



LUXEMBOURG
SPACE AGENCY



THE GOVERNMENT
OF THE GRAND DUCHY OF LUXEMBOURG
Ministry of the Economy

LUXEMBOURG REGISTRY OF SPACE OBJECTS

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Introduction

The Registry of Space Objects (the National Registry) for which the Grand Duchy of Luxembourg assumes registration obligation is established following the Convention on Registration of Objects Launched into Outer Space, adopted by the United Nations (UN) General Assembly in New York on 12 November 1974 (the Convention), and the Law of 15 December 2020 on Space Activities.

On 27 January 2021, Luxembourg adhered to the [Convention on the Registration of Space Objects](#), becoming the 70th State Party to the Convention. The UN General Assembly adopted the Convention in 1974 to assist in the identification of space objects, address issues regarding States Parties responsibilities concerning their space objects, and ensure open access to the information provided by States and international intergovernmental organizations.

The Registration Convention ensures that a central registry of objects launched into outer space is established and maintained by the Secretary-General of the UN. Thus, once a space object is launched and as soon as practicable, the Registration Convention requires the 'State of registry' to furnish information about the launched space object to the Secretary-General. The UN keeps information provided by State Parties relating to the space objects and the space activity on its website. Furthermore, the Registration Convention requires Luxembourg to maintain its own appropriate registry of space objects, also embodied in Chapter 7, Article 15 in the [Law of 15 December 2020](#).

Prior to becoming a State Party to the Registration Convention, Luxembourg voluntarily provided registration information of space objects under [Resolution 1721 B \(XVI\)](#). Following adherence to the Convention, registration submissions are in accordance with Article IV of the Convention.

For information regarding registration information of space objects already submitted by Luxembourg to the UN, please refer to the United Nations Office for Outer Space Affairs (UNOOSA) [website](#).

Definition of Terms

Apogee: The furthest distance in the space object's orbit from the surface of the body it is orbiting.

Change of Status: The date of the space object's decay, reentry, recovery, deorbit, or landing.

Change of Status in Operations:

Date when space object is no longer functional: The date using Coordinated Universal Time (UTC) (also referred to as Greenwich Mean Time (GMT)) when the space object ceases to perform operational functions for the State of registry.

Date when space object is moved to a disposal orbit: The date using Coordinated Universal Time (UTC) when the space object is moved into a disposal orbit. See COPUOS Space Debris Mitigation Guidelines for recommendations on disposal orbits, [link](#)

Physical conditions when space object is moved to a disposal orbit: The physical conditions when the space object is moved into a disposal orbit. Conditions can include the change in orbit (e.g. +300 km above GSO), passivation of the space object and other measures as recommended in the COPUOS Space Debris Mitigation Guidelines.

Change of Supervision of the Space Object:

Date of change in supervision: The date using Coordinated Universal Time (UTC) (also referred to as Greenwich Mean Time (GMT)) when the new owner or operator takes supervision of the space object.

Identity of the new owner or operator: The identity of the new owner or operator of the space object.

Change of orbital position in the geostationary orbit

Previous orbital position: The previous operational location of the space object in \pm degrees East along the equator from the Greenwich meridian.

New orbital position: The new operational location of the space object in \pm degrees East along the equator from the Greenwich meridian.

Change of function of the space object: The function of the space object following change in supervision.

COSPAR International Designator: Alphanumeric designator established by the Committee on Space Research (COSPAR) for space objects that successfully reach Earth orbit and beyond. The designator can be obtained from the [Online Index of Objects Launched into Outer Space](#).

Date of Launch: The date of launch of the space object using Coordinated Universal Time (UTC) (also referred to as Greenwich Mean Time (GMT)).

General Function of Space Object: General information on the space object. Can include mission objectives, frequency plans, etc. If required, please attach text in a separate page.

Geostationary Position: Applicable only to space objects in the geostationary orbit. Planned and/or actual location of space object in \pm degrees East along the equator from the Greenwich meridian (e.g. for 10.5 degrees West, use -10.5 degrees East).

Inclination: The angle relative to the equator of the Earth or celestial body the space object is orbiting. Measured counter-clockwise from the equator, stated in degrees.

Launching State: a) A State that launches or procures the launching of a space object; b) A State from whose territory or facility a space object is launched. In accordance with Article II of the Registration Convention, only one State of registry can exist for a space object. When more than one launching State exists, they should jointly determine which State should register the space object.

Nodal period: Time taken by the space object to complete one revolution around the body it is orbiting.

Perigee: The closest distance in the space object's orbit from the surface of the body it is orbiting.

State of Registry / Intergovernmental Organization: The launching State that carries the space object on its national registry of objects into outer space or the organization that has declared its acceptance of the rights and obligations provided for in accordance with Article VII of the Registration Convention. In accordance with Article II of the Registration Convention, only one State of registry can exist for a space object. When more than one launching State exists, they should jointly determine which State should register the space object.

Territory or location of launch: The territory or location of the launch of the space object. For a table of global launch locations, see <http://www.unoosa.org/oosa/SORegister/resources.html>

Website: Address on the World Wide Web for information on the space object/mission/operator.

ASTRA 1A

COSPAR International 1988-109B

Designator:

National Designation No.: /

Owner / Operator Name: Société Européenne des Satellites (SES
ASTRA S.A.)

Launch Date and Time: 11/12/1988

Launch Location: Kourou, French Guiana

Launch Vehicle Name: Ariane

Date of Decommissioning: 10/12/2004

Additional Information: The satellite is in a graveyard orbit, at a minimum perigee altitude of 400 km above the geostationary orbit

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 1B

COSPAR International 1991-015A

Designator:

National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.

Launch Date and Time: 02/03/1991

Launch Location: Kourou, French Guiana

Launch Vehicle Name: Ariane

Date of Decommissioning: 12/07/2006

Additional Information: The satellite is in a graveyard orbit, at a minimum perigee altitude of 500 km above the geostationary orbit

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 1C

COSPAR International 1993-031A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 12/05/1993
Launch Location: Kourou, French Guiana
Launch Vehicle Name: Ariane

Date of Decommissioning: 31/07/2014
Additional Information: The satellite is in a graveyard orbit, at a minimum perigee altitude of 387 km above the geostationary orbit

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 1D

COSPAR International 1994-070A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 31/10/1994
Launch Location: Kourou, French Guiana
Launch Vehicle Name: Ariane

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: Uncontrolled inclination since 22/10/2007.
Orbital inclination is therefore increasing
over time and was 9.2 degrees on
10/08/2020

Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 73,0 degrees West since 30/11/2017

General Function of Object: Encrypted and unencrypted transmission of
radio, television and multimedia data
services and of occasional-use services

Entry Date into National 02/03/2021ⁱ
Registry:

Annex 1: ASTRA 1D

Date of Decommissioning:	15/11/2021
Additional Information:	The satellite is in a graveyard orbit, at a minimum perigee altitude of 351 km above the geostationary orbit
Entry Date into National Registry:	16/11/2021

ASTRA 1E

COSPAR International 1995-055A

Designator:

National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.

