

LUXEMBOURG REGISTRY OF SPACE OBJECTS

Created on: 01.01.2021

Last updated on: 01.09.2026

Table of Contents

Introduction	8
Definition of Terms	9
ASTRA 1A.....	11
ASTRA 1B.....	12
ASTRA 1C.....	13
ASTRA 1D.....	14
Annex 1: ASTRA 1D	15
ASTRA 1E	16
ASTRA 1F	17
ASTRA 1G	18
Annex 1: ASTRA 1G	19
Annex 2: ASTRA 1G	20
ASTRA 2A.....	21
Annex 1: ASTRA 2A.....	22
Annex 2: ASTRA 2A.....	23
ASTRA 1H	24
ASTRA 2B.....	25
Annex 1: ASTRA 2B.....	26
ASTRA 2D.....	27
Annex 1: ASTRA 2D	28
Annex 2: ASTRA 2D	29
ASTRA 2C.....	30
Annex 1: ASTRA 2C.....	31
Annex 2: ASTRA 2C.....	32
ASTRA 3A.....	33
Annex 1: ASTRA 3A.....	34
ASTRA 1KR.....	35
Annex 1: ASTRA 1KR.....	36
ASTRA 1L	37
Annex 1: ASTRA 1L	38

Annex 2: ASTRA 1L	39
ASTRA 1M.....	40
ASTRA 3B.....	41
Annex 1: ASTRA 3B.....	42
ASTRA 1N	43
Vesselsat 1	44
ASTRA 2F	45
Vesselsat 2	46
ASTRA 2E	47
ASTRA 5B.....	48
Annex 1: ASTRA 3C (formerly ASTRA 5B).....	49
ASTRA 2G	50
Annex 1: ASTRA 2G	51
Govsat-1 (SES-16).....	52
FM91, LEMUR 2 REMY-COLTON	53
Annex 1: FM91, LEMUR 2 REMY-COLTON	54
FM92, LEMUR 2 GUSTAVO.....	55
Annex 1: FM92, LEMUR 2 GUSTAVO.....	56
FM93, LEMUR 2 CHRISTINAHOLT.....	57
Annex 1: FM93, LEMUR 2 CHRISTINAHOLT	58
Annex 2: FM93, LEMUR 2 CHRISTINAHOLT	59
FM94, LEMUR 2 ZO	60
Annex 1: FM94, LEMUR 2 ZO	61
FM95, LEMUR 2 TINYKEV	62
Annex 1: FM95, LEMUR 2 TINYKEV.....	63
FM96, LEMUR 2 SARAHBETTYBOO	64
Annex 1: FM96, LEMUR 2 SARAHBETTYBOO	65
Annex 2: FM96, LEMUR 2 SARAHBETTYBOO	66
FM97, LEMUR 2 NATALIEMURRAY	67
Annex 1: FM97, LEMUR 2 NATALIEMURRAY	68
Annex 2: FM97, LEMUR 2 NATALIEMURRAY	69
FM98, LEMUR 2 DAISY-HARPER.....	70
Annex 1: FM98, LEMUR 2 DAISY-HARPER.....	71

