earth orbit
S50491	2021-132Y	OneWeb SL0414	2021 Dec 27 1519:47	ONEWEB	UK	443	467	87.40	In Earth orbit
S50492	2021-132Z	OneWeb SL0417	2021 Dec 27 1558:07	ONEWEB	UK	437	465	87.40	In Earth orbit
S50493	2021-132AA	OneWeb SL0418	2021 Dec 27 1617:17	ONEWEB	UK	446	474	87.40	In Earth orbit
S50494	2021-132AB	OneWeb SL0419	2021 Dec 27 1500:37	ONEWEB	UK	450	475	87.40	In Earth orbit
S50495	2021-132AC	OneWeb SL0420	2021 Dec 27 1422:17	ONEWEB	UK	437	459	87.40	In Earth orbit
S50496	2021-132AD	OneWeb SL0421	2021 Dec 27 1422:17	ONEWEB	UK	439	467	87.40	In Earth orbit
S50497	2021-132AE	OneWeb SL0424	2021 Dec 27 1635:27	ONEWEB	UK	447	475	87.40	In Earth orbit
S50498	2021-132AF	OneWeb SL0426	2021 Dec 27 1519:47	ONEWEB	UK	444	467	87.40	In Earth orbit
S50499	2021-132AG	OneWeb SL0427	2021 Dec 27 1422:17	ONEWEB	UK	437	459	87.40	In Earth orbit
S50500	2021-132AH	OneWeb SL0429	2021 Dec 27 1441:27	ONEWEB	UK	438	465	87.40	In Earth orbit
S50501	2021-132AJ	OneWeb SL0430	2021 Dec 27 1635:27	ONEWEB	UK	448	475	87.40	In Earth orbit
S50502	2021-132AK	OneWeb SL0432	2021 Dec 27 1422:17	ONEWEB	UK	437	460	87.40	In Earth orbit
S50503	2021-132AL	OneWeb SL0440	2021 Dec 27 1441:27	ONEWEB	UK	438	466	87.40	In Earth orbit
S50504	2021-132AM	OneWeb SL0450	2021 Dec 27 1558:07	ONEWEB	UK	445	472	87.40	In Earth orbit
S50572	2021-134A	Tianhui-4 01	2021 Dec 29 1124:00	GCDX	CN	483	498	89.00	In Earth orbit
S50573	2021-134B	Tianhui-4 02?	2021 Dec 29 1124:00	GCDX	CN	483	498	89.00	In Earth orbit
S50574	2021-135A	Tongxin Jishu Shiyan 9	2021 Dec 29 1708:00	CASC	CN	176	35808	27.09	In Earth orbit
Payloads not included in annual statistics									
S47946	2021-022Q ?	Vigoride mass simulator	2021 Mar 22 1030:00	GKLS	RU	535	558	97.56	In Earth orbit
S47958	2021-022AC ?	NAPA-2 mass simulator?	2021 Mar 22 1030:00	GKLS	RU	535	564	97.56	In Earth orbit