Launch Date and Time: 19/10/1995

Launch Location: Kourou, French Guiana

Launch Vehicle Name: Ariane

Date of Decommissioning: 12/06/2015

Additional Information: The satellite is in a graveyard orbit, at a minimum perigee altitude of 390 km above the geostationary orbit

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 1F

COSPAR International 1996-021A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 08/04/1996
Launch Location: Baikonur, Kazakhstan
Launch Vehicle Name: Proton

Date of Decommissioning: 04/11/2020
Additional Information: The satellite is in a graveyard orbit, at a minimum perigee altitude of 312 km above the geostationary orbit

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 1G

COSPAR International 1997-076A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 02/12/1997
Launch Location: Baikonur, Kazakhstan
Launch Vehicle Name: Proton

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: Uncontrolled inclination since 23/05/2014.
Orbital inclination is therefore increasing
over time and was 4.7 degrees on
10/08/2020

Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 63.24 degrees East since 18/08/2019

General Function of Object: Encrypted and unencrypted transmission of
radio, television and multimedia data
services

Entry Date into National 02/03/2021ⁱ
Registry:

Annex 1: ASTRA 1G

New Basic Orbital Parameters

Inclination:	Uncontrolled inclination since 23/05/2014. Orbital inclination is therefore increasing over time and was 5.2 degrees on 10/02/2021
Geostationary position:	19.4 degrees East from 10/02/2021
Entry Date into National Registry:	02/03/2021

Annex 2: ASTRA 1G

Date of Decommissioning:	29/06/2023
Additional Information:	The satellite is in a graveyard orbit, at a minimum perigee of 314 km above the geostationary orbit. The propulsion is fully vented, batteries depleted, and transmitters switched off.
Nodal Period:	1454 minutes
Inclination	7 degrees
Apogee:	36,171 kilometers
Perigee:	36,100 kilometers
Entry Date into National Registry:	04/07/2023

ASTRA 2A

COSPAR International 1998-050A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 30/08/1998
Launch Location: Baikonur, Kazakhstan
Launch Vehicle Name: Proton

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: Uncontrolled inclination since 10/08/2018.
Orbital inclination is therefore increasing over time and was 1.8 degrees on 10/08/2020
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 28 degrees East since 06/08/2020

General Function of Object: Encrypted and unencrypted transmission of radio, television and multimedia data services

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: ASTRA 2A

New Basic Orbital Parameters

Nodal Period:	1,435.8-1,436.4 minutes
Inclination:	Uncontrolled inclination since 10/08/2018. Orbital inclination is therefore increasing over time and was 1.8 degrees on 10/08/2020
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	57.2 degrees East since 20/06/2022
Entry Date into National Registry:	06/02/2024

ASTRA 1H

COSPAR International 1999-033A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 18/06/1999
Launch Location: Baikonur, Kazakhstan
Launch Vehicle Name: Proton

Date of Decommissioning: 12/10/2019
Additional Information: The satellite is in a graveyard orbit, at a minimum perigee altitude of 340 km above the geostationary orbit

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 2B

COSPAR Designator:	International	2000-054A
National Designation No.:		/
Owner / Operator Name:		SES ASTRA S.A.
Launch Date and Time:		14/09/2000
Launch Location:		Kourou, French Guiana
Launch Vehicle Name:		Ariane 5
Nodal Period:		1,435.8-1,436.4 minutes
Inclination:		Uncontrolled inclination since 07/06/2014. Orbital inclination is therefore increasing over time and was 4.6 degrees on 10/08/2020
Apogee:		35,820 kilometers
Perigee:		35,752 kilometers
Geostationary Position:		19.6 degrees East since 01/10/2019
General Function of Object:		Encrypted and unencrypted transmission of radio, television and multimedia data services
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: ASTRA 2B

New Basic Orbital Parameters

Additional Information:

The satellite is in a graveyard orbit, at a minimum perigee altitude of 340 km above the geostationary orbit

Apogee:

36,221 kilometers

Perigee

36,124 kilometers

Entry Date into National Registry:

15/07/2021

ASTRA 2D

COSPAR International 2000-081A

Designator:

National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.

Launch Date and Time: 20/12/2000

Launch Location: Kourou, French Guiana

Launch Vehicle Name: Ariane 5

Nodal Period: 1,435.8-1,436.4 minutes

Inclination: Uncontrolled inclination since 22/04/2014. Orbital inclination is therefore increasing over time and was 5.9 degrees on 10/08/2020

Apogee: 35,820 kilometers

Perigee: 35,752 kilometers

Geostationary Position: 57.25 degrees East since 05/03/2020

General Function of Object: Encrypted and unencrypted transmission of radio, television and multimedia data services

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: ASTRA 2D

New Basic Orbital Parameters

Nodal Period:	1,435.8-1,436.4 minutes
Inclination:	Uncontrolled inclination since 22/04/2014. Orbital inclination is therefore increasing over time and was 6.74 degrees on 08/10/2021
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	23,7 degrees East since 04/10/2021
Entry Date into National Registry:	09/10/2021

Annex 2: ASTRA 2D

Date of Decommissioning:	19/01/2023
Additional Information:	The satellite is in a graveyard orbit, at a minimum perigee altitude of 358 km above the geostationary orbit. The propulsion is fully vented, batteries depleted and transmitters switched off
Apogee:	36,147 kilometers
Perigee:	36,144 kilometers
Entry Date into National Registry:	16/02/2023

ASTRA 2C

COSPAR International 2001-025A

Designator:

National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.

Launch Date and Time: 16/06/2001

Launch Location: Baikonur, Kazakhstan

Launch Vehicle Name: Proton

Nodal Period: 1,435.8-1,436.4 minutes

Inclination: Uncontrolled inclination since 09/11/2016. Orbital inclination is therefore increasing over time and was 3.0 degrees on 10/08/2020

Apogee: 35,820 kilometers

Perigee: 35,752 kilometers

Geostationary Position: 23.7 degrees East since 23/05/2018

General Function of Object: Encrypted and unencrypted transmission of radio, television and multimedia data services

Entry Date into National 02/03/2021ⁱ

Registry:

Annex 1: ASTRA 2C

New Basic Orbital Parameters

Nodal Period:	1,435.8-1,436.4 minutes
Inclination:	Uncontrolled inclination since 09/11/2016. Orbital inclination is therefore increasing over time and was 3.85 degrees on 18/08/2021
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	72.5 degrees West since 23/05/2018
Entry Date into National Registry:	30/08/2021

ASTRA 3A

COSPAR International 2002-015B
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 29/03/2002
Launch Location: Kourou, French Guiana
Launch Vehicle Name: Ariane 4

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: Uncontrolled inclination since 29/03/2012.
Orbital inclination is therefore increasing over time and was 6.0 degrees on 10/08/2020
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 86.85 degrees West since 06/12/2019

General Function of Object: Encrypted and unencrypted transmission of radio, television and multimedia data services; occasional-use services and very small aperture terminal (VSAT) services

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: ASTRA 3A

Date of Decommissioning:	21/11/2022
Additional Information:	The satellite is in a graveyard orbit, at a perigee greater than 334 km above GEO, propulsion fully vented, batteries depleted and transmitters switched off
Apogee:	36,125 kilometers
Perigee:	36,122 kilometers
Entry Date into National Registry:	16/02/2023

ASTRA 1KR

COSPAR International 2006-012A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A. (through its subsidiary
SES ASTRA 1KR S.à r.l.)
Launch Date and Time: 20/04/2006
Launch Location: Cape Canaveral, United States of America
Launch Vehicle Name: Atlas V

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 19.2 degrees East

General Function of Object: Encrypted and unencrypted transmission of
radio, television and multimedia data
services

Entry Date into National 02/03/2021ⁱ
Registry:

ASTRA 1L

COSPAR International 2007-016A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A. (through its subsidiary
SES ASTRA 1L S.à r.l.)
Launch Date and Time: 04/05/2007
Launch Location: Kourou, French Guiana
Launch Vehicle Name: Ariane 5