Annex 2: FM98, LEMUR 2 DAISY-HARPER.....	72
FM99, LEMUR 2 JOHANLORAN	73
Annex 1: FM99, LEMUR 2 JOHANLORAN	74
FM100, LEMUR 2 BEAUDACIOUS.....	75
Annex 1: FM100, LEMUR 2 BEAUDACIOUS.....	76
FM101, LEMUR 2 ELHAM.....	77
Annex 1: FM101, LEMUR 2 ELHAM.....	78
FM102, LEMUR 2 VICTOR-ANDREW	79
Annex 1: FM102, LEMUR 2 VICTOR-ANDREW	80
FM144, LEMUR 2 SUSURRUS	81
Annex 1: FM144, LEMUR 2 SUSURRUS	82
FM145, LEMUR 2 SLICERS	83
Annex 1: FM145, LEMUR 2 SLICERS	84
FM137, LEMUR 2 BAXTER-OLIVER, LEMUR 2 V4.7	85
Annex 1: FM137, LEMUR 2 BAXTER-OLIVER, LEMUR 2 V4.7	86
FM142, LEMUR 2 DJARA, LEMUR 2 V4.8	87
Annex 1: FM142, LEMUR 2 DJARA, LEMUR 2 V4.8	88
KSM1-A.....	89
Annex 1: KSM1-A	90
Annex 2: KSM1-A	91
KSM1-B.....	92
Annex 1: KSM1-B.....	93
Annex 2: KSM1-B.....	94
KSM1-C.....	95
Annex 1: KSM1-C.....	96
Annex 2: KSM1-C.....	97
KSM1-D	98
Annex 1: KSM1-D	99
Annex 2: KSM1-D	100
FM136, LEMUR-2 NEVA	101
Annex 1: FM136, LEMUR-2 NEVA	102
FM139, LEMUR-2 JACKSON.....	103
Annex 1: FM139, LEMUR-2 JACKSON	104

FM140, LEMUR-2 ANNABANANA	105
Annex 1: FM140, LEMUR-2 ANNABANANA	106
FM143, LEMUR-2 JOHN-TREIRES	107
Annex 1: FM143, LEMUR-2 JOHN-TREIRES	108
FM148, LEMUR-2 AC-CUBED	109
Annex 1: FM148, LEMUR-2 AC-CUBED	110
FM150, LEMUR-2 CARLSANTAMARI	111
Annex 1: FM150, LEMUR-2 CARLSANTAMARI	112
FM151, LEMUR-2 KRYWE.....	113
Annex 1: FM151, LEMUR-2 KRYWE.....	114
FM141, LEMUR-2 KING-JULIEN	115
Annex 1: FM141, LEMUR-2 KING-JULIEN	116
FM149, LEMUR-2 RAMONAMAE	117
Annex 1: FM149, LEMUR-2 RAMONAMAE	118
FM152, LEMUR-2 MIRIWARI.....	119
Annex 1: FM152, LEMUR-2 MIRIWARI.....	120
FM153, LEMUR-2 DJIRANG	121
Annex 1: FM153, LEMUR-2 DJIRANG	122
FM154, LEMUR-2 ROHOVITHSA.....	123
Annex 1: FM154, LEMUR-2 ROHOVITHSA.....	124
SES-17.....	125
FM162, LEMUR-2 TENNYSONLILY	126
Annex 1: FM162, LEMUR-2 TENNYSONLILY	127
FM155, LEMUR-2 VANDENDRIES.....	128
Annex 1: FM155, LEMUR-2 VANDENDRIES.....	129
FM163, LEMUR-2 KAREN_B	130
Annex 1: FM163, LEMUR-2 KAREN_B	131
FM161, LEMUR-2 HANCOM-1.....	132
Annex 1: FM161, LEMUR-2 HANCOM-1	133
FM156, LEMUR-2 MIMI1307	134
Annex 1: FM156, LEMUR-2 MIMI1307	135
KSF1–A	136
Annex 1: KSF1-A	137

KSF1–B.....	138
Annex 1: KSF1-B	139
KSF1–C.....	140
Annex 1: KSF1-C	141
KSF1–D	142
Annex 1: KSF1-D.....	143
KSF2–A	144
Annex 1: KSF2-A	145
KSF2–B.....	146
Annex 1: KSF2-B	147
KSF2–C.....	148
Annex 1: KSF2-C	149
KSF2–D	150
Annex 1: KSF2-D.....	151
FM164, LEMUR-2 EMMACULATE.....	152
Annex 1: FM164, LEMUR-2 EMMACULATE.....	153
FM165, LEMUR-2 DISCLAIMER	154
Annex 1: FM165, LEMUR-2 DISCLAIMER	155
FM166, LEMUR-2 PHILARI.....	156
Annex 1: FM166, LEMUR-2 PHILARI.....	157
FM167, LEMUR-2 MMOLO.....	158
Annex 1: FM167, LEMUR-2 MMOLO	159
FM168, LEMUR-2 STEVEALBERS	160
Annex 1: FM168, LEMUR-2 STEVEALBERS	161
FM169, LEMUR-2 FUENTETAJA-01	162
Annex 1: FM169, LEMUR-2 FUENTETAJA-01	163
KSF3–A	164
Annex 1: KSF3–A	165
KSF3–B.....	166
Annex 1: KSF3–B	167
KSF3–C.....	168
Annex 1: KSF3–C	169
KSF3–D	170

