



# General Assembly

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## Committee on the Peaceful Uses of Outer Space

### **Information furnished in conformity with General Assembly resolution 1721 B (XVI) by States launching objects into orbit or beyond**

#### **Note verbale dated 8 February 2021 from the Permanent Mission of Luxembourg to the United Nations (Vienna) addressed to the Secretary-General**

The Permanent Mission of Luxembourg to the United Nations (Vienna) has the honour to transmit, in accordance with paragraph 1 of General Assembly resolution 1721 B (XVI) of 20 December 1961, information concerning objects launched into Earth orbit or beyond by Luxembourg as at 31 January 2021 (see annex).<sup>1</sup>

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<sup>1</sup> The data on space objects referenced in the annex were entered into the Register of Objects Launched into Outer Space on 5 March 2021.



## Annex

### List of Luxembourg space objects (as at January 2021)\*

- |    |   |  |
|----|---|--|
| 1. | Committee on Space Research<br>international designator | 1988-109B  |
|    | Name of space object                                    | ASTRA 1A   |
|    | Launch date   | 11 December 1988   |
|    | Launch site   | Kourou, French Guiana  |
|    | Launcher  | Ariane   |
|    | Owner of object   | Société Européenne des Satellites<br>(SES ASTRA S.A.)  |
|    | Date of decommissioning                                 | 10 December 2004   |
|    | Orbital characteristics                                 | The satellite is in a graveyard orbit, at a<br>minimum perigee altitude of 400 km above<br>the geostationary orbit |
| 2. | Committee on Space Research<br>international designator | 1991-015A  |
|    | Name of space object                                    | ASTRA 1B   |
|    | Launch date   | 2 March 1991   |
|    | Launch site   | Kourou, French Guiana  |
|    | Launcher  | Ariane   |
|    | Owner of object   | SES ASTRA S.A.   |
|    | Date of decommissioning                                 | 12 July 2006   |
|    | Orbital characteristics                                 | The satellite is in a graveyard orbit, at a<br>minimum perigee altitude of 500 km above<br>the geostationary orbit |
| 3. | Committee on Space Research<br>international designator | 1993-031A  |
|    | Name of space object                                    | ASTRA 1C   |
|    | Launch date   | 12 May 1993  |
|    | Launch site   | Kourou, French Guiana  |
|    | Launcher  | Ariane   |
|    | Owner of object   | SES ASTRA S.A.   |
|    | Date of decommissioning                                 | 31 July 2014   |
|    | Orbital characteristics                                 | The satellite is in a graveyard orbit, at a<br>minimum perigee altitude of 387 km above<br>the geostationary orbit |
| 4. | Committee on Space Research<br>international designator | 1994-070A  |
|    | Name of space object                                    | ASTRA 1D   |
|    | Launch date   | 31 October 1994  |
|    | Launch site   | Kourou, French Guiana  |
|    | Launcher  | Ariane   |

\* The registration data are reproduced in the form in which they were received.

	Owner of object	SES ASTRA S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	Uncontrolled inclination since 22 October 2007. Orbital inclination is therefore increasing over time and was 9.2 degrees on 10 August 2020
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	73.0 degrees West since 30 November 2017
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services and of occasional-use services
5.	Committee on Space Research international designator	1995-055A
	Name of space object	ASTRA 1E
	Launch date	19 October 1995
	Launch site	Kourou, French Guiana
	Launcher	Ariane
	Owner of object	SES ASTRA S.A.
	Date of decommissioning	12 June 2015
	Orbital characteristics	The satellite is in a graveyard orbit, at a minimum perigee altitude of 390 km above the geostationary orbit
6.	Committee on Space Research international designator	1996-021A
	Name of space object	ASTRA 1F
	Launch date	8 April 1996
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton
	Owner of object	SES ASTRA S.A.
	Date of decommissioning	4 November 2020
	Orbital characteristics	The satellite is in a graveyard orbit, at a minimum perigee altitude of 312 km above the geostationary orbit
7.	Committee on Space Research international designator	1997-076A
	Name of space object	ASTRA 1G
	Launch date	2 December 1997
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton
	Owner of object	SES ASTRA S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes

	Maximum inclination	Uncontrolled inclination since 23 May 2014. Orbital inclination is therefore increasing over time and was 4.7 degrees on 10 August 2020
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	63.24 degrees East since 18 August 2019
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services
8.	Committee on Space Research international designator	1998-050A
	Name of space object	ASTRA 2A
	Launch date	30 August 1998
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton
	Owner of object	SES ASTRA S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	Uncontrolled inclination since 10 August 2018. Orbital inclination is therefore increasing over time and was 1.8 degrees on 10 August 2020
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	28 degrees East since 6 August 2020
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services
9.	Committee on Space Research international designator	1999-033A
	Name of space object	ASTRA 1H
	Launch date	18 June 1999
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton
	Owner of object	SES ASTRA S.A.
	Date of decommissioning	12 October 2019
	Orbital characteristics	The satellite is in a graveyard orbit, at a minimum perigee altitude of 340 km above the geostationary orbit
10.	Committee on Space Research international designator	2000-054A
	Name of space object	ASTRA 2B
	Launch date	14 September 2000
	Launch site	Kourou, French Guiana
	Launcher	Ariane 5

	Owner of object	SES ASTRA S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	Uncontrolled inclination since 7 June 2014. Orbital inclination is therefore increasing over time and was 4.6 degrees on 10 August 2020
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	19.6 degrees East since 1 October 2019
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services
11.	Committee on Space Research international designator	2000-081A
	Name of space object	ASTRA 2D
	Launch date	20 December 2000
	Launch site	Kourou, French Guiana
	Launcher	Ariane 5
	Owner of object	SES ASTRA S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	Uncontrolled inclination since 22 April 2014. Orbital inclination is therefore increasing over time and was 5.9 degrees on 10 August 2020
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	57.25 degrees East since 5 March 2020
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services
12.	Committee on Space Research international designator	2001-025A
	Name of space object	ASTRA 2C
	Launch date	16 June 2001
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton
	Owner of object	SES ASTRA S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	Uncontrolled inclination since 9 November 2016. Orbital inclination is therefore increasing over time and was 3.0 degrees on 10 August 2020
	Apogee	35,820 km
	Perigee	35,752 km

	Longitude	23.7 degrees East since 23 May 2018
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services
13.	Committee on Space Research international designator	2002-015B
	Name of space object	ASTRA 3A
	Launch date	29 March 2002
	Launch site	Kourou, French Guiana
	Launcher	Ariane 4
	Owner of object	SES ASTRA S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	Uncontrolled inclination since 29 March 2012. Orbital inclination is therefore increasing over time and was 6.0 degrees on 10 August 2020
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	86.85 degrees West since 6 December 2019
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services; occasional-use services and very small aperture terminal (VSAT) services
14.	Committee on Space Research international designator	2006-012A
	Name of space object	ASTRA 1KR
	Launch date	20 April 2006
	Launch site	Cape Canaveral, United States of America
	Launcher	Atlas V
	Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 1KR)
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.10 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	19.2 degrees East
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services
15.	Committee on Space Research international designator	2007-016A
	Name of space object	ASTRA 1L
	Launch date	4 May 2007
	Launch site	Kourou, French Guiana

	Launcher	Ariane 5
	Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 1L)
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.10 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	19.2 degrees East
	General purpose of object	Encrypted and unencrypted transmission of radio, television, multimedia data and broadband services
16.	Committee on Space Research international designator	2008-057A
	Name of space object	ASTRA 1M
	Launch date	5 November 2008
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton-M/Breeze-M
	Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 1M)
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.10 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	19.2 degrees East
	General purpose of object	Encrypted and unencrypted transmission of radio, television and multimedia data services
17.	Committee on Space Research international designator	2010-021A
	Name of space object	ASTRA 3B
	Launch date	21 May 2010
	Launch site	Kourou, French Guiana
	Launcher	Ariane 5
	Owner of object	SES ASTRA S.A. (through its subsidiary SES 3B)
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.10 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	23.5 degrees East since 10 June 2010
	General purpose of object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services