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 19.2 degrees East

General Function of Object: Encrypted and unencrypted transmission of
radio, television, multimedia data and
broadband services

Entry Date into National 02/03/2021ⁱ
Registry:

ASTRA 1M

COSPAR International 2008-057A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A. (through its subsidiary
SES ASTRA 1M S.à r.l.)
Launch Date and Time: 05/11/2008
Launch Location: Baikonur, Kazakhstan
Launch Vehicle Name: Proton-M/Breeze-M

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 19.2 degrees East

General Function of Object: Encrypted and unencrypted transmission of
radio, television and multimedia data
services

Entry Date into National 02/03/2021ⁱ
Registry:

ASTRA 3B

COSPAR International 2010-021A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A. (through its subsidiary
SES 3B S.à r.l.)
Launch Date and Time: 21/05/2010
Launch Location: Kourou, French Guiana
Launch Vehicle Name: Ariane 5

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 23.5 degrees East since 10/06/2010

General Function of Object: Encrypted and unencrypted transmission of
radio, television, multimedia data, VSAT
and broadband services

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 1N

COSPAR Designator:	International	2011-041A
National Designation No.:		/
Owner / Operator Name:		SES ASTRA S.A. (through its subsidiary SES 1N S.à r.l.)
Launch Date and Time:		06/08/2011
Launch Location:		Kourou, French Guiana
Launch Vehicle Name:		Ariane 5
Nodal Period:		1,435.8-1,436.4 minutes
Inclination:		0.10 degrees
Apogee:		35,820 kilometers
Perigee:		35,752 kilometers
Geostationary Position:		19.2 degrees East since 28/02/2014
General Function of Object:		Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
Entry Date into National Registry:		02/03/2021 ⁱ

Vesselsat 1

COSPAR International 2011-058C
Designator:
National Designation No.: /

Owner / Operator Name: LuxSpace S.à r.l.
Launch Date and Time: 12/10/2011
Launch Location: Sriharikota, India
Launch Vehicle Name: PSLV-CA

Nodal Period: 102.10 minutes
Inclination: 20 degrees
Apogee: 867 kilometers
Perigee: 847 kilometers

Additional Information: The object is still in orbit but is no longer operational

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 2F

COSPAR Designator:	International	2012-051A
National Designation No.:		/
Owner / Operator Name:		SES ASTRA S.A. (through its subsidiary SES ASTRA 2F S.à r.l.)
Launch Date and Time:		28/09/2012
Launch Location:		Kourou, French Guiana
Launch Vehicle Name:		Ariane 5
Nodal Period:		1,435.8-1,436.4 minutes
Inclination:		0.10 degrees
Apogee:		35,820 kilometers
Perigee:		35,752 kilometers
Geostationary Position:		28.2 degrees East
General Function of Object:		Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
Entry Date into National Registry:		02/03/2021 ⁱ

Vesselsat 2

COSPAR International 2012-001B

Designator:

National Designation No.: /

Owner / Operator Name: LuxSpace S.à r.l.

Launch Date and Time: 09/01/2012

Launch Location: Taiyuan LC-9, China

Launch Vehicle Name: Chang Zheng 4B Y26

Additional Information: The satellite has not been in orbit since 27/10/2016

Entry Date into National Registry: 02/03/2021ⁱ

ASTRA 2E

COSPAR International 2013-056A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A. (through its subsidiary
SES ASTRA 2E S.à r.l.)
Launch Date and Time: 29/09/2013
Launch Location: Baikonur, Kazakhstan
Launch Vehicle Name: Proton-M/Breeze-M

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 28.5 degrees East since 31/07/2015

General Function of Object: Encrypted and unencrypted transmission of
radio, television, multimedia data, VSAT
and broadband services

Entry Date into National 02/03/2021ⁱ
Registry:

ASTRA 5B

COSPAR International 2014-011B
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A. (through its subsidiary
SES ASTRA 5B S.à r.l.)
Launch Date and Time: 22/03/2014
Launch Location: Kourou, French Guiana
Launch Vehicle Name: Ariane 5

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 31.5 degrees East

General Function of Object: Encrypted and unencrypted transmission of
radio, television, multimedia data, VSAT
and broadband services

Entry Date into National 02/03/2021ⁱ
Registry:

Annex 1: ASTRA 3C (formerly ASTRA 5B)

Additional Information:	Change of the name from ASTRA 5B to ASTRA 3C
New Basic Orbital Parameters	
Nodal Period:	1,436 minutes
Inclination:	0.10 degrees
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	23,5 degrees East since 21/07/2023
Entry Date into National Registry:	21/07/2023

ASTRA 2G

COSPAR Designator:	International	2014-089A
National Designation No.:		/
Owner / Operator Name:		SES ASTRA S.A. (through its subsidiary SES ASTRA 2G S.à r.l.)
Launch Date and Time:		27/12/2014
Launch Location:		Baikonur, Kazakhstan
Launch Vehicle Name:		Proton-M/Breeze-M
Nodal Period:		1,435.8-1,436.4 minutes
Inclination:		0.10 degrees
Apogee:		35,820 kilometers
Perigee:		35,752 kilometers
Geostationary Position:		28.5 degrees East since 16/06/2015
General Function of Object:		Encrypted and unencrypted transmission of radio, television, multimedia data and broadband services and of governmental and institutional communication services
Entry Date into National Registry:		02/03/2021 ⁱ

Govsat-1 (SES-16)

COSPAR International 2018-013A

Designator:

National Designation No.: /

Owner / Operator Name: LuxGovSat S.A.

Launch Date and Time: 31/01/2018

Launch Location: Cape Canaveral, United States of America

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 1,435.8-1,436.4 minutes

Inclination: 0.05 degrees

Apogee: 35,820 kilometers

Perigee: 35,752 kilometers

Geostationary Position: 21.42 degrees East

General Function of Object: Provision of governmental and institutional communication services

Entry Date into National Registry: 02/03/2021ⁱ

FM91, LEMUR 2 REMY-COLTON

COSPAR International 2018-111J
Designator:
National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à r.l.
Launch Date and Time: 27/12/2018
Launch Location: Vostochny Cosmodrome, Russian Federation
Launch Vehicle Name: Soyuz 2.1 a

Nodal Period: 96.2 minutes
Inclination: 97.73 degrees
Apogee: 576 kilometers
Perigee: 576 kilometers
Longitude of the Ascending Node: 139.3 degrees

General Function 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))

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: FM91, LEMUR 2 REMY-COLTON

Additional Information:

The satellite has been decommissioned. However, the operator did not provide the date of decommissioning.

Entry Date into National Registry:

17/01/2025

FM92, LEMUR 2 GUSTAVO

COSPAR Designator:	International	2018-111K
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à r.l.	
Launch Date and Time:	27/12/2018	
Launch Location:	Vostochny Cosmodrome,	Russian Federation
Launch Vehicle Name:	Soyuz 2.1 a	
Nodal Period:	96.2 minutes	
Inclination:	97.72 degrees	
Apogee:	577 kilometers	
Perigee:	577 kilometers	
Longitude of the Ascending Node:	139.3 degrees	
General Function of Object:	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)	
Entry Date into National Registry:	02/03/2021 ⁱ	

Annex 1: FM92, LEMUR 2 GUSTAVO

Additional Information:

The satellite has been decommissioned. However, the operator did not provide the date of decommissioning.