Annex 1: KSF3–D	171
MACSAT.....	172
FM196, LEMUR-2 LLOYD	173
FM197, LEMUR-2 SIERRINI.....	174
FM198, LEMUR-2 SQUIRRELCOMM	175
Annex 1: FM198, LEMUR-2 SQUIRRELCOMM.....	176
FM199, LEMUR-2 AHMED-ASRAR.....	177
SES-24 / ASTRA 1P.....	178
FM201, LEMUR-2 STAR-FOX	179
FM202, LEMUR-2 ARIANNA	180
FM200, LEMUR-2 THEFALCONER.....	181
FM208, LEMUR-2 MARACHE-FRAN.....	182
FM224, LEMUR-2 LEIA-PHILIP	183
FM233, LEMUR-2 LIA-MARTIN.....	184
FM235, LEMUR-2 BALTO.....	185
FM236, LEMUR-2 EMERSONROSE	186
Annex 1: FM236, LEMUR-2 EMERSONROSE	187
FM227, LEMUR-2 AFFIE-WAUWIE	188
FM207, LEMUR-2 WOBLER	189
FM209, LEMUR-2 HCS-BAZUS	190
FM210, LEMUR-2 FIKRETDENGIZ	191
FM249, LEMUR-2 KATIE	192
FM250, LEMUR-2 GRAM-E-SUE	193
FM251, LEMUR-2 SONNENBLUME	194
Annex 1: FM251, LEMUR-2 SONNENBLUME	195
FM252, LEMUR-2 CALLUM-K-J.....	196
FM253, LEMUR-2 MARIO-SOUSA	197
FM240, LEMUR-2 IRINA	198
FM260, LEMUR-2 JULIA-JOEL.....	199
FM262, LEMUR-2 PEGGY-2004	200
FM263, LEMUR-2 POLO-11	201
FM264, LEMUR-2 CLARA.....	202
POQUITO	203

FM271, LEMUR-2 SOPHILUNA-X1	204
FM272, LEMUR-2 ALYX	205
FM273, LEMUR-2 ALEX-FULTON	206
FM274, LEMUR-2 CRIMBOREALIS	207

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 02/03/2021ⁱ
Registry:

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 02/03/2021ⁱ
Registry:

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

Annex 2: ASTRA 2A

Date of Decommissioning:	14/05/2025
Additional Information:	The satellite is in a graveyard orbit, at a perigee greater than 354 km above GEO, propulsion fully vented, batteries depleted and transmitters switched off
Nodal Period:	1460 minutes
Inclination:	6.1 degrees
Apogee:	36,352 kilometers
Perigee:	36,140 kilometers
Entry Date into National Registry:	15/05/2026

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 02/03/2021ⁱ
Registry:

ASTRA 2B

COSPAR International 2000-054A

Designator:

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: 02/03/2021ⁱ

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 02/03/2021ⁱ
Registry:

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 Registry: 02/03/2021ⁱ

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

Annex 2: ASTRA 2C

Date of Decommissioning:	01/06/2024
Additional Information:	The satellite is in a graveyard orbit, at a perigee greater than 329 km above GEO, propulsion fully vented, batteries depleted and transmitters switched off
Apogee:	36,156 kilometers
Perigee:	36,115 kilometers
Entry Date into National Registry:	28/03/2025

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:

Annex 1: ASTRA 1KR

New Basic Orbital Parameters

Nodal Period:	1,435.8-1,436.4 minutes
Inclination:	Uncontrolled inclination since 06/12/2025. Orbital inclination is therefore increasing over time and was 0.045 degrees on 22/12/2025
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	19.0 degrees East
Entry Date into National Registry:	15/05/2026