- |     |   |   |
|-----|---|---|
| 18. | Committee on Space Research<br>international designator | 2011-041A   |
|     | Name of space object                                    | ASTRA 1N  |
|     | Launch date   | 6 August 2011   |
|     | Launch site   | Kourou, French Guiana   |
|     | Launcher  | Ariane 5  |
|     | Owner of object   | SES ASTRA S.A. (through its subsidiary<br>SES 1N)   |
|     | Orbital characteristics                                 |   |
|     | Nodal period  | 1,435.8–1,436.4 minutes   |
|     | Maximum inclination                                     | 0.10 degrees  |
|     | Apogee  | 35,820 km   |
|     | Perigee   | 35,752 km   |
|     | Longitude   | 19.2 degrees East since 28 February 2014  |
|     | General purpose of object                               | Encrypted and unencrypted transmission of<br>radio, television, multimedia data, VSAT and<br>broadband services |
| 19. | Committee on Space Research<br>international designator | 2011-058C   |
|     | Name of space object                                    | Vesselsat 1   |
|     | Launch date   | 12 October 2011   |
|     | Launch site   | Sriharikota, India  |
|     | Launcher  | PSLV-CA   |
|     | Owner of object   | LuxSpace S.A.   |
|     | Orbital characteristics                                 |   |
|     | Nodal period  | 102.10 minutes  |
|     | Maximum inclination                                     | 20.00 degrees   |
|     | Apogee  | 867 km  |
|     | Perigee   | 847 km  |
|     | General purpose of object                               | The object is still in orbit but is no longer<br>operational  |
| 20. | Committee on Space Research<br>international designator | 2012-051A   |
|     | Name of space object                                    | ASTRA 2F  |
|     | Launch date   | 28 September 2012   |
|     | Launch site   | Kourou, French Guiana   |
|     | Launcher  | Ariane 5  |
|     | Owner of object   | SES ASTRA S.A. (through its subsidiary<br>SES ASTRA 2F)   |
|     | Orbital characteristics                                 |   |
|     | Nodal period  | 1,435.8–1,436.4 minutes   |
|     | Maximum inclination                                     | 0.10 degrees  |
|     | Apogee  | 35,820 km   |
|     | Perigee   | 35,752 km   |



	Longitude	28.2 degrees East
	General purpose of object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
21.	Committee on Space Research international designator	2012-001B
	Name of space object	Vesselsat 2
	Launch date	9 January 2012
	Launch site	Taiyuan LC-9, China
	Launcher	Chang Zheng 4B Y26
	Owner of object	LuxSpace S.A.
	Orbital characteristics	The satellite has not been in orbit since 27 October 2016
22.	Committee on Space Research international designator	2013-056A
	Name of space object	ASTRA 2E
	Launch date	29 September 2013
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton-M/Breeze-M
	Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 2E)
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.10 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	28.5 degrees East since 31 July 2015
	General purpose of object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
23.	Committee on Space Research international designator	2014-011B
	Name of space object	ASTRA 5B
	Launch date	22 March 2014
	Launch site	Kourou, French Guiana
	Launcher	Ariane 5
	Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 5B)
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.10 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	31.5 degrees East

	General purpose of object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
24.	Committee on Space Research international designator	2014-089A
	Name of space object	ASTRA 2G
	Launch date	27 December 2014
	Launch site	Baikonur, Kazakhstan
	Launcher	Proton-M/Breeze-M
	Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 2G)
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.10 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	28.2 degrees East since 16 June 2015
	General purpose of object	Encrypted and unencrypted transmission of radio, television, multimedia data and broadband services and of governmental and institutional communication services
25.	Committee on Space Research international designator	2018-013A
	Name of space object	Govsat-1 (SES-16)
	Launch date	31 January 2018
	Launch site	Cape Canaveral, United States
	Launcher	SpaceX Falcon 9
	Owner of object	LuxGovSat S.A.
	Orbital characteristics	
	Nodal period	1,435.8–1,436.4 minutes
	Maximum inclination	0.05 degrees
	Apogee	35,820 km
	Perigee	35,752 km
	Longitude	21.42 degrees East
	General purpose of object	Provision of governmental and institutional communication services
26.	Committee on Space Research international designator	2018-111J
	Name of space object	FM91, LEMUR 2 Remy-Colton
	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes

	Maximum inclination	97.73 degrees
	Apogee	576 km
	Perigee	576 km
	Longitude of the ascending node	139.3 degrees
	General purpose of object	Earth exploration and meteorology (“Automatic Identification System” (AIS), “Automatic Dependent Surveillance-Broadcast” (ADS-B), “Global Navigation Satellite System Radio Occultation/Reflectometry” (GNSS-RO/R))
27.	Committee on Space Research international designator	2018-111K
	Name of space object	FM92, LEMUR 2 Gustavo
	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes
	Maximum inclination	97.72 degrees
	Apogee	577 km
	Perigee	577 km
	Longitude of the ascending node	139.3 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
28.	Committee on Space Research international designator	2018-111G
	Name of space object	FM93, LEMUR 2 ChristinaHolt
	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes
	Maximum inclination	97.73 degrees
	Apogee	574 km
	Perigee	574 km
	Longitude of the ascending node	139.3 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
29.	Committee on Space Research international designator	2018-111L
	Name of space object	FM94, LEMUR 2 Zo

	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes
	Maximum inclination	97.72 degrees
	Apogee	579 km
	Perigee	579 km
	Longitude of the ascending node	139.3 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
30.	Committee on Space Research international designator	2018-111H
	Name of space object	FM95, LEMUR 2 Tinykev
	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes
	Maximum inclination	97.73 degrees
	Apogee	575 km
	Perigee	575 km
	Longitude of the ascending node	139.3 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
31.	Committee on Space Research international designator	2018-111N
	Name of space object	FM96, LEMUR 2 SarahBettyBoo
	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes
	Maximum inclination	97.72 degrees
	Apogee	582 km
	Perigee	582 km
	Longitude of the ascending node	139.3 degrees

	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
32.	Committee on Space Research international designator	2018-111M
	Name of space object	FM97, LEMUR 2 NatalieMurray
	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes
	Maximum inclination	97.72 degrees
	Apogee	580 km
	Perigee	580 km
	Longitude of the ascending node	139.3 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS RO/R)
33.	Committee on Space Research international designator	2018-111P
	Name of space object	FM98, LEMUR 2 Daisy-Harper
	Launch date	27 December 2018
	Launch site	Vostochny Cosmodrome, Russian Federation
	Launcher	Soyuz 2.1 a
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	96.2 minutes
	Maximum inclination	97.72 degrees
	Apogee	584 km
	Perigee	584 km
	Longitude of the ascending node	139.3 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
34.	Committee on Space Research international designator	2019-018G
	Name of space object	FM99, LEMUR 2 JohanLoran
	Launch date	1 April 2019
	Launch site	Sriharikota, Andhra Pradesh, India
	Launcher	PSLV
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	94.6 minutes
	Maximum inclination	97.4 degrees

	Apogee	512.4 km
	Perigee	495.8 km
	Longitude of the ascending node	140.7 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
35.	Committee on Space Research international designator	2019-018H
	Name of space object	FM100, LEMUR 2 Beaudacious
	Launch date	1 April 2019
	Launch site	Sriharikota, Andhra Pradesh, India
	Launcher	PSLV
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	94.6 minutes
	Maximum inclination	97.4 degrees
	Apogee	513.1 km
	Perigee	496.1 km
	Longitude of the ascending node	140.7 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
36.	Committee on Space Research international designator	2019-018J
	Name of space object	FM101, LEMUR 2 Elham
	Launch date	1 April 2019
	Launch site	Sriharikota, Andhra Pradesh, India
	Launcher	PSLV
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	94.5 minutes
	Maximum inclination	97.4 degrees
	Apogee	511.8 km
	Perigee	495.1 km
	Longitude of the ascending node	140.7 degrees
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
37.	Committee on Space Research international designator	2019-018K
	Name of space object	FM102, LEMUR 2 Victor-Andrew
	Launch date	1 April 2019
	Launch site	Sriharikota, Andhra Pradesh, India
	Launcher	PSLV
	Owner of object	Spire Global Luxembourg