Entry Date into National Registry:

17/01/2025

FM93, LEMUR 2 CHRISTINAHOLT

COSPAR Designator:	International	2018-111G
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à r.l.	
Launch Date and Time:	27/12/2018	
Launch Location:	Vostochny Cosmodrome,	Russian Federation
Launch Vehicle Name:	Soyuz 2.1 a	
Nodal Period:	96.2 minutes	
Inclination:	97.73 degrees	
Apogee:	574 kilometers	
Perigee:	574 kilometers	
Longitude of the Ascending Node:	139.3 degrees	
General Function of Object:	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)	
Entry Date into National Registry:	02/03/2021 ⁱ	

Annex 1: FM93, LEMUR 2 CHRISTINAHOLT

Additional Information:

The satellite has been decommissioned. However, the operator did not provide the date of decommissioning.

Entry Date into National Registry:

17/01/2025

FM94, LEMUR 2 ZO

COSPAR Designator:	International	2018-111L
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à r.l.	
Launch Date and Time:	27/12/2018	
Launch Location:	Vostochny Cosmodrome,	Russian Federation
Launch Vehicle Name:	Soyuz 2.1 a	
Nodal Period:	96.2 minutes	
Inclination:	97.72 degrees	
Apogee:	579 kilometers	
Perigee:	579 kilometers	
Longitude of the Ascending Node:	139.3 degrees	
General Function of Object:	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)	
Entry Date into National Registry:	02/03/2021 ⁱ	

Annex 1: FM94, LEMUR 2 ZO

Additional Information:

The satellite has been decommissioned. However, the operator did not provide the date of decommissioning.

Entry Date into National Registry:

17/01/2025

FM95, LEMUR 2 TINYKEV

COSPAR Designator:	International	2018-111H
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à r.l.	
Launch Date and Time:	27/12/2018	
Launch Location:	Vostochny Cosmodrome,	Russian Federation
Launch Vehicle Name:	Soyuz 2.1 a	
Nodal Period:	96.2 minutes	
Inclination:	97.73 degrees	
Apogee:	575 kilometers	
Perigee:	575 kilometers	
Longitude of the Ascending Node:	139.3 degrees	
General Function of Object:	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)	
Entry Date into National Registry:	02/03/2021 ⁱ	

Annex 1: FM95, LEMUR 2 TINYKEV

Date of Decommissioning:	02/01/2025
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.421 minutes
Inclination	97.509 degrees
Apogee:	157.7 kilometers
Perigee:	150 kilometers
Entry Date into National Registry:	17/01/2025

FM96, LEMUR 2 SARAHBETTYBOO

COSPAR Designator:	International	2018-111N
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à r.l.	
Launch Date and Time:	27/12/2018	
Launch Location:	Vostochny Cosmodrome,	Russian Federation
Launch Vehicle Name:	Soyuz 2.1 a	
Nodal Period:	96.2 minutes	
Inclination:	97.72 degrees	
Apogee:	582 kilometers	
Perigee:	582 kilometers	
Longitude of the Ascending Node:	139.3 degrees	
General Function of Object:	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)	
Entry Date into National Registry:	02/03/2021 ⁱ	

Annex 1: FM96, LEMUR 2 SARAHBETTYBOO

Additional Information:

The satellite has been decommissioned. However, the operator did not provide the date of decommissioning.

Entry Date into National Registry:

17/01/2025

FM97, LEMUR 2 NATALIEMURRAY

COSPAR Designator:	International	2018-111M
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à r.l.	
Launch Date and Time:	27/12/2018	
Launch Location:	Vostochny Cosmodrome,	Russian Federation
Launch Vehicle Name:	Soyuz 2.1 a	
Nodal Period:	96.2 minutes	
Inclination:	97.72 degrees	
Apogee:	580 kilometers	
Perigee:	580 kilometers	
Longitude of the Ascending Node:	139.3 degrees	
General Function of Object:	Earth exploration and meteorology (AIS, ADS-B, GNSS RO/R)	
Entry Date into National Registry:	02/03/2021 ⁱ	

Annex 1: FM97, LEMUR 2 NATALIEMURRAY

Additional Information:

The satellite has been decommissioned. However, the operator did not provide the date of decommissioning.

Entry Date into National Registry:

17/01/2025

FM98, LEMUR 2 DAISY-HARPER

COSPAR Designator:	International	2018-111P
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à r.l.	
Launch Date and Time:	27/12/2018	
Launch Location:	Vostochny Cosmodrome,	Russian Federation
Launch Vehicle Name:	Soyuz 2.1 a	
Nodal Period:	96.2 minutes	
Inclination:	97.72 degrees	
Apogee:	584 kilometers	
Perigee:	584 kilometers	
Longitude of the Ascending Node:	139.3 degrees	
General Function of Object:	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)	
Entry Date into National Registry:	02/03/2021 ⁱ	

Annex 1: FM98, LEMUR 2 DAISY-HARPER

Additional Information:

The satellite has been decommissioned. However, the operator did not provide the date of decommissioning.

Entry Date into National Registry:

17/01/2025

FM99, LEMUR 2 JOHANLORAN

COSPAR International 2019-018G

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à r.l.

Launch Date and Time: 01/04/2019

Launch Location: Sriharikota, Andhra Pradesh, India

Launch Vehicle Name: PSLV

Nodal Period: 94.6 minutes

Inclination: 97.4 degrees

Apogee: 512.4 kilometers

Perigee: 495.8 kilometers

Longitude of the Ascending Node: 140.7 degrees

General Function of Object: Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: FM99, LEMUR 2 JOHANLORAN

Date of Decommissioning:	07/03/2023
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.7 minutes
Inclination	97.256 degrees
Apogee:	178.7 kilometers
Perigee:	156.8 kilometers
Entry Date into National Registry:	26/02/2024

FM100, LEMUR 2 BEAUDACIOUS

COSPAR International 2019-018H

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à r.l.

Launch Date and Time: 01/04/2019

Launch Location: Sriharikota, Andhra Pradesh, India

Launch Vehicle Name: PSLV

Nodal Period: 94.6 minutes

Inclination: 97.4 degrees

Apogee: 513.1 kilometers

Perigee: 496.1 kilometers

Longitude of the Ascending Node: 140.7 degrees

General Function of Object: Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: FM100, LEMUR 2 BEAUDACIOUS

Date of Decommissioning:	30/06/2023
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	88.119 minutes
Inclination	97.223 degrees
Apogee:	198.1 kilometers
Perigee:	178.9 kilometers
Entry Date into National Registry:	26/02/2024

FM101, LEMUR 2 ELHAM

COSPAR International 2019-018J

Designator:

National Designation No.: /

Owner / Operator Name:

Spire Global Luxembourg S.à r.l.

