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

### **Note verbale dated 10 August 2023 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 a list of space objects registered by Luxembourg, including 11 new Spire satellites and 8 new Kleos satellites, launched since February 2022 (see annex, table 1), and changes made since the notification of 22 February 2022 ([ST/SG/SER.E/1043](#)) (see annex, table 2).<sup>1</sup>

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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 16 August 2023.



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

Submission date: 1 August 2023

Table 1  
New satellites launched since February 2022

Committee on Space Research international designator	Name of the space object	Date of the launch (UTC)	Location of the launch	State of registry	Basic orbital parameters					General function of the space object	Additional voluntary information		
					Nodal period (minutes)	Inclination (degrees)	Apogee (km)	Perigee (km)	Geostationary position (degrees East)		Owner or operator	Launch vehicle	Date of entry of record into the National Registry
2021-095A	SES-17	24 October 2021	Kourou, French Guiana	Luxembourg	1 435.8– 1 436.4	0.10	35 820	35 752	292.9	Encrypted and unencrypted transmission of radio, television and multimedia data; very small aperture terminal (VSAT) and broadband services	SES ASTRA S.A.	Ariane 5	5 May 2022
2022-057A	FM162, LEMUR-2 TennysonLily	25 May 2022	Cape Canaveral, United States of America	Luxembourg	95.26	97.5	538	524	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	27 June 2022
2022-057B	FM155, LEMUR-2 VanDenDries	25 May 2022	Cape Canaveral, United States	Luxembourg	95.25	97.5	537	525	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	27 June 2022
2022-057E	FM163, LEMUR-2 Karen_B	25 May 2022	Cape Canaveral, United States	Luxembourg	95.24	97.5	536	524	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	27 June 2022
2022-057J	FM161, LEMUR-2 Hancom-1	25 May 2022	Cape Canaveral, United States	Luxembourg	95.23	97.5	538	522	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	27 June 2022
2022-057AP	FM156, LEMUR-2 Mimi1307	25 May 2022	Cape Canaveral, United States	Luxembourg	95.14	97.5	536	515	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	27 June 2022

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

<i>Committee on Space Research international designator</i>	<i>Name of the space object</i>	<i>Date of the launch (UTC)</i>	<i>Location of the launch</i>	<i>State of registry</i>	<i>Basic orbital parameters</i>					<i>Geostationary position (degrees East)</i>	<i>General function of the space object</i>	<i>Additional voluntary information</i>		
					<i>Nodal period (minutes)</i>	<i>Inclination (degrees)</i>	<i>Apogee (km)</i>	<i>Perigee (km)</i>	<i>Owner or operator</i>			<i>Launch vehicle</i>	<i>Date of entry of record into the National Registry</i>	
2021-059BD	KSF1-A	30 June 2021	Cape Canaveral, United States	Luxembourg	94.3	97.6	501.8	484.2	-	Passive geolocation of radio transmissions for the purpose of supplying radio frequency (RF) reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023	
2021-059AZ	KSF1-B	30 June 2021	Cape Canaveral, United States	Luxembourg	94.3	97.6	505.1	480.7	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023	
2021-059BR	KSF1-C	30 June 2021	Cape Canaveral, United States	Luxembourg	94.5	97.6	510.2	490.3	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023	
2021-059BZ	KSF1-D	30 June 2021	Cape Canaveral, United States	Luxembourg	94.2	97.6	501.6	473.7	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023	
2022-033AP	KSF2-A	1 April 2022	Cape Canaveral, United States	Luxembourg	94.2	97.4	494.5	480.2	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023	

<i>Committee on Space Research international designator</i>					<i>Basic orbital parameters</i>					<i>Additional voluntary information</i>			
					<i>Nodal period (minutes)</i>	<i>Inclination (degrees)</i>	<i>Apogee (km)</i>	<i>Perigee (km)</i>	<i>Geostationary position (degrees East)</i>	<i>General function of the space object</i>	<i>Owner or operator</i>	<i>Launch vehicle</i>	<i>Date of entry of record into the National Registry</i>
2022-033AN	KSF2-B	1 April 2022	Cape Canaveral, United States	Luxembourg	94.2	97.4	496.4	481.8	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023
2022-033AJ	KSF2-C	1 April 2022	Cape Canaveral, United States	Luxembourg	94.2	97.4	491.3	479.8	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023
2022-033AK	KSF2-D	1 April 2022	Cape Canaveral, United States	Luxembourg	94.1	97.4	486.7	475.1	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	16 February 2023
2023-001AE	FM164, LEMUR-2 Emmaculate	3 January 2023	Cape Canaveral, United States	Luxembourg	95.10	97.5	541.5	518	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	16 February 2023
2023-001F	FM165, LEMUR-2 Disclaimer	3 January 2023	Cape Canaveral, United States	Luxembourg	95.19	97.5	542.8	525.7	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	16 February 2023
2023-001E	FM166, LEMUR-2 Philari	3 January 2023	Cape Canaveral, United States	Luxembourg	95.19	97.5	542.4	526.8	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	16 February 2023
2023-001AF	FM167, LEMUR-2 Mmolo	3 January 2023	Cape Canaveral, United States	Luxembourg	95.10	97.5	541.8	517.4	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	16 February 2023
2023-001J	FM168, LEMUR-2 SteveAlbers	3 January 2023	Cape Canaveral, United States	Luxembourg	95.19	97.5	542.7	526.3	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	16 February 2023
2023-001CH	FM169, LEMUR-2 Fuentetaja-01	3 January 2023	Cape Canaveral, United States	Luxembourg	95.11	97.5	542.4	518.4	-	Earth exploration and meteorology	Spire Global Luxembourg SARL	SpaceX Falcon 9	16 February 2023

