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## **Information furnished in conformity with the Convention on Registration of Objects Launched into Outer Space**

### **Note verbale dated 22 February 2022 from the Permanent Mission of Luxembourg to the United Nations (Vienna) addressed to the Secretary-General**

The Permanent Mission of Luxembourg to the United Nations (Vienna), in accordance with article IV of the Convention on Registration of Objects Launched into Outer Space (General Assembly resolution 3235 (XXIX), annex), has the honour to transmit the attached list of space objects registered by Luxembourg (see annex).<sup>1</sup>

The table reflects:

- (a) All satellites for which information was voluntarily reported previously;
- (b) Twelve new Spire satellites launched since January 2022 and for which information has not yet been reported.

In addition, the Permanent Mission wishes to transmit the following link to the website of the national registry of Luxembourg for inclusion in the list of national registries:

<https://space-agency.public.lu/en/agency/legal-framework.html>

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<sup>1</sup> The data on the space objects referenced in the annex were entered into the Register of Objects Launched into Outer Space on 8 April 2022.



## Annex

[Original: English]

## Information furnished in conformity with article IV of the Convention on Registration of Objects Launched into Outer Space\*

Submission date: 10 February 2022

### 1. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)

Committee on Space Research international designator	1988-109B
Name of space object	ASTRA 1A
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.401
Launch date	11 December 1988
Launch site	Kourou, French Guiana
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

### Part B: Additional information as recommended in General Assembly resolution 62/101

#### Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	10 December 2004
Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 400 km above the geostationary orbit

### Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space

#### Basic information

Owner of object	Société Européenne des Satellites (SES ASTRA S.A.)
Launcher	Ariane
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

### 2. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)

Committee on Space Research international designator	1991-015A
Name of space object	ASTRA 1B
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.401
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

\* The registration data have been reformatted by the Secretariat.

**Part B: Additional information as recommended in General Assembly resolution 62/101**

## Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	12 July 2006
Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 500 km above the geostationary orbit

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	SES ASTRA S.A.
Launcher	Ariane
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

3. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1993-031A
Name of space object	ASTRA 1C
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.401
Launch date	12 May 1993
Launch site	Kourou, French Guiana
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part B: Additional information as recommended in General Assembly resolution 62/101**

## Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	31 July 2014
Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 387 km above the geostationary orbit

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	SES ASTRA S.A.
Launcher	Ariane
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

4. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1994-070A
Name of space object	ASTRA 1D

State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.401
Launch date	31 October 1994
Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 22 October 2007. Orbital inclination is therefore increasing over time and was 9.2 degrees on 10 August 2020
Apogee	35,820 km
Perigee	35,752 km
Longitude	73.0 degrees West since 30 November 2017
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services and of occasional-use services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part B: Additional information as recommended in General Assembly resolution 62/101**

Change of status in operations	
Date when space object is no longer functional("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	15 November 2021
Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 351 km above the geostationary orbit
Date of entry of record into the national registry	16 November 2021

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information	
Owner of object	SES ASTRA S.A.
Launcher	Ariane
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**5. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1995-055A
Name of space object	ASTRA 1E
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.401
Launch date	19 October 1995
Launch site	Kourou, French Guiana
General function of space object	-
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part B: Additional information as recommended in General Assembly resolution 62/101**

## Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	12 June 2015
Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 390 km above the geostationary orbit

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	SES ASTRA S.A.
Launcher	Ariane
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**6. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1996-021A
Name of space object	ASTRA 1F
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.401
Launch date	8 April 1996
Launch site	Baikonur, Kazakhstan
General function of space object	-
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part B: Additional information as recommended in General Assembly resolution 62/101**

## Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	4 November 2020
Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 312 km above the geostationary orbit

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	SES ASTRA S.A.
Launcher	Proton
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

7. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1997-076A
Name of space object	ASTRA 1G
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.402
Launch date	2 December 1997
Launch site	Baikonur, Kazakhstan
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 23 May 2014. Orbital inclination is therefore increasing over time and was 4.7 degrees on 10 August 2020
Apogee	35,820 km
Perigee	35,752 km
Longitude	63.24 degrees East since 18 August 2019
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Change in basic orbital parameters	
Inclination	Uncontrolled inclination since 23 May 2014. Orbital inclination is therefore increasing over time and was 5.2 degrees on 10 February 2021
Geostationary position	19.4 degrees East since 10 February 2021
Date of entry of record into the national registry	2 March 2021
Basic information	
Owner of object	SES ASTRA S.A.
Launcher	Proton
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

8. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1998-050A
Name of space object	ASTRA 2A
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.402
Launch date	30 August 1998
Launch site	Baikonur, Kazakhstan

## Basic orbital parameters

Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 10 August 2018. Orbital inclination is therefore increasing over time and was 1.8 degrees on 10 August 2020
Apogee	35,820 km
Perigee	35,752 km
Longitude	28 degrees East since 6 August 2020
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	SES ASTRA S.A.
Launcher	Proton
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**9. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1999-033A
Name of space object	ASTRA 1H
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.412
Launch date	18 June 1999
Launch site	Baikonur, Kazakhstan
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part B: Additional information as recommended in General Assembly resolution 62/101**

## Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	12 October 2019
Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 340 km above the geostationary orbit

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	SES ASTRA S.A.
Launcher	Proton
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

10. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2000-054A
Name of space object	ASTRA 2B
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.412
Launch date	14 September 2000
Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 7 June 2014. Orbital inclination is therefore increasing over time and was 4.6 degrees on 10 August 2020
Apogee	35,820 km
Perigee	35,752 km
Longitude	19.6 degrees East since 1 October 2019
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part B: Additional information as recommended in General Assembly resolution 62/101**

Change of status in operations

Physical conditions when moved to a disposal orbit	The satellite is in a graveyard orbit, at a minimum perigee altitude of 340 km above the geostationary orbit
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**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Change in basic orbital parameters

Apogee	36,221 km
Perigee	36,124 km
Date of entry of record into the national registry	15 July 2021

Basic information

Owner of object	SES ASTRA S.A.
Launcher	Ariane 5
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

11. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2000-081A
Name of space object	ASTRA 2D
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.412
Launch date	20 December 2000
Launch site	Kourou, French Guiana



## Basic orbital parameters

Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 22 April 2014. Orbital inclination is therefore increasing over time and was 5.9 degrees on 10 August 2020
Apogee	35,820 km
Perigee	35,752 km
Longitude	57.25 degrees East since 5 March 2020
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Change in basic orbital parameters

Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 22 April 2014. Orbital inclination is therefore increasing over time and was 6.74 degrees on 8 October 2021
Apogee	35,820 km
Perigee	35,752 km
Geostationary position	23.7 degrees East since 4 October 2021
Date of entry of record into the national registry	9 October 2021

## Basic information

Owner of object	SES ASTRA S.A.
Launcher	Ariane 5
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**12. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2001-025A
Name of space object	ASTRA 2C
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.412
Launch date	16 June 2001
Launch site	Baikonur, Kazakhstan
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 9 November 2016. Orbital inclination is therefore increasing over time and was 3.0 degrees on 10 August 2020
Apogee	35,820 km
Perigee	35,752 km
Longitude	23.7 degrees East since 23 May 2018

General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Change in basic orbital parameters

Nodal period	1435.8–1436.4 minutes
Inclination	Uncontrolled inclination since 9 November 2016. Orbital inclination is therefore increasing over time and was 3.85 degrees on 18 August 2021
Apogee	35,820 km
Perigee	35,752 km
Geostationary position	72.5 degrees West since 23 May 2018 (as at 18 August 2021)
Date of entry of record into the national registry	30 August 2021

Basic information

Owner of object	SES ASTRA S.A.
Launcher	Proton
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

13. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2002-015B
Name of space object	ASTRA 3A
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.412
Launch date	29 March 2002
Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	Uncontrolled inclination since 29 March 2012. Orbital inclination is therefore increasing over time and was 6.0 degrees on 10 August 2020
Apogee	35,820 km
Perigee	35,752 km
Longitude	86.85 degrees West since 6 December 2019
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services; occasional-use services and very small aperture terminal (VSAT) services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	SES ASTRA S.A.
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Launcher	Ariane 4
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

14. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2006-012A
Name of space object	ASTRA 1KR
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.414
Launch date	20 April 2006
Launch site	Cape Canaveral, United States of America
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	19.2 degrees East
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information	
Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 1KR SARL)
Launcher	Atlas V
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

15. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2007-016A
Name of space object	ASTRA 1L
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.414
Launch date	4 May 2007
Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	19.2 degrees East

General function of space object	Encrypted and unencrypted transmission of radio, television, multimedia data and broadband services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 1L SARL)
Launcher	Ariane 5
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

16. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2008-057A
Name of space object	ASTRA 1M
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.420
Launch date	5 November 2008
Launch site	Baikonur, Kazakhstan
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	19.2 degrees East
General function of space object	Encrypted and unencrypted transmission of radio, television and multimedia data services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 1M SARL)
Launcher	Proton-M/Breeze-M
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

17. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2010-021A
Name of space object	ASTRA 3B
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.425
Launch date	21 May 2010

Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	23.5 degrees East since 10 June 2010
General function of space object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information	
Owner of object	SES ASTRA S.A. (through its subsidiary SES 3B SARL)
Launcher	Ariane 5
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

18. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2011-041A
Name of space object	ASTRA 1N
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.425
Launch date	6 August 2011
Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	19.2 degrees East since 28 February 2014
General function of space object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information	
Owner of object	SES ASTRA S.A. (through its subsidiary SES 1N SARL)
Launcher	Ariane 5
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

19 **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2011-058C
Name of space object	Vesselsat 1
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.425
Launch date	12 October 2011
Launch site	Sriharikota, India
Basic orbital parameters	
Nodal period	102.10 minutes
Inclination	20 degrees
Apogee	867 km
Perigee	847 km
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part B: Additional information as recommended in General Assembly resolution 62/101**

Change of status in operations

Physical conditions when moved to a disposal orbit	The object is still in orbit but is no longer operational
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**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	LuxSpace S.A.
Launcher	Polar Satellite Launch Vehicle (PSLV)-CA
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

20. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2012-051A
Name of space object	ASTRA 2F
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.425
Launch date	28 September 2012
Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	28.2 degrees East
General function of space object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 2F SARL)
Launcher	Ariane 5
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**21. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2012-001B
Name of space object	Vesselsat 2
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.425
Launch date	9 January 2012
Launch site	Taiyuan LC-9, China
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>
Date of decay/re-entry/deorbit	27 October 2016

**Part B: Additional information as recommended in General Assembly resolution 62/101**

## Change of status in operations

Physical conditions when moved to a disposal orbit	The satellite has not been in orbit since 27 October 2016
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**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	LuxSpace S.A.
Launcher	Chang Zheng 4B Y26
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**22. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2013-056A
Name of space object	ASTRA 2E
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.427
Launch date	29 September 2013
Launch site	Baikonur, Kazakhstan
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km

Perigee	35,752 km
Longitude	28.5 degrees East since 31 July 2015
General function of space object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 2E SARL)
Launcher	Proton-M/Breeze-M
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

23. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2014-011B
Name of space object	ASTRA 5B
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.427
Launch date	22 March 2014
Launch site	Kourou, French Guiana
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	31.5 degrees East
General function of space object	Encrypted and unencrypted transmission of radio, television, multimedia data, VSAT and broadband services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 5B SARL)
Launcher	Ariane 5
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

24. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2014-089A
Name of space object	ASTRA 2G
State of registry	Luxembourg
New registration	No