Launch Date and Time:

01/04/2019

Launch Location:

Sriharikota, Andhra Pradesh, India

Launch Vehicle Name:

PSLV

Nodal Period:

94.5 minutes

Inclination:

97.4 degrees

Apogee:

511.8 kilometers

Perigee:

495.1 kilometers

Longitude of the Ascending Node:

140.7 degrees

General Function of Object:

Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)

Entry Date into National Registry:

02/03/2021ⁱ

Annex 1: FM101, LEMUR 2 ELHAM

Date of Decommissioning:	03/05/2023
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.923 minutes
Inclination	97.247 degrees
Apogee:	190.7 kilometers
Perigee:	166.9 kilometers
Entry Date into National Registry:	26/02/2024

FM102, LEMUR 2 VICTOR-ANDREW

COSPAR Designator:	International	2019-018K
National Designation No.:		/
Owner / Operator Name:		Spire Global Luxembourg S.à r.l.
Launch Date and Time:		01/04/2019
Launch Location:		Sriharikota, Andhra Pradesh, India
Launch Vehicle Name:		PSLV
Nodal Period:		94.5 minutes
Inclination:		97.4 degrees
Apogee:		511.6 kilometers
Perigee:		495.1 kilometers
Longitude of the Ascending Node:		140.7 degrees
General Function of Object:		Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: FM102, LEMUR 2 VICTOR-ANDREW

Date of Decommissioning:	08/03/2023
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	88.462 minutes
Inclination	97.25 degrees
Apogee:	214.4 kilometers
Perigee:	196.7 kilometers
Entry Date into National Registry:	26/02/2024

FM144, LEMUR 2 SUSURRUS

COSPAR International 2020-068S

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à r.l.

Launch Date and Time: 28/09/2020

Launch Location: Plesetsk, Russian Federation

Launch Vehicle Name: Soyuz-2.1 b/Fregat

Nodal Period: 96.0 minutes

Inclination: 97.66 degrees

Apogee: 575 kilometers

Perigee: 475 kilometers

Longitude of the Ascending Node: 28.38 degrees

General Function of Object: Earth exploration and meteorology, Inter-Satellite Link experimentation

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: FM144, LEMUR 2 SUSURRUS

Date of Decommissioning:	09/10/2024
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.725 minutes
Inclination	97.427 degrees
Apogee:	175.4 kilometers
Perigee:	162.5 kilometers
Entry Date into National Registry:	17/01/2025

FM145, LEMUR 2 SLICERS

COSPAR International 2020-068Q

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à r.l.

Launch Date and Time: 28/09/2020

Launch Location: Plesetsk, Russian Federation

Launch Vehicle Name: Soyuz-2.1 b/Fregat

Nodal Period: 96.0 minutes

Inclination: 97.66 degrees

Apogee: 575 kilometers

Perigee: 475 kilometers

Longitude of the Ascending Node: 28.38 degrees

General Function of Object: Earth exploration and meteorology, Inter-Satellite Link experimentation

Entry Date into National Registry: 02/03/2021ⁱ

Annex 1: FM145, LEMUR 2 SLICERS

Date of Decommissioning:	09/10/2024
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.659 minutes
Inclination	97.715 degrees
Apogee:	171 kilometers
Perigee:	160.4 kilometers
Entry Date into National Registry:	17/01/2025

FM137, LEMUR 2 BAXTER-OLIVER, LEMUR 2 V4.7

COSPAR Designator:	International	1998-067RV
National Designation No.:		/
Owner / Operator Name:		Spire Global Luxembourg S.à r.l.
Launch Date and Time:		03/10/2020
Launch Location:		Wallops, Virginia, United States
Launch Vehicle Name:		Antares
Nodal Period:		93.1 minutes
Inclination:		51.6 degrees
Apogee:		421 kilometers
Perigee:		409 kilometers
Longitude of the Ascending Node:		8.25 degrees (RAAN, M50)
General Function of Object:		Earth exploration and meteorology, Inter-Satellite Link experimentation
Additional Information:		The satellite was deployed from the International Space Station (ISS) on 05/11/2020
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: FM137, LEMUR 2 BAXTER-OLIVER, LEMUR 2 V4.7

Date of Decommissioning:	19/12/2021
Additional Information:	The satellite re-entered Earth's atmosphere on 19/12/2021, burning up completely with no material reaching the Earth's surface.
Entry Date into National Registry:	01/02/2022

FM142, LEMUR 2 DJARA, LEMUR 2 V4.8

COSPAR Designator:	International	1998-067RW
National Designation No.:		/
Owner / Operator Name:		Spire Global Luxembourg S.à r.l.
Launch Date and Time:		03/10/2020
Launch Location:		Wallops, Virginia, United States
Launch Vehicle Name:		Antares
Nodal Period:		93.1 minutes
Inclination:		51.6 degrees
Apogee:		421 kilometers
Perigee:		409 kilometers
Longitude of the Ascending Node:		8.57 degrees (RAAN, M50)
General Function of Object:		Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Additional Information:		The satellite was deployed from the International Space Station (ISS) on 05/11/2020
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: FM142, LEMUR 2 DJARA, LEMUR 2 V4.8

Date of Decommissioning:

03/01/2022

Additional Information:

The satellite re-entered Earth's atmosphere on 03/01/2022, burning up completely with no material reaching the Earth's surface.

Entry Date into National Registry:

01/02/2022

KSM1-A

COSPAR Designator:	International	2020-081H
National Designation No.:		/
Owner / Operator Name:		Kleos Space S.A.
Launch Date and Time:		07/11/2020
Launch Location:		Sriharikota, Andhra Pradesh, India
Launch Vehicle Name:		PSLV C49
Nodal Period:		96 minutes
Inclination:		37 degrees
Apogee:		576.60 kilometers
Perigee:		569.97 kilometers
Longitude of the Ascending Node:		99.44 degrees (RAAN)
General Function of Object:		Passive geolocation of radio transmissions for the purpose of supplying Radio Frequency (RF) reconnaissance data to the maritime situation awareness domain
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: KSM1-A

New Basic Orbital Parameters

Additional Information:

The satellite finished Launch and Early Orbit Phase (LEOP) and has new basic orbital parameters

Inclination:

36.9 degrees

Apogee:

577 kilometers

Perigee:

572.6 kilometers

Entry Date into National Registry:

23/09/2021

Annex 2: KSM1-A

Date when no longer functional:	27/06/2023
Date of Reentry:	Predicted 07/02/2035
Additional Information:	The predicted orbit decay indicates that the spacecraft will re-enter the Earth atmosphere on the 07/02/2035
Entry Date into National Registry:	31/07/2023

KSM1-B

COSPAR Designator:	International	2020-081K
National Designation No.:		/
Owner / Operator Name:		Kleos Space S.A.
Launch Date and Time:		07/11/2020
Launch Location:		Sriharikota, Andhra Pradesh, India
Launch Vehicle Name:		PSLV C49
Nodal Period:		96 minutes
Inclination:		37 degrees
Apogee:		576.60 kilometers
Perigee:		569.97 kilometers
Longitude of the Ascending Node:		99.44 degrees (RAAN)
General Function of Object:		Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: KSM1-B

New Basic Orbital Parameters

Additional Information:

The satellite finished Launch and Early Orbit Phase (LEOP) and has new basic orbital parameters.

Inclination:

36.9 degrees

Apogee:

581.3 kilometers

Perigee:

568.3 kilometers

**Entry Date into National
Registry:**

23/09/2021

Annex 2: KSM1-B

Date when no longer functional:	27/06/2023
Date of Reentry:	Predicted 08/04/2035
Additional Information:	The predicted orbit decay indicates that the spacecraft will re-enter the Earth atmosphere on the 08/04/2035
Entry Date into National Registry:	31/07/2023

KSM1-C

COSPAR Designator:	International	2020-081C
National Designation No.:		/
Owner / Operator Name:		Kleos Space S.A.
Launch Date and Time:		07/11/2020
Launch Location:		Sriharikota, Andhra Pradesh, India
Launch Vehicle Name:		PSLV C49
Nodal Period:		96 minutes
Inclination:		37 degrees
Apogee:		576.60 kilometers
Perigee:		569.97 kilometers
Longitude of the Ascending Node:		99.44 degrees (RAAN)
General Function of Object:		Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: KSM1-C

New COSPAR International Designator: 2020-081B

New Basic Orbital Parameters Additional Information: The satellite finished Launch and Early Orbit Phase (LEOP) and has new basic orbital parameters.