Orbital characteristics	
Nodal period	94.5 minutes
Maximum inclination	97.4 degrees
Apogee	511.6 km
Perigee	495.1 km
Longitude of the ascending node	140.7 degrees
General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
38. Committee on Space Research international designator	2020-068S
Name of space object	FM144, LEMUR 2 Susurrus
Launch date	28 September 2020
Launch site	Plesetsk, Russian Federation
Launcher	Soyuz 2.1 b/Fregat
Owner of object	Spire Global Luxembourg
Orbital characteristics	
Nodal period	96.0 minutes
Maximum inclination	97.66 degrees
Apogee	575 km
Perigee	575 km
Longitude of the ascending node	28.38 degrees
General purpose of object	Earth exploration and meteorology; testing of inter-satellite links
39. Committee on Space Research international designator	2020-068Q
Name of space object	FM145, LEMUR 2 Slicers
Launch date	28 September 2020
Launch site	Plesetsk, Russian Federation
Launcher	Soyuz 2.1 b/Fregat
Owner of object	Spire Global Luxembourg
Orbital characteristics	
Nodal period	96.0 minutes
Maximum inclination	97.66 degrees
Apogee	575 km
Perigee	575 km
Longitude of the ascending node	28.38 degrees
General purpose of object	Earth exploration and meteorology; testing of inter-satellite links
40. Committee on Space Research international designator	1998-067RW
Name of space object	FM137, LEMUR 2 Baxter-Oliver, LEMUR 2 v4.7

	Launch date	3 October 2020
	Launch site	Wallops Island, Virginia, United States of America
	Launcher	Antares
	Date of deployment	5 November 2020 (date of deployment from the International Space Station)
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	93.1 minutes
	Maximum inclination	51.6 degrees
	Apogee	421 km
	Perigee	409 km
	Longitude of the ascending node	8.25 degrees (right ascension of the ascending node, M50 reference frame)
	General purpose of object	Earth exploration and meteorology; testing of inter-satellite links
41.	Committee on Space Research international designator	1998-067RU
	Name of space object	FM142, LEMUR 2 Djara, LEMUR 2 V4.8
	Launch date	3 October 2020
	Launch site	Wallops Island, Virginia, United States of America
	Launcher	Antares
	Date of deployment	5 November 2020 (date of deployment from the International Space Station)
	Owner of object	Spire Global Luxembourg
	Orbital characteristics	
	Nodal period	93.1 minutes
	Maximum inclination	51.6 degrees
	Apogee	421 km
	Perigee	409 km
	Longitude of the ascending node	8.57 degrees (RAAN, M50)
	General purpose of object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
42.	Committee on Space Research international designator	2020-081H
	Name of space object	KSM1-a
	Launch date	7 November 2020
	Launch site	Sriharikota, Andhra Pradesh, India
	Launcher	PSLV C49
	Owner of object	Kleos Space S.A.
	Orbital characteristics	
	Nodal period	96 minutes
	Maximum inclination	37 degrees



	Apogee	576.60 km
	Perigee	569.97 km
	Longitude of the ascending node	99.44 degrees (RAAN)
	General purpose of object	Passive geolocation of radio transmissions in order to provide radio frequency scouting data in relation to maritime activities
43.	Committee on Space Research international designator	2020-081K
	Name of space object	KSM1-b
	Launch date	7 November 2020
	Launch site	Sriharikota, Andhra Pradesh, India
	Launcher	PSLV C49
	Owner of object	Kleos Space S.A.
	Orbital characteristics	
	Nodal period	96 minutes
	Maximum inclination	37 degrees
	Apogee	576.60 km
	Perigee	569.97 km
	Longitude of the ascending node	99.44 degrees (RAAN)
	General purpose of object	Passive geolocation of radio transmissions in order to provide radio frequency scouting data in relation to maritime activities
44.	Committee on Space Research international designator	2020-081C
	Name of space object	KSM1-c
	Launch date	7 November 2020
	Launch site	Sriharikota, Andhra Pradesh, India
	Launcher	PSLV C49
	Owner of object	Kleos Space S.A.
	Orbital characteristics	
	Nodal period	96 minutes
	Maximum inclination	37 degrees
	Apogee	576.60 km
	Perigee	569.97 km
	Longitude of the ascending node	99.44 degrees (RAAN)
	General purpose of object	Passive geolocation of radio transmissions in order to provide radio frequency scouting data in relation to maritime activities
45.	Committee on Space Research international designator	2020-081B
	Name of space object	KSM1-d
	Launch date	7 November 2020
	Launch site	Sriharikota, Andhra Pradesh, India

Launcher	PSLV C49
Owner of object	Kleos Space S.A.
Orbital characteristics	
Nodal period	96 minutes
Maximum inclination	37 degrees
Apogee	576.60 km
Perigee	569.97 km
Longitude of the ascending node	99.44 degrees (RAAN)
General purpose of object	Passive geolocation of radio transmissions in order to provide radio frequency scouting data in relation to maritime activities

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