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Committee on the Peaceful Uses of Outer Space

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

Note verbale dated 19 August 2019 from the Permanent Mission of Germany to the United Nations (Vienna) addressed to the Secretary-General

The Permanent Mission of Germany 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 information concerning space objects launched by Germany (see annex I) and additional information concerning previously registered space objects (see annex II).[1]

[1] The data on space objects referenced in the annexes were entered into the Register of Objects Launched into Outer Space on 30 August 2019.

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Annex I

Registration data on space objects launched by Germany*

D-Star One Sparrow

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2018-111F
Name of space object	D-Star One Sparrow
National designator/registration number	D-R063
State of registry	Germany
Other launching States	Japan, Russian Federation, South Africa, Spain and United States of America
Date and territory or location of launch	27 December 2018 at 0207 hours 18 seconds UTC Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	90 minutes
Inclination	97.7 degrees
Apogee	584 kilometres
Perigee	567 kilometres
General functions of space object	The D-Star One Sparrow spacecraft is designed for technology demonstration and amateur radio purposes. It will qualify several subsystems developed and manufactured by German Orbital Systems GmbH in Berlin. It will also demonstrate a D-Star-compatible UHF transceiver that will offer services to the amateur radio community. As a secondary payload, it will carry an Automatic Dependent Surveillance-Broadcast (ADS-B) receiver

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Website	www.orbitalsystems.de

iSat

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2018-111D
Name of space object	iSat
National designator/registration number	D-R064
State of registry	Germany

* The information was submitted using the form prepared pursuant to General Assembly resolution 62/101 and has been reformatted by the Secretariat.

Other launching States	Japan, Russian Federation, South Africa, Spain and United States
Date and territory or location of launch	27 December 2018 at 0207 hours 18 seconds UTC Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	90 minutes
Inclination	97.7 degrees
Apogee radius	587 kilometres
Perigee radius	567 kilometres
General functions of space object	The iSat spacecraft is designed for technology demonstration and amateur radio purposes. It will qualify several subsystems developed and manufactured by German Orbital Systems GmbH in Berlin. It will also demonstrate a D-Star-compatible UHF transceiver that will offer services to the amateur radio community. As a secondary payload, it will carry an ADS-B receiver

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Website	www.orbitalsystems.de

UWE-4

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2018-111E
Name of space object	UWE-4
National designator/registration number	D-R065
State of registry	Germany
Other launching States	Japan, Russian Federation, South Africa, Spain and United States
Date and territory or location of launch	27 December 2018 at 0207 hours 18 seconds UTC Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	96.24 minutes
Inclination	97.8 degrees
Apogee	595 kilometres
Perigee	577 kilometres
General functions of space object	UWE-4 is dedicated to demonstrating and characterizing an electric propulsion system on a 1U CubeSat and serves as an educational project for students of various disciplines
Date of decay/re-entry/deorbit	Before 2034

MOVE-II

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2018-099Y
Name of space object	MOVE-II
National designator/registration number	D-R066
State of registry	Germany
Other launching States and organizations	Australia, Brazil, Finland, India, Italy, Jordan, Kazakhstan, Netherlands, Poland, Republic of Korea, Spain, Switzerland, Thailand, United Kingdom of Great Britain and Northern Ireland, United States and European Space Agency
Date and territory or location of launch	3 December 2018 at 1634 hours 05 seconds UTC; Vandenberg Air Force Base, California, United States
Basic orbital parameters	
Nodal period	96.32 minutes
Inclination	97.7582 degrees
Apogee	593 kilometres
Perigee	572 kilometres
General functions of space object	University nanosatellite for educational purposes and technology demonstration

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Space object owner or operator	Institute of Astronautics, Technical University of Munich
Launch vehicle	Falcon 9

SONATE

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2019-038Q
Name of space object	SONATE
National designator/registration number	D-R068
State of registry	Germany
Other launching States	Czechia, Ecuador, Estonia, Finland, France, Israel, Russian Federation, Sweden, Thailand, United Kingdom and United States
Date and territory or location of launch	5 July 2019 at 0541 hours 46 seconds UTC; Vostochny Cosmodrome, Russian Federation