Inclination: 36.9 degrees
Apogee: 578.8 kilometers
Perigee: 570.7 kilometers

Entry Date into National Registry: 23/09/2021

Annex 2: KSM1-C

Date when no longer functional:	27/06/2023
Date of Reentry:	Predicted 29/08/2035
Additional Information:	The predicted orbit decay indicates that the spacecraft will re-enter the Earth atmosphere on the 29/08/2035
Entry Date into National Registry:	31/07/2023

KSM1-D

COSPAR Designator:	International	2020-081B
National Designation No.:		/
Owner / Operator Name:		Kleos Space S.A.
Launch Date and Time:		07/11/2020
Launch Location:		Sriharikota, Andhra Pradesh, India
Launch Vehicle Name:		PSLV C49
Nodal Period:		96 minutes
Inclination:		37 degrees
Apogee:		576.60 kilometers
Perigee:		569.97 kilometers
Longitude of the Ascending Node:		99.44 degrees (RAAN)
General Function of Object:		Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain
Entry Date into National Registry:		02/03/2021 ⁱ

Annex 1: KSM1-D

New COSPAR International Designator: 2020-081C

New Basic Orbital Parameters Additional Information:

The satellite finished Launch and Early Orbit Phase (LEOP) and has new basic orbital parameters.

Inclination: 36.9 degrees

Apogee: 579.8 kilometers

Perigee: 569.9 kilometers

Entry Date into National Registry: 23/09/2021

Annex 2: KSM1-D

Date when no longer functional:	27/06/2023
Date of Reentry:	Predicted 15/03/2035
Additional Information:	The predicted orbit decay indicates that the spacecraft will re-enter the Earth atmosphere on the 15/03/2035
Entry Date into National Registry:	31/07/2023

FM136, LEMUR-2 NEVA

COSPAR International 2021-006AP
Designator:
National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.
Launch Date and Time: 24/01/2021
Launch Location: Cape Canaveral, United States
Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.2 minutes
Inclination: 97.5 degrees
Apogee: 525 kilometers
Perigee: 528 kilometers

General Function of Object: Earth exploration and meteorology, Inter-Satellite Link experimentation

Entry Date into National Registry: 03/03/2021

Annex 1: FM136, LEMUR-2 NEVA

Date of Decommissioning:	20/01/2024
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.792 minutes
Inclination	97.349 degrees
Apogee:	179.6 kilometers
Perigee:	165 kilometers
Entry Date into National Registry:	27/05/2024

FM139, LEMUR-2 JACKSON

COSPAR International 2021-059G

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 30/06/2021, 19:31:00

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.2 minutes

Inclination: 97.5 degrees

Apogee: 543.8 kilometers

Perigee: 531 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 30/08/2021

Annex 1: FM139, LEMUR-2 JACKSON

Date of Decommissioning:	09/02/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.14 minutes
Inclination	97.52 minutes
Apogee:	197.8 kilometers
Perigee:	181.1 kilometers
Entry Date into National Registry:	25/10/2024

FM140, LEMUR-2 ANNABANANA

COSPAR International 2021-059AW

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 30/06/2021, 19:31:00

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.2 minutes

Inclination: 97.5 degrees

Apogee: 543.7 kilometers

Perigee: 525.3 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 30/08/2021

Annex 1: FM140, LEMUR-2 ANNABANANA

Date of Decommissioning:	12/07/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.46 minutes
Inclination	97.53 degrees
Apogee:	166.2 kilometers
Perigee:	145.3 kilometers
Entry Date into National Registry:	25/10/2024

FM143, LEMUR-2 JOHN-TREIRES

COSPAR **International** 2021-059AY

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 30/06/2021, 19:31:00

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.2 minutes

Inclination: 97.5 degrees

Apogee: 544.3 kilometers

Perigee: 522.2 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 30/08/2021

Registry:

Annex 1: FM143, LEMUR-2 JOHN-TREIRES

Date of Decommissioning:	01/12/2023
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	88.36 minutes
Inclination	97.571 degrees
Apogee:	205.7 kilometers
Perigee:	195.3 kilometers
Entry Date into National Registry:	26/02/2024

FM148, LEMUR-2 AC-CUBED

COSPAR Designator:	International	2021-059BA
National Designation No.:		/
Owner / Operator Name:		Spire Global Luxembourg S.à. r.l.
Launch Date and Time:		30/06/2021, 19:31:00
Launch Location:		Cape Canaveral, United States
Launch Vehicle Name:		SpaceX Falcon 9
Nodal Period:		95.1 minutes
Inclination:		97.5 degrees
Apogee:		545.1 kilometers
Perigee:		519.9 kilometers
General Function of Object:		Earth exploration and meteorology
Entry Date into National Registry:		30/08/2021

Annex 1: FM148, LEMUR-2 AC-CUBED

Date of Decommissioning:	19/02/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.13 minutes
Inclination	97.59 degrees
Apogee:	195.4 kilometers
	182.2 kilometers
Perigee:	
Entry Date into National Registry:	25/10/2024

FM150, LEMUR-2 CARLSANTAMARI

COSPAR International 2021-059CJ

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 30/06/2021, 19:31:00

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.1 minutes

Inclination: 97.5 degrees

Apogee: 543.4 kilometers

Perigee: 519.2 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 30/08/2021

Registry:

Annex 1: FM150, LEMUR-2 CARLSANTAMARI

Date of Decommissioning:	13/08/2023
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.915 minutes
Inclination	97.572 degrees
Apogee:	188.4 kilometers
Perigee:	168.4 kilometers
Entry Date into National Registry:	26/02/2024

FM151, LEMUR-2 KRYWE

COSPAR International 2022-003F

Designator:

National Designation No.: /

Owner / Operator Name:

Spire Global Luxembourg S.à. r.l.

Launch Date and Time:

13/01/2022

Launch Location:

Mojave Air and Space Port, United States

Launch Vehicle Name:

Virgin Orbit LauncherOne

Nodal Period:

95.22 minutes

Inclination:

45 degrees

Apogee:

500 kilometers

Perigee:

500 kilometers

General Function of Object:

Earth exploration and meteorology

Entry Date into National Registry:

08/02/2022

Annex 1: FM151, LEMUR-2 KRYWE

Date of Decommissioning:	13/08/2023
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
COSPAR Designator:	International 2022-003G
Nodal Period:	88.033 minutes
Inclination	44.938 degrees
Apogee:	186.4 kilometers
Perigee:	182.2 kilometers
Entry Date into National Registry:	26/02/2024

FM141, LEMUR-2 KING-JULIEN

COSPAR International 2022-002AQ

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 13/01/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.22 minutes

Inclination: 97.5 degrees

Apogee: 525 kilometers

Perigee: 525 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 08/02/2022

Annex 1: FM141, LEMUR-2 KING-JULIEN

Date of Decommissioning:	17/01/2024
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	87.961 minutes
Inclination	97.391 degrees
Apogee:	186.8 kilometers
Perigee:	174.6 kilometers
Entry Date into National Registry:	27/05/2024

FM149, LEMUR-2 RAMONAMAE

COSPAR International 2022-002AP

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 13/01/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.23 minutes

