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 ± degrees East along the equator from the Greenwich meridian.

New orbital position: The new operational location of the space object in ± 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 ± 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 Designator:	1988-109B
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:	02/03/2021[i]

ASTRA 1B

COSPAR International Designator:	1991-015A
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:	02/03/2021[i]

ASTRA 1C

COSPAR International Designator:	1993-031A
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:	02/03/2021[i]

ASTRA 1D

COSPAR International Designator:	1994-070A
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 Registry:	02/03/2021[i]

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 Designator:	1995-055A
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:	02/03/2021[i]

ASTRA 1F

COSPAR International Designator:	1996-021A
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:	02/03/2021[i]

ASTRA 1G

COSPAR International Designator:	1997-076A
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 Registry:	02/03/2021[i]

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 Designator:	1998-050A
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:	02/03/2021[i]

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 Designator:	1999-033A
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:	02/03/2021[i]

ASTRA 2B

COSPAR International Designator:	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 Designator:	2000-081A
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:	02/03/2021[i]

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 Designator:	2001-025A
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 Registry:	02/03/2021[i]

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 Designator:	2002-015B
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:	02/03/2021[i]

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 Designator:	2006-012A
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 Registry:	02/03/2021[i]

ASTRA 1L

COSPAR International Designator:	2007-016A
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 Registry:	02/03/2021[i]

ASTRA 1M

COSPAR International Designator:	2008-057A
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 Registry:	02/03/2021[i]

ASTRA 3B

COSPAR International Designator:	2010-021A
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:	02/03/2021[i]

ASTRA 1N

COSPAR International Designator:	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 Designator:	2011-058C
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:	02/03/2021[i]

ASTRA 2F

COSPAR International Designator:	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 Designator:	2012-001B
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:	02/03/2021[i]

ASTRA 2E

COSPAR International Designator:	2013-056A
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 Registry:	02/03/2021[i]

ASTRA 5B

COSPAR International Designator:	2014-011B
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 Registry:	02/03/2021[i]

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 International Designator:	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 Designator:	2018-013A
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:	02/03/2021[i]

FM91, LEMUR 2 REMY-COLTON

COSPAR International Designator:	2018-111J
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:	02/03/2021[i]

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 International Designator:	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 International Designator:	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 International Designator:	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 International Designator:	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 International Designator:	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 International Designator:	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 International Designator:	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 Designator:	2019-018G
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:	02/03/2021[i]

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 Designator:	2019-018H
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:	02/03/2021[i]

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 Designator:	2019-018J
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:	02/03/2021[i]

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 International Designator:	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 Designator:	2020-068S
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:	02/03/2021[i]

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 Designator:	2020-068Q
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:	02/03/2021[i]

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 International Designator:	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 International Designator:	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 International Designator:	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 International Designator:	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 International Designator:	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 International Designator:	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 Designator:	2021-006AP
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 Designator:	2021-059G
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 Designator:	2021-059AW
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 Designator:	2021-059AY
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 Registry:	30/08/2021

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 International Designator:	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
Perigee:	182.2 kilometers
Entry Date into National Registry:	25/10/2024

FM150, LEMUR-2 CARLSANTAMARI

COSPAR International Designator:	2021-059CJ
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 Registry:	30/08/2021

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 Designator:	2022-003F
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 International Designator:	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 Designator:	2022-002AQ
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 Designator:	2022-002AP
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 Designator:	2022-002BY
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 International Designator:	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 Designator:	2022-002BE
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 Designator:	2021-095A
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 Designator:	2022-057A
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 Registry:	27/06/2022

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 Designator:	2022-057B
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 Designator:	2022-057E
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 Designator:	2022-057J
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 Designator:	2022-057AP
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 Designator:	2021-059BD
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 Designator:	2021-059AZ
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 Designator:	2021-059BR
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 Designator:	2021-059BZ
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 Designator:	2022-033AP
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 Designator:	2022-033AN
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 Designator:	2022-033AJ
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 Designator:	2022-033AK
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 International Designator:	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 Designator:	2023-001F
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 Registry:	16/02/2023

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 Designator:	2023-001E
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 Designator:	2023-001AF
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 Registry:	16/02/2023

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 Designator:	2023-001J
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 Registry:	16/02/2023

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 Designator:	2023-001CH
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 Designator:	2023-001CF
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 Designator:	2023-001L
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 Designator:	2023-001K
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 Designator:	2023-001CE
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 Designator:	2023-155J
National Designation No.:	/
Owner / Operator Name:	OQ TECHNOLOGY S.àr.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 Designator:	2024-149DP
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 Designator:	2024-149DR
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 Registry:	25/10/2024

FM198, LEMUR-2 SQUIRRELCOMM

COSPAR International Designator:	2024-149DQ
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 Designator:	2024-149DN
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 Registry:	25/10/2024

SES-24 / ASTRA 1P

COSPAR International Designator:	2024-115A
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)