Registration document for previously registered space object	A/AC.105/INF.432
Launch date	27 December 2014
Launch site	Baikonur, Kazakhstan
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.10 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	28.2 degrees East since 16 June 2015
General function of space object	Encrypted and unencrypted transmission of radio, television, multimedia data and broadband services and provision of governmental and institutional communication services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information	
Owner of object	SES ASTRA S.A. (through its subsidiary SES ASTRA 2G SARL)
Launcher	Proton-M/Breeze-M
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**25. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-013A
Name of space object	Govsat-1 (SES-16)
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.432
Launch date	31 January 2018
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	1,435.8–1,436.4 minutes
Inclination	0.05 degrees
Apogee	35,820 km
Perigee	35,752 km
Longitude	21.42 degrees East
General function of space object	Provision of governmental and institutional communication services
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information	
Owner of object	LuxGovSat S.A.
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

26. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111J
Name of space object	FM91, LEMUR 2 Remy-Colton
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.73 degrees
Apogee	576 km
Perigee	576 km
Longitude of the ascending node	139.3 degrees
General function of space 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))
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

27. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111K
Name of space object	FM92, LEMUR 2 Gustavo
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.72 degrees
Apogee	577 km
Perigee	577 km
Longitude of the ascending node	139.3 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**28. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111G
Name of space object	FM93, LEMUR 2 ChristinaHolt
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.73 degrees
Apogee	574 km
Perigee	574 km
Longitude of the ascending node	139.3 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**29. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111L
Name of space object	FM94, LEMUR 2 Zo
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.72 degrees

Apogee	579 km
Perigee	579 km
Longitude of the ascending node	139.3 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

30. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111H
Name of space object	FM95, LEMUR 2 Tinykev
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.73 degrees
Apogee	575 km
Perigee	575 km
Longitude of the ascending node	139.3 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

31. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111N
Name of space object	FM96, LEMUR 2 SarahBettyBoo
State of registry	Luxembourg
New registration	No

Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.72 degrees
Apogee	582 km
Perigee	582 km
Longitude of the ascending node	139.3 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

32. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111M
Name of space object	FM97, LEMUR 2 NatalieMurray
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.72 degrees
Apogee	580 km
Perigee	580 km
Longitude of the ascending node	139.3 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

33. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2018-111P
Name of space object	FM98, LEMUR 2 Daisy-Harper
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	27 December 2018
Launch site	Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.2 minutes
Inclination	97.72 degrees
Apogee	584 km
Perigee	584 km
Longitude of the ascending node	139.3 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 a
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

34. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2019-018G
Name of space object	FM99, LEMUR 2 JohanLoran
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	1 April 2019
Launch site	Sriharikota, Andhra Pradesh, India
Basic orbital parameters	
Nodal period	94.6 minutes
Inclination	97.4 degrees
Apogee	512.4 km
Perigee	495.8 km
Longitude of the ascending node	140.7 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	PSLV
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**35. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2019-018H
Name of space object	FM100, LEMUR 2 Beaudacious
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	1 April 2019
Launch site	Sriharikota, Andhra Pradesh, India
Basic orbital parameters	
Nodal period	94.6 minutes
Inclination	97.4 degrees
Apogee	513.1 km
Perigee	496.1 km
Longitude of the ascending node	140.7 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	PSLV
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**36. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2019-018J
Name of space object	FM101, LEMUR 2 Elham
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	1 April 2019
Launch site	Sriharikota, Andhra Pradesh, India
Basic orbital parameters	
Nodal period	94.5 minutes
Inclination	97.4 degrees

Apogee	511.8 km
Perigee	495.1 km
Longitude of the ascending node	140.7 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	PSLV
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

37. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2019-018K
Name of space object	FM102, LEMUR 2 Victor-Andrew
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.439
Launch date	1 April 2019
Launch site	Sriharikota, Andhra Pradesh, India
Basic orbital parameters	
Nodal period	94.5 minutes
Inclination	97.4 degrees
Apogee	511.6 km
Perigee	495.1 km
Longitude of the ascending node	140.7 degrees
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	PSLV
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

38. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2020-068S
Name of space object	FM144, LEMUR 2 Susurrus
State of registry	Luxembourg
New registration	No