Inclination: 97.5 degrees

Apogee: 525 kilometers

Perigee: 525 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 08/02/2022

Annex 1: FM149, LEMUR-2 RAMONAMAE

Date of Decommissioning:	29/05/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.68 minutes
Inclination	97.38 degrees
Apogee:	176.6 kilometers
Perigee:	156.5 kilometers
Entry Date into National Registry:	25/10/2024

FM152, LEMUR-2 MIRIWARI

COSPAR International 2022-002BY

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 13/01/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.23 minutes

Inclination: 97.5 degrees

Apogee: 525 kilometers

Perigee: 525 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 08/02/2022

Annex 1: FM152, LEMUR-2 MIRIWARI

Date of Decommissioning:	29/06/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.38 minutes
Inclination	97.36 degrees
Apogee:	160.9 kilometers
Perigee:	142.8 kilometers
Entry Date into National Registry:	25/10/2024

FM153, LEMUR-2 DJIRANG

COSPAR Designator:	International	2022-002CC
National Designation No.:		/
Owner / Operator Name:		Spire Global Luxembourg S.à. r.l.
Launch Date and Time:		13/01/2022
Launch Location:		Cape Canaveral, United States
Launch Vehicle Name:		SpaceX Falcon 9
Nodal Period:		95.23 minutes
Inclination:		97.5 degrees
Apogee:		525 kilometers
Perigee:		525 kilometers
General Function of Object:		Earth exploration and meteorology
Entry Date into National Registry:		08/02/2022

Annex 1: FM153, LEMUR-2 DJIRANG

Date of Decommissioning:	29/06/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.67 minutes
Inclination	97.35 degrees
Apogee:	176.7 kilometers
Perigee:	155.4 kilometers
Entry Date into National Registry:	25/10/2024

FM154, LEMUR-2 ROHOVITHSA

COSPAR International 2022-002BE

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 13/01/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.52 minutes

Inclination: 97.5 degrees

Apogee: 525 kilometers

Perigee: 525 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 08/02/2022

Annex 1: FM154, LEMUR-2 ROHOVITHSA

Date of Decommissioning:	03/08/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.30 minutes
Inclination	97.36 degrees
Apogee:	207.9 kilometers
Perigee:	187.5 kilometers
Entry Date into National Registry:	25/10/2024

SES-17

COSPAR International 2021-095A
Designator:
National Designation No.: /

Owner / Operator Name: SES ASTRA S.A.
Launch Date and Time: 24/10/2021
Launch Location: Kourou, French Guiana
Launch Vehicle Name: Ariane 5

Nodal Period: 1,435.8-1,436.4 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 292.9 degrees East

General Function of Object: Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services

Entry Date into National Registry: 05/05/2022

FM162, LEMUR-2 TENNYSONLILY

COSPAR **International** 2022-057A

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 25/05/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.26 minutes

Inclination: 97.5 degrees

Apogee: 538 kilometers

Perigee: 524 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 27/06/2022
Registry:

Annex 1: FM162, LEMUR-2 TENNYSONLILY

Date of Decommissioning:	11/03/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.45 minutes
Inclination	97.54 degrees
Apogee:	163.6 kilometers
Perigee:	147.0 kilometers
Entry Date into National Registry:	25/10/2024

FM155, LEMUR-2 VANDENDRIES

COSPAR International 2022-057B

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 25/05/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.25 minutes

Inclination: 97.5 degrees

Apogee: 537 kilometers

Perigee: 525 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 27/06/2022

Annex 1: FM155, LEMUR-2 VANDENDRIES

Date of Decommissioning:	21/05/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.55 minutes
Inclination	97.54 degrees
Apogee:	172.6 kilometers
Perigee:	148.2 kilometers
Entry Date into National Registry:	25/10/2024

FM163, LEMUR-2 KAREN_B

COSPAR International 2022-057E

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 25/05/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.24 minutes

Inclination: 97.5 degrees

Apogee: 536 kilometers

Perigee: 524 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 27/06/2022

Annex 1: FM163, LEMUR-2 KAREN_B

Date of Decommissioning:	31/01/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.36 minutes
Inclination	97.53 degrees
Apogee:	207.1 kilometers
Perigee:	193.3 kilometers
Entry Date into National Registry:	25/10/2024

FM161, LEMUR-2 HANCOM-1

COSPAR International 2022-057J

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 25/05/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.23 minutes

Inclination: 97.5 degrees

Apogee: 538 kilometers

Perigee: 522 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 27/06/2022

Annex 1: FM161, LEMUR-2 HANCOM-1

Date of Decommissioning:	26/07/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.22 minutes
Inclination	97.57 degrees
Apogee:	153.7 kilometers
Perigee:	134.0 kilometers
Entry Date into National Registry:	25/10/2024

FM156, LEMUR-2 MIMI1307

COSPAR International 2022-057AP
Designator:
National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.
Launch Date and Time: 25/05/2022
Launch Location: Cape Canaveral, United States
Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.14 minutes
Inclination: 97.5 degrees
Apogee: 536 kilometers
Perigee: 515 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 27/06/2022

Annex 1: FM156, LEMUR-2 MIMI1307

Date of Decommissioning:	03/05/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.35 minutes
Inclination	97.55 degrees
Apogee:	209.7 kilometers
Perigee:	190.3 kilometers
Entry Date into National Registry:	25/10/2024

KSF1-A

COSPAR International 2021-059BD

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 30/06/2021

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.3 minutes

Inclination: 97.6 degrees

Apogee: 501.8 kilometers

Perigee: 484.2 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF1-A

Date when no longer functional:	19/02/2022
Date of Reentry:	23/02/2024
Entry Date into National Registry:	26/02/2024

KSF1-B

COSPAR International 2021-059AZ

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 30/06/2021

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.3 minutes

Inclination: 97.6 degrees

Apogee: 505.1 kilometers

Perigee: 480.7 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF1-B

Date when no longer functional:	11/10/2021
Date of Decay:	14/02/2024
Entry Date into National Registry:	26/02/2024

KSF1-C

COSPAR International 2021-059BR

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 30/06/2021

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.5 minutes

Inclination: 97.6 degrees

Apogee: 510.2 kilometers

Perigee: 490.3 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF1-C

Date when no longer functional:	16/03/2022
Date of Decay:	21/02/2024
Entry Date into National Registry:	26/02/2024

KSF1-D

COSPAR International 2021-059BZ

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A.

Launch Date and Time: 30/06/2021

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.2 minutes

Inclination: 97.6 degrees

Apogee: 501.6 kilometers

Perigee: 473.7 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF1-D

Date when no longer functional:	21/02/2022
Date of Decay:	05/12/2023
Entry Date into National Registry:	26/02/2024

KSF2-A

COSPAR International 2022-033AP

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A.