Basic orbital parameters	
Nodal period	95.26 minutes
Inclination	97.49 degrees
Apogee	548 kilometres
Perigee	514 kilometres
General functions of space object	The SONATE satellite is dedicated to technology demonstration and is designed for testing and operation of two primary autonomous payloads: the Autonomous Sensor and Planning system (ASAP-L) and the Autonomous Diagnostic system (ADIA-L). ASAP-L is able to autonomously detect events of interest in its observed sensor data. ADIA-L can provide a diagnosis of the possible cause of a satellite's malfunction and can also monitor the entire satellite

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Space object owner or operator	Professorship for Space Technology, Würzburg University
Website	www8.informatik.uni-wuerzburg.de/en/wissenschaftforschung/sonate/
Launch vehicle	Soyuz 2.1b Fregat-M

BEESat-9

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2019-038AC
Name of space object	Berlin Experimental and Education Satellite 9 (BEESat-9)
National designator/registration number	D-R069
State of registry	Germany
Other launching States	Czechia, Ecuador, Estonia, Finland, France, Israel, Russian Federation, Sweden, Thailand, United Kingdom and United States
Date and territory or location of launch	5 July 2019 at 0541 hours 46 seconds UTC; Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	95.19 minutes
Inclination	97.49 degrees
Apogee	550 kilometres
Perigee	520 kilometres
General functions of space object	Precise determination of position and orbit with a GPS receiver; student education; amateur radio
Date of decay/re-entry/deorbit	5 July 2029 UTC (prospective)

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Change of status in operations	
Date when space object is no longer functional	5 July 2029 UTC (prospective)
Space object owner or operator	Technical University Berlin
Website	www.raumfahrttechnik.tu-berlin.de/menue/research/current_projects/%20beesat_9/parameter/en
Launch vehicle	Soyuz 2.1b Fregat-M

BEESat-10

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2019-038
Name of space object	Berlin Experimental and Education Satellite 10 (BEESat-10)
National designator/registration number	D-R070
State of registry	Germany
Other launching States	Czechia, Ecuador, Estonia, Finland, France, Israel, Russian Federation, Sweden, Thailand, United Kingdom and United States
Date and territory or location of launch	5 July 2019 at 0541 hours 46 seconds UTC; Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	95.19 minutes
Inclination	97.49 degrees
Apogee	550 kilometres
Perigee	520 kilometres
General functions of space object	Precise determination of position and orbit with a GPS receiver; student education; amateur radio
Date of decay/re-entry/deorbit	5 July 2029 UTC (prospective)

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Change of status in operations	
Date when space object is no longer functional	5 July 2029 UTC (prospective)
Space object owner or operator	Technical University Berlin
Website	www.raumfahrttechnik.tu-berlin.de/menue/research/current_projects/%20beesat_5_6_7_8/parameter/en
Launch vehicle	Soyuz 2.1b Fregat-M

BEESat-11

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2019-038
Name of space object	Berlin Experimental and Education Satellite 11 (BEESat-11)
National designator/registration number	D-R071
State of registry	Germany
Other launching States	Czechia, Ecuador, Estonia, Finland, France, Israel, Russian Federation, Sweden, Thailand, United Kingdom and United States
Date and territory or location of launch	5 July 2019 at 0541 hours 46 seconds UTC; Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	95.19 minutes
Inclination	97.49 degrees
Apogee	550 kilometres
Perigee	520 kilometres
General functions of space object	Precise determination of position and orbit with a GPS receiver; student education; amateur radio
Date of decay/re-entry/deorbit	5 July 2029 UTC (prospective)

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Change of status in operations	
Date when space object is no longer functional	5 July 2029 UTC (prospective)
Space object owner or operator	Technical University Berlin
Website	www.raumfahrttechnik.tu-berlin.de/menue/research/current_projects/%20beesat_5_6_7_8/parameter/en
Launch vehicle	Soyuz 2.1b Fregat-M

BEESat-12

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2019-038
Name of space object	Berlin Experimental and Education Satellite 12 