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:

Annex 1: ASTRA 1L

Additional Information:

New Basic Orbital Parameters

Nodal Period:	1,435.8-1,436.4 minutes
Inclination:	Uncontrolled inclination since 13/02/2025. Orbital inclination is therefore increasing over time and was 0.1 degrees on 13/02/2025
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	19.4 degrees East
Entry Date into National Registry:	19/02/2025

Annex 2: ASTRA 1L

Additional Information:

New Basic Orbital Parameters

Nodal Period:	1,435.8-1,436.4 minutes
Inclination:	Uncontrolled inclination since 13/02/2025. Orbital inclination is therefore increasing over time and was 0.1 degrees on 13/02/2025
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	24.5 degrees East
Entry Date into National Registry:	15/05/2026

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 02/03/2021ⁱ
Registry:

Annex 1: ASTRA 3B

Additional Information:

New Basic Orbital Parameters

Nodal Period:	1,435.8-1,436.4 minutes
Inclination:	Uncontrolled inclination since 28/11/2024. Orbital inclination is therefore increasing over time and was 0.1 degrees on 01/01/2025
Apogee:	35,820 kilometers
Perigee:	35,752 kilometers
Geostationary Position:	23.5 degrees East since 10/06/2010
Entry Date into National Registry:	28/03/2025

ASTRA 1N

COSPAR International 2011-041A

Designator:

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 02/03/2021ⁱ
Registry:

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 **International** 2012-051A

Designator:

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 02/03/2021ⁱ
Registry:

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 **International** 2014-089A

Designator:

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 02/03/2021ⁱ
Registry:

Annex 1: ASTRA 2G

Additional Information:	Correction of the geostationary position
New Basic Orbital Parameters	
Geostationary Position:	28.2 degrees East since 16/06/2015
Entry Date into National Registry:	28/03/2025

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:	02/03/2021 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 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	International	2018-111G
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:	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

Annex 2: FM93, LEMUR 2 CHRISTINAHOLT

Date of Decommissioning:	14/02/2025
Additional Information:	The satellite has been decommissioned. The most recent orbital parameters are presented below.
Nodal Period:	88.430 minutes
Inclination	97.557 degrees
Apogee:	209.4 kilometers
Perigee:	198.5 kilometers
Entry Date into National Registry:	15/05/2026

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	International	2018-111H
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:	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** 2018-111N

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: 97.72 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:** 02/03/2021ⁱ

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

Annex 2: FM96, LEMUR 2 SARAHBETTYBOO

Date of Deorbiting:	25/03/2025
Additional Information:	The satellite has been deorbited. The most recent orbital parameters are presented below.
Nodal Period:	87.945 minutes
Inclination	97.619 degrees
Apogee:	185.9 kilometers
Perigee:	173.9 kilometers
Entry Date into National Registry:	15/05/2026

FM97, LEMUR 2 NATALIEMURRAY

COSPAR **International** 2018-111M

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: 97.72 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:** 02/03/2021ⁱ

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

Annex 2: FM97, LEMUR 2 NATALIEMURRAY

Date of Deorbiting:	01/04/2025
Additional Information:	The satellite has been deorbited. The most recent orbital parameters are presented below.
Nodal Period:	88.349 minutes
Inclination	97.561 degrees
Apogee:	204.1 kilometers
Perigee:	195.8 kilometers
Entry Date into National Registry:	15/05/2026

FM98, LEMUR 2 DAISY-HARPER

COSPAR **International** 2018-111P

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: 97.72 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: 02/03/2021ⁱ

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

Annex 2: FM98, LEMUR 2 DAISY-HARPER

Date of Deorbiting:	20/02/2025
Additional Information:	The satellite has been deorbited. The most recent orbital parameters are presented below.
Nodal Period:	88 minutes
Inclination	98 degrees
Apogee:	195 kilometers
Perigee:	184.7 kilometers
Entry Date into National Registry:	15/05/2026

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 **International** 2019-018K

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: 511.6 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:** 02/03/2021ⁱ

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

17/01/2025

Registry:

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	International	1998-067RV
Designator:		
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 1998-067RW

Designator:

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: 02/03/2021ⁱ

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 2020-081H

Designator:

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: 02/03/2021ⁱ

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 2020-081K

Designator:

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: 02/03/2021ⁱ

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 2020-081C

Designator:

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: 02/03/2021ⁱ

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 2020-081B

Designator:

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: 02/03/2021ⁱ

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 03/03/2021
Registry:

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 30/08/2021
Registry:

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 30/08/2021
Registry:

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 **International** 2021-059BA

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: 545.1 kilometers

Perigee: 519.9 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 30/08/2021
Registry:

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 08/02/2022
Registry:

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 08/02/2022
Registry:

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 08/02/2022
Registry:

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 08/02/2022
Registry:

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** 2022-002CC

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 08/02/2022
Registry:

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 08/02/2022
Registry:

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 27/06/2022
Registry:

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 27/06/2022
Registry:

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 27/06/2022
Registry:

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 27/06/2022
Registry:

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 **International** 2023-001AE

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: 541.5 kilometers

Perigee: 518 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 16/02/2023

Registry:

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

25/10/2024

Registry:

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

25/10/2024

Registry:

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 16/02/2023
Registry:

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

17/01/2025

Registry:

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

25/10/2024

Registry:

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 16/02/2023
Registry:

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

25/10/2024

Registry:

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

Annex 1: KSF3–A

Date of Decay: 10/12/2025

**Entry Date into National
Registry:** 15/05/2026

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

Annex 1: KSF3–B

Date of Decay: 07/12/2025

**Entry Date into National
Registry:** 15/05/2026

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

Annex 1: KSF3–C

Date of Decay: 03/02/2025

**Entry Date into National
Registry:** 15/05/2026

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

Annex 1: KSF3–D

Date of Decay: 10/10/2025

**Entry Date into National
Registry:** 15/05/2026

MACSAT

COSPAR **International** 2023-155J

Designator:

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** 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 25/10/2024
Registry:

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** 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 25/10/2024
Registry:

Annex 1: FM198, LEMUR-2 SQUIRRELCOMM

Date when no longer functional:	26/11/2024
Entry Date into National Registry:	15/05/2026

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 17/01/2025
Registry:

FM201, LEMUR-2 STAR-FOX

COSPAR **International** 2025-009CR

Designator:

National Designation No.: /

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

Launch Date and Time: 14/01/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-12

Nodal Period: 96.483 minutes

Inclination: 97.745 degrees

Apogee: 599.5 kilometers

Perigee: 595.1 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 13/03/2025
Registry:

FM202, LEMUR-2 ARIANNA

COSPAR **International** 2024-009CU

Designator:

National Designation No.: /

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

Launch Date and Time: 14/01/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-12

Nodal Period: 96.477 minutes

Inclination: 97.741 degrees

Apogee: 598.9 kilometers

Perigee: 595.2 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 13/03/2025
Registry:

FM200, LEMUR-2 THEFALCONER

COSPAR **International** 2025-052BG

Designator:

National Designation No.: /

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

Launch Date and Time: 15/03/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-13

Nodal Period: 96.45 minutes

Inclination: 97.735 degrees

Apogee: 598.5 kilometers

Perigee: 592.9 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM208, LEMUR-2 MARACHE-FRAN

COSPAR **International** 2025-052BJ

Designator:

National Designation No.: /

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

Launch Date and Time: 15/03/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-13

Nodal Period: 96.445 minutes

Inclination: 97.739 degrees

Apogee: 598.4 kilometers

Perigee: 595.5 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM224, LEMUR-2 LEIA-PHILIP

COSPAR **International** 2025-052AN

Designator:

National Designation No.: /

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

Launch Date and Time: 15/03/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-13

Nodal Period: 96.541 minutes

Inclination: 97.733 degrees

Apogee: 601.9 kilometers

Perigee: 598.3 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM233, LEMUR-2 LIA-MARTIN

COSPAR **International** 2025-052AQ

Designator:

National Designation No.: /

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

Launch Date and Time: 15/03/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-13