Registration document for previously registered space object	A/AC.105/INF.445
Launch date	28 September 2020
Launch site	Plesetsk, Russian Federation
Launcher	Soyuz 2.1 b/Fregat
Owner of object	Spire Global Luxembourg SARL
Basic orbital parameters	
Nodal period	96.0 minutes
Inclination	97.66 degrees
Apogee	575 km
Perigee	575 km
Longitude of the ascending node	28.38 degrees
General function of space object	Earth exploration and meteorology; testing of inter-satellite links
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 b/Fregat
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

39. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2020-068Q
Name of space object	FM145, LEMUR 2 Slicers
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.445
Launch date	28 September 2020
Launch site	Plesetsk, Russian Federation
Basic orbital parameters	
Nodal period	96.0 minutes
Inclination	97.66 degrees
Apogee	575 km
Perigee	575 km
Longitude of the ascending node	28.38 degrees
General function of space object	Earth exploration and meteorology; testing of inter-satellite links
Owner of object	Spire Global Luxembourg SARL
Launcher	Soyuz 2.1 b/Fregat
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
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Launcher	Soyuz 2.1 b/Fregat
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

40. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1998-067RV
Name of space object	FM137, LEMUR 2 Baxter-Oliver, LEMUR 2 v4.7
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.445
Launch date	3 October 2020
Launch site	Wallops Island, Virginia, United States
Basic orbital parameters	
Nodal period	93.1 minutes
Inclination	51.6 degrees
Apogee	421 km
Perigee	409 km
Longitude of the ascending node	8.25 degrees (right ascension of the ascending node (RAAN), M50 reference frame)
General function of space object	Earth exploration and meteorology; testing of inter-satellite links
Other information related to the launch	The satellite was deployed from the International Space Station (ISS) on 5 November 2020
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>
Date of decay/re-entry/deorbit	19 December 2021
Date of entry of record into the national registry	1 February 2022

**Part B: Additional information as recommended in General Assembly resolution 62/101**

Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	19 December 2021
Physical conditions when moved to a disposal orbit	The satellite re-entered the Earth's atmosphere on 19 December 2021, burning up completely, with no material reaching the Earth's surface
Record entry date into National Registry	1 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Antares
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

41. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	1998-067RW
Name of space object	FM142, LEMUR 2 Djara, LEMUR 2 V4.8
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.445
Launch date	3 October 2020
Launch site	Wallops Island, Virginia, United States
Basic orbital parameters	
Nodal period	93.1 minutes
Inclination	51.6 degrees
Apogee	421 km
Perigee	409 km
Longitude of the ascending node	8.57 degrees (RAAN, M50)
General function of space object	Earth exploration and meteorology (AIS, ADS-B, GNSS-RO/R)
Other information related to the launch	The satellite was deployed from the ISS on 5 November 2020
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>
Date of decay/re-entry/deorbit	3 January 2022
Date of entry of record into the national registry	1 February 2022

**Part B: Additional information as recommended in General Assembly resolution 62/101**

Change of status in operations

Date when space object is no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	3 January 2022
Physical conditions when moved to a disposal orbit	The satellite re-entered the Earth's atmosphere on 3 January 2022, burning up completely, with no material reaching the Earth's surface.
Date of entry of record into the national registry	1 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Antares
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

42. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2020-081H
Name of space object	KSM1-A
State of registry	Luxembourg
New registration	No

Registration document for previously registered space object	A/AC.105/INF.445
Launch date	7 November 2020
Launch site	Sriharikota, Andhra Pradesh, India
Basic orbital parameters	
Nodal period	96 minutes
Inclination	37 degrees
Apogee	576.60 km
Perigee	569.97 km
Longitude of the ascending node	99.44 degrees (RAAN)
General function of space object	Passive geolocation of radio transmissions for the purpose of supplying radio frequency (RF) reconnaissance data to the maritime situation awareness domain
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Change in basic orbital parameters	
Inclination	36.9 degrees
Apogee	577 km
Perigee	572.6 km
Date of entry of record into the national registry	23 September 2021
Basic information	
Owner of object	Kleos Space S.A.
Launcher	PSLV C49
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

43. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2020-081K
Name of space object	KSM1-B
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.445
Launch date	7 November 2020
Launch site	Sriharikota, Andhra Pradesh, India
Basic orbital parameters	
Nodal period	96 minutes
Inclination	37 degrees
Apogee	576.60 km
Perigee	569.97 km
Longitude of the ascending node	99.44 degrees (RAAN)
General function of space object	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Change in basic orbital parameters

Inclination	36.9 degrees
Apogee	581.3 km
Perigee	568.3 km
Date of entry of record into the national registry	23 September 2021

## Basic information

Owner of object	Kleos Space S.A.
Launcher	PSLV C49
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**44. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator 2020-081C

Name of space object KSM1-C

State of registry Luxembourg

New registration No

Registration document for previously registered space object A/AC.105/INF.445

Launch date 7 November 2020

Launch site Sriharikota, Andhra Pradesh, India

## Basic orbital parameters

Nodal period	96 minutes
Inclination	37 degrees
Apogee	576.60 km
Perigee	569.97 km
Longitude of the ascending node	99.44 degrees (RAAN)

General function of space object Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain

Date of entry of record into the national registry 2 March 2021<sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Change in basic orbital parameters

Inclination	36.9 degrees
Apogee	578.8 km
Perigee	570.7 km
Date of entry of record into the national registry	23 September 2021

## Basic information

Owner of object	Kleos Space S.A.
Launcher	PSLV C49
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

## Other information

New Committee on Space Research international designator	2020-081B
Date of entry of record into the national registry	23 September 2021

45. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2020-081B
Name of space object	KSM1-D
State of registry	Luxembourg
New registration	No
Registration document for previously registered space object	A/AC.105/INF.445
Launch date	7 November 2020
Launch site	Sriharikota, Andhra Pradesh, India
Basic orbital parameters	
Nodal period	96 minutes
Inclination	37 degrees
Apogee	576.60 km
Perigee	569.97 km
Longitude of the ascending node	99.44 degrees (RAAN)
General function of space object	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Change in basic orbital parameters

Inclination	36.9 degrees
Apogee	579.8 km
Perigee	569.9 km
Date of entry of record into the national registry	23 September 2021

## Basic information

Owner of object	Kleos Space S.A.
Launcher	PSLV C49
Date of entry of record into the national registry	2 March 2021 <sup>a</sup>

## Other information

New Committee on Space Research international designator	2020-081C
Date of entry of record into the national registry	23 September 2021

46. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2021-006AP
Name of space object	FM136, LEMUR-2 Neva
State of registry	Luxembourg
New registration	Yes
Launch date	24 January 2021
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.2 minutes
Inclination	97.5 degrees
Apogee	528 km
Perigee	525 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology, inter-satellite link experimentation
Date of entry of record into the national registry	3 March 2021

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	3 March 2021

47. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2021-059G
Name of space object	FM139, LEMUR-2 Jackson
State of registry	Luxembourg
New registration	Yes
Launch date	30 June 2021 at 1931 hours 0 seconds UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.2 minutes
Inclination	97.5 degrees
Apogee	543.8 km
Perigee	531 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	30 August 2021

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
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Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	30 August 2021

48. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2021-059AW
Name of space object	FM140, LEMUR-2 AnnaBanana
State of registry	Luxembourg
New registration	Yes
Launch date	30 June 2021 at 1931 hours 0 seconds UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.2 minutes
Inclination	97.5 degrees
Apogee	543.7 km
Perigee	525.3 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	30 August 2021

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	30 August 2021

49. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2021-059AY
Name of space object	FM143, LEMUR-2 John-Treires
State of registry	Luxembourg
New registration	Yes
Launch date	30 June 2021 at 1931 hours 0 seconds UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.2 minutes
Inclination	97.5 degrees
Apogee	544.3 km
Perigee	522.2 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	30 August 2021