Launch Date and Time: 01/04/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.2 minutes

Inclination: 97.4 degrees

Apogee: 494.5 kilometers

Perigee: 480.2 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF2-A

Date of Decay: 13/08/2024

**Entry Date into National
Registry:** 27/11/2024

KSF2-B

COSPAR International 2022-033AN

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 01/04/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.2 minutes

Inclination: 97.4 degrees

Apogee: 496.4 kilometers

Perigee: 481.8 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF2-B

Date when no longer functional:	20/05/2022
Date of Decay:	14/02/2024
Entry Date into National Registry:	26/02/2024

KSF2-C

COSPAR International 2022-033AJ

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 01/04/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.2 minutes

Inclination: 97.4 degrees

Apogee: 491.3 kilometers

Perigee: 479.8 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF2-C

Date of Decay: 16/08/2024

**Entry Date into National
Registry:** 27/11/2024

KSF2-D

COSPAR International 2022-033AK

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 01/04/2022

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.1 minutes

Inclination: 97.4 degrees

Apogee: 486.7 kilometers

Perigee: 475.1 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 16/02/2023

Annex 1: KSF2-D

Date when no longer functional:	20/06/2023
Date of Decay:	07/12/2023
Entry Date into National Registry:	26/02/2024

FM164, LEMUR-2 EMMACULATE

COSPAR Designator:	International	2023-001AE
National Designation No.:		/
Owner / Operator Name:		Spire Global Luxembourg S.à. r.l.
Launch Date and Time:		03/01/2023
Launch Location:		Cape Canaveral, United States
Launch Vehicle Name:		SpaceX Falcon 9
Nodal Period:		95.10 minutes
Inclination:		97.5 degrees
Apogee:		541.5 kilometers
Perigee:		518 kilometers
General Function of Object:		Earth exploration and meteorology
Entry Date into National Registry:		16/02/2023

Annex 1: FM164, LEMUR-2 EMMACULATE

Date of Decommissioning:	23/05/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.51 minutes
Inclination	97.40 degrees
Apogee:	166.4 kilometers
Perigee:	149.8 kilometers
Entry Date into National Registry:	25/10/2024

FM165, LEMUR-2 DISCLAIMER

COSPAR International 2023-001F

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.19 minutes

Inclination: 97.5 degrees

Apogee: 542.8 kilometers

Perigee: 525.7 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 16/02/2023

Registry:

Annex 1: FM165, LEMUR-2 DISCLAIMER

Date of Decommissioning:	28/07/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.60 minutes
Inclination	97.39 degrees
Apogee:	173.0 kilometers
Perigee:	152.7 kilometers
Entry Date into National Registry:	25/10/2024

FM166, LEMUR-2 PHILARI

COSPAR International 2023-001E

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.19 minutes

Inclination: 97.5 degrees

Apogee: 542.4 kilometers

Perigee: 526.8 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 16/02/2023

Annex 1: FM166, LEMUR-2 PHILARI

Date of Decommissioning:	12/08/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.64 minutes
Inclination	97.39 degrees
Apogee:	222.6 kilometers
Perigee:	205.8 kilometers
Entry Date into National Registry:	25/10/2024

FM167, LEMUR-2 MMOLO

COSPAR International 2023-001AF

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.10 minutes

Inclination: 97.5 degrees

Apogee: 541.8 kilometers

Perigee: 517.4 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 16/02/2023

Registry:

Annex 1: FM167, LEMUR-2 MMOLO

Date of Decommissioning:	20/10/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.434 minutes
Inclination	97.388 degrees
Apogee:	210.2 kilometers
Perigee:	198 kilometers
Entry Date into National Registry:	17/01/2025

FM168, LEMUR-2 STEVEALBERS

COSPAR International 2023-001J

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.19 minutes

Inclination: 97.5 degrees

Apogee: 542.7 kilometers

Perigee: 526.3 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 16/02/2023

Registry:

Annex 1: FM168, LEMUR-2 STEVEALBERS

Date of Decommissioning:	20/09/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	87.76 minutes
Inclination	97.37 degrees
Apogee:	179.0 kilometers
Perigee:	162.0 kilometers
Entry Date into National Registry:	25/10/2024

FM169, LEMUR-2 FUENTETAJA-01

COSPAR International 2023-001CH
Designator:
National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.
Launch Date and Time: 03/01/2023
Launch Location: Cape Canaveral, United States
Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95.11 minutes
Inclination: 97.5 degrees
Apogee: 542.4 kilometers
Perigee: 518.4 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 16/02/2023

Annex 1: FM169, LEMUR-2 FUENTETAJA-01

Date of Decommissioning:	04/08/2024
Additional Information:	The satellite has re-entered Earth atmosphere. The orbital parameters from the satellite's last contact are presented below.
Nodal Period:	88.45 minutes
Inclination	97.41 degrees
Apogee:	214.1 kilometers
Perigee:	195.6 kilometers
Entry Date into National Registry:	25/10/2024

KSF3-A

COSPAR International 2023-001CF

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.9 minutes

Inclination: 97.5 degrees

Apogee: 532.4 kilometers

Perigee: 509.3 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 22/05/2023

KSF3-B

COSPAR International 2023-001L

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.9 minutes

Inclination: 97.5 degrees

Apogee: 531.4 kilometers

Perigee: 514.4 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 22/05/2023

KSF3-C

COSPAR International 2023-001K

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 95 minutes

Inclination: 97.5 degrees

Apogee: 532.4 kilometers

Perigee: 516.1 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 22/05/2023

KSF3-D

COSPAR International 2023-001CE

Designator:

National Designation No.: /

Owner / Operator Name: Kleos Space S.A

Launch Date and Time: 03/01/2023

Launch Location: Cape Canaveral, United States

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 94.9 minutes

Inclination: 97.5 degrees

Apogee: 532.7 kilometers

Perigee: 508.9 kilometers

General Function of Object: Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Entry Date into National Registry: 22/05/2023

MACSAT

COSPAR International 2023-155J

Designator:

National Designation No.: /

Owner / Operator Name:

OQ TECHNOLOGY S.à.r.l.

Launch Date and Time:

09/10/2023, 03:36 CEST

Launch Location:

Centre Spatial Guyanais, French Guiana

Launch Vehicle Name:

VEGA

Nodal Period:

95.91 minutes

Inclination:

97.66 degrees

Apogee:

565 kilometers

Perigee:

561 kilometers

General Function of Object:

Telecommunications, Internet of Things (IoT)

Entry Date into National Registry:

23/01/2024

FM196, LEMUR-2 LLOYD

COSPAR International 2024-149DP
Designator:
National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.
Launch Date and Time: 16/08/2024
Launch Location: Vandenberg Space Force Base
Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.52 minutes
Inclination: 97.75 degrees
Apogee: 601.9 kilometers
Perigee: 596.5 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 25/10/2024

FM197, LEMUR-2 SIERRINI

COSPAR **International** 2024-149DR

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 16/08/2024

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.51 minutes

Inclination: 97.75 degrees

Apogee: 600.6 kilometers

Perigee: 596.2 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 25/10/2024

Registry:

FM198, LEMUR-2 SQUIRRELCOMM

COSPAR **International** 2024-149DQ

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 16/08/2024

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.43 minutes

Inclination: 97.74 degrees

Apogee: 598.6 kilometers

Perigee: 590.6 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 25/10/2024

FM199, LEMUR-2 AHMED-ASRAR

COSPAR International 2024-149DN

Designator:

National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.

Launch Date and Time: 16/08/2024

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.41 minutes

Inclination: 97.75 degrees

Apogee: 598.3 kilometers

Perigee: 589.4 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 25/10/2024

Registry:

SES-24 / ASTRA 1P

COSPAR International 2024-115A
Designator:
National Designation No.: /

Owner / Operator Name: SES LU SATELLITES HOLDINGS S.A.R.L
Launch Date and Time: 20/06/2024
Launch Location: Cape Canaveral, United States
Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 1,436 minutes
Inclination: 0.10 degrees
Apogee: 35,820 kilometers
Perigee: 35,752 kilometers
Geostationary Position: 19.2 degrees East

General Function of Object: Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services

Entry Date into National Registry: 17/01/2025

ⁱ This is a formal date of the entry into the National Registry created following Article 15 of the Law on Space Activities. The information was already furnished by Luxembourg to UNOOSA in conformity with General Assembly resolution 1721 B (XVI)