Nodal Period: 96.529 minutes

Inclination: 97.74 degrees

Apogee: 601.1 kilometers

Perigee: 598 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM235, LEMUR-2 BALTO

COSPAR International Designator:	2025-052BH
National Designation No.:	/
Owner / Operator Name:	Spire Global Luxembourg S.à. r.l.
Launch Date and Time:	15/03/2025
Launch Location:	Vandenberg Space Force Base
Launch Vehicle Name:	SpaceX Falcon 9, Transporter-13
Nodal Period:	96.439 minutes
Inclination:	97.737 degrees
Apogee:	598.3 kilometers
Perigee:	592.1 kilometers
General Function of Object:	Earth exploration and meteorology
Entry Date into National Registry:	15/05/2026

FM236, LEMUR-2 EMERSONROSE

COSPAR **International** 2025-052BD

Designator:

National Designation No.: /

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

Launch Date and Time: 15/03/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-13

Nodal Period: 96.462 minutes

Inclination: 97.74 degrees

Apogee: 598.6 kilometers

Perigee: 594 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

Annex 1: FM236, LEMUR-2 EMERSONROSE

Date when no longer functional:	26/03/2026
Entry Date into National Registry:	06/07/2026

FM227, LEMUR-2 AFFIE-WAUWIE

COSPAR **International** 2025-248C

Designator:

National Designation No.: /

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

Launch Date and Time: 02/11/2025

Launch Location: Cape Canaveral, Florida

Launch Vehicle Name: SpaceX Falcon 9, Bandwagon-4

Nodal Period: 96.77 minutes

Inclination: 45 degrees

Apogee: 516.2 kilometers

Perigee: 513 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM207, LEMUR-2 WOBLER

COSPAR **International** 2026-004F

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.82 minutes

Inclination: 97.8016 degrees

Apogee: 618.7 kilometers

Perigee: 608.1 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM209, LEMUR-2 HCS-BAZUS

COSPAR **International** 2026-004AB

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.72 minutes

Inclination: 97.8003 degrees

Apogee: 611.2 kilometers

Perigee: 606.3 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM210, LEMUR-2 FIKRETDENGIZ

COSPAR **International** 2026-004AH

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.84 minutes

Inclination: 97.7989 degrees

Apogee: 620 kilometers

Perigee: 608.7 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM249, LEMUR-2 KATIE

COSPAR **International** 2026-004AA

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.73 minutes

Inclination: 97.8014 degrees

Apogee: 611.8 kilometers

Perigee: 606.3 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM250, LEMUR-2 GRAM-E-SUE

COSPAR **International** 2026-004E

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.81 minutes

Inclination: 97.7946 degrees

Apogee: 617.4 kilometers

Perigee: 608.7 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM251, LEMUR-2 SONNENBLUME

COSPAR **International** 2026-004H

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.82 minutes

Inclination: 97.7956 degrees

Apogee: 618.4 kilometers

Perigee: 608.5 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

Annex 1: FM251, LEMUR-2 SONNENBLUME

Date when no longer functional:	20/03/2026
Entry Date into National Registry:	15/05/2026

FM252, LEMUR-2 CALLUM-K-J

COSPAR **International** 2026-004D

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.78 minutes

Inclination: 97.8023 degrees

Apogee: 616.4 kilometers

Perigee: 606.6 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM253, LEMUR-2 MARIO-SOUSA

COSPAR **International** 2026-004C

Designator:

National Designation No.: /

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

Launch Date and Time: 11/01/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

Nodal Period: 96.83 minutes

Inclination: 97.7967 degrees

Apogee: 619.1 kilometers

Perigee: 608.6 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM240, LEMUR-2 IRINA

COSPAR **International** 2026-067BS

Designator:

National Designation No.: /

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

Launch Date and Time: 29/03/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-16

Nodal Period: 96.476 minutes

Inclination: 97.7515 degrees

Apogee: 601 kilometers

Perigee: 593 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM260, LEMUR-2 JULIA-JOEL

COSPAR **International** 2026-067BN

Designator:

National Designation No.: /

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

Launch Date and Time: 29/03/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-16

Nodal Period: 96.493 minutes

Inclination: 97.7512 degrees

Apogee: 600.6 kilometers

Perigee: 594.9 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM262, LEMUR-2 PEGGY-2004

COSPAR **International** 2026-067BR

Designator:

National Designation No.: /

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

Launch Date and Time: 29/03/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-16

Nodal Period: 96.505 minutes

Inclination: 97.7501 degrees

Apogee: 600.6 kilometers

Perigee: 596.1 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

FM263, LEMUR-2 POLO-11

COSPAR International Designator: 2026-067CF
National Designation No.: /

Owner / Operator Name: Spire Global Luxembourg S.à. r.l.
Launch Date and Time: 29/03/2026
Launch Location: Vandenberg Space Force Base
Launch Vehicle Name: SpaceX Falcon 9, Transporter-16

Nodal Period: 96.568 minutes
Inclination: 97.7602 degrees
Apogee: 603.9 kilometers
Perigee: 598.9 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National Registry: 15/05/2026

FM264, LEMUR-2 CLARA

COSPAR **International** 2026-067BV

Designator:

National Designation No.: /

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

Launch Date and Time: 29/03/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-16

Nodal Period: 96.494 minutes

Inclination: 97.7598 degrees

Apogee: 601.3 kilometers

Perigee: 594.4 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 15/05/2026
Registry:

POQUITO

COSPAR International 2025-009 (partial)

Designator:

National Designation No.: /

Owner / Operator Name: University of Luxembourg

Launch Date and Time: 14/01/2025

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9

General Function of Object: Educational satellite for in-orbit testing of miniaturized technologies for Pocket Qubes

Additional Information: COSPAR International Designator is incomplete, as the satellite cannot be identified.

Communications with satellite could not be established and it could not be used nor identified after the launch on 14/01/2025. The expected orbital parameters at the moment of deployment are as follows:

Nodal Period: 94.91 minutes

Inclination: 97.44 degrees

Apogee: Around 516 kilometers

Perigee: Around 512 kilometers

Entry Date into National Registry: 15/05/2026

FM271, LEMUR-2 SOPHILUNA-X1

COSPAR **International** 2026-156BP

Designator:

National Designation No.: /

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

Launch Date and Time: 07/07/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-17

Nodal Period: 96.479 minutes

Inclination: 97.756 degrees

Apogee: 604 kilometers

Perigee: 590.3 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 01/09/2026
Registry:

FM272, LEMUR-2 ALYX

COSPAR **International** 2026-156BM

Designator:

National Designation No.: /

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

Launch Date and Time: 07/07/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-17

Nodal Period: 96.486 minutes

Inclination: 97.7569 degrees

Apogee: 604.1 kilometers

Perigee: 590.8 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 01/09/2026
Registry:

FM273, LEMUR-2 ALEX-FULTON

COSPAR **International** 2026-156AN

Designator:

National Designation No.: /

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

Launch Date and Time: 07/07/2026

Launch Location: Vandenberg Space Force Base

Launch Vehicle Name: SpaceX Falcon 9, Transporter-17

Nodal Period: 96.566 minutes

Inclination: 97.7562 degrees

Apogee: 604.2 kilometers

Perigee: 598.4 kilometers

General Function of Object: Earth exploration and meteorology

Entry Date into National 01/09/2026
Registry:

FM274, LEMUR-2 CRIMBOREALIS

COSPAR	International	2026-156BS
Designator:		
National Designation No.:		/
Owner / Operator Name:	Spire Global Luxembourg S.à. r.l.	
Launch Date and Time:	07/07/2026	
Launch Location:	Vandenberg Space Force Base	
Launch Vehicle Name:	SpaceX Falcon 9, Transporter-17	
Nodal Period:	96.476 minutes	
Inclination:	97.7546 degrees	
Apogee:	604 kilometers	
Perigee:	590 kilometers	
General Function of Object:	Earth exploration and meteorology	
Entry Date into National Registry:	01/09/2026	

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)