**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	30 August 2021

**50. Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2021-059BA
Name of space object	FM148, LEMUR-2 AC-Cubed
State of registry	Luxembourg
New registration	Yes
Launch date	30 June 2021 at 1931 hours 0 seconds UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.2 minutes
Inclination	97.5 degrees
Apogee	545.1 km
Perigee	519.9 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	30 August 2021

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	30 August 2021

**51. Part A: Information provided in conformity with the Registration Convention or resolution 1721 B (XVI)**

Committee on Space Research international designator	2021-059CJ
Name of space object	FM150, LEMUR-2 CarlSantaMari
State of registry	Luxembourg
New registration	Yes
Launch date	30 June 2021 at 1931 hours 0 seconds UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.1 minutes
Inclination	97.5 degrees
Apogee	543.4 km
Perigee	519.2 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology

Date of entry of record into the national registry 30 August 2021

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	30 August 2021

52. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2022-003F
Name of space object	FM151, LEMUR-2 KRYWE
State of registry	Luxembourg
New registration	Yes
Launch date	13 January 2022 UTC
Launch site	Mojave Air and Space Port, United States
Basic orbital parameters	
Nodal period	95.22 minutes
Inclination	45 degrees
Apogee	500 km
Perigee	500 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	8 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	Virgin Orbit LauncherOne
Date of entry of record into the national registry	8 February 2022

53. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2022-002AQ
Name of space object	FM141, LEMUR-2 King-Julien
State of registry	Luxembourg
New registration	Yes
Launch date	13 January 2022 UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.22 minutes
Inclination	97.5 degrees
Apogee	525 km

Perigee	525 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	8 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	8 February 2022

54. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2022-002AP
Name of space object	FM149, LEMUR-2 Ramonamae
State of registry	Luxembourg
New registration	Yes
Launch date	13 January 2022 UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	95.23 minutes
Inclination	97.5 degrees
Apogee	525 km
Perigee	525 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	8 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	8 February 2022

55. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator	2022-002BY
Name of space object	FM152, LEMUR-2 Miriwari
State of registry	Luxembourg
New registration	Yes
Launch date	13 January 2022 UTC
Launch site	Cape Canaveral, United States

## Basic orbital parameters

Nodal period	95.23 minutes
Inclination	97.5 degrees
Apogee	525 km
Perigee	525 km
Longitude of the ascending node	-

General function of space object Earth exploration and meteorology

Date of entry of record into the national registry 8 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	8 February 2022

56. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator 2022-002CC

Name of space object FM153, LEMUR-2 Djirang

State of registry Luxembourg

New registration Yes

Launch date 13 January 2022 UTC

Launch site Cape Canaveral, United States

## Basic orbital parameters

Nodal period	95.23 minutes
Inclination	97.5 degrees
Apogee	525 km
Perigee	525 km
Longitude of the ascending node	-

General function of space object Earth exploration and meteorology

Date of entry of record into the national registry 8 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

## Basic information

Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	8 February 2022

57. **Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)**

Committee on Space Research international designator 2022-002BE

Name of space object FM154, LEMUR-2 Rohovithsa

State of registry Luxembourg

New registration Yes

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Launch date	13 January 2022 UTC
Launch site	Cape Canaveral, United States
Basic orbital parameters	
Nodal period	94.52 minutes
Inclination	97.5 degrees
Apogee	525 km
Perigee	525 km
Longitude of the ascending node	-
General function of space object	Earth exploration and meteorology
Date of entry of record into the national registry	8 February 2022

**Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space**

Basic information	
Owner of object	Spire Global Luxembourg SARL
Launcher	SpaceX Falcon 9
Date of entry of record into the national registry	8 February 2022

<sup>a</sup> This is the formal date of entry of the record into the national registry created in accordance with article 15 of the Law of 15 December 2020 on Space Activities. The information was already furnished by Luxembourg to the Secretariat, in conformity with General Assembly resolution 1721 B (XVI).

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