<i>Committee on Space Research international designator</i>	<i>Name of the space object</i>	<i>Date of the launch (UTC)</i>	<i>Location of the launch</i>	<i>State of registry</i>	<i>Basic orbital parameters</i>					<i>Geostationary position (degrees East)</i>	<i>General function of the space object</i>	<i>Additional voluntary information</i>		
					<i>Nodal period (minutes)</i>	<i>Inclination (degrees)</i>	<i>Apogee (km)</i>	<i>Perigee (km)</i>	<i>Owner or operator</i>			<i>Launch vehicle</i>	<i>Date of entry of record into the National Registry</i>	
2023-001CF	KSF3-A	3 January 2023	Cape Canaveral, United States	Luxembourg	94.9	97.5	532.4	509.3	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	22 May 2023	
2023-001L	KSF3-B	3 January 2023	Cape Canaveral, United States	Luxembourg	94.9	97.5	531.4	514.4	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	22 May 2023	
2023-001K	KSF3-C	3 January 2023	Cape Canaveral, United States	Luxembourg	95	97.5	532.4	513.1	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	22 May 2023	
2023-001CE	KSF3-D	3 January 2023	Cape Canaveral, United States	Luxembourg	94.9	97.5	532.7	508.9	-	Passive geolocation of radio transmissions for the purpose of supplying RF reconnaissance data to the maritime situation awareness domain	Kleos Space S.A.	SpaceX Falcon 9	22 May 2023	

Table 2  
Changes made since the notification of 22 February 2022 (ST/SG/SER.E/1043)

Committee on Space Research international designator	Name of the space object	Additional information as recommended in General Assembly resolution 62/101		Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space							
		Date when no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)	Physical conditions when moved to a disposal orbit <sup>a</sup>	Changes to basic orbital parameters				Basic information			
				Date of decay/re-entry/deorbit	Nodal period (minutes)	Inclination (degrees)	Apogee (km)	Perigee (km)	Geostationary position (degrees East)	Other information	Date of entry of record into the National Registry
2000-081A	ASTRA 2D	19 January 2023	The satellite is in a graveyard orbit, at a minimum perigee altitude of 358 km above the geostationary orbit	-	-	-	36 147	36 144	-	-	16 February 2023
2002-015B	ASTRA 3A	21 January 2023	The satellite is in a graveyard orbit, at a minimum perigee altitude of 334 km above the geostationary orbit	-	-	-	36 125	36 122	-	-	16 February 2023
1997-076A	ASTRA 1G	29 June 2023	The satellite is in a graveyard orbit, at a minimum perigee of 314 km above the geostationary orbit. The propulsion is fully vented, the batteries are depleted and the transmitters are switched off	-	1 454	7	36 171	36 100	-	-	4 July 2023
2014-011B	ASTRA 3C (formerly ASTRA 5B)	-	-	-	1 436	0.1	35 820	35 752	23.5 (since 21 July 2023)	Change of the name from ASTRA 5B to ASTRA 3C	21 July 2023
2020-081H	KSM1-A	27 June 2023	-	7 February 2035	-	-	-	-	-	The predicted orbit decay indicates that the spacecraft will re-enter the Earth's atmosphere on 7 February 2035	31 July 2023
2020-081K	KSM1-B	27 June 2023	-	8 April 2035	-	-	-	-	-	The predicted orbit decay indicates that the spacecraft will re-enter the Earth's atmosphere on 8 April 2035	31 July 2023
2020-081C	KSM1-C	27 June 2023	-	29 August 2035	-	-	-	-	-	The predicted orbit decay indicates that the spacecraft will re-enter the Earth's atmosphere on	31 July 2023

		<i>Additional information as recommended in General Assembly resolution 62/101</i>			<i>Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space</i>						
					<i>Changes to basic orbital parameters</i>				<i>Basic information</i>		
<i>Committee on Space Research international designator</i>	<i>Name of the space object</i>	<i>Date when no longer functional ("Date of Decommissioning" according to the Luxembourg Registry of Space Objects)</i>	<i>Physical conditions when moved to a disposal orbit<sup>a</sup></i>	<i>Date of decay/re-entry/deorbit</i>	<i>Nodal period (minutes)</i>	<i>Inclination (degrees)</i>	<i>Apogee (km)</i>	<i>Perigee (km)</i>	<i>Geostationary position (degrees East)</i>	<i>Other information</i>	<i>Date of entry of record into the National Registry</i>
2020-081B	KSM1-D	27 June 2023	-	15 March 2035	-	-	-	-	-	9 August 2035 The predicted orbit decay indicates that the spacecraft will re-enter the Earth's atmosphere on 15 March 2035	31 July 2023

<sup>a</sup> See the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space ([ST/SPACE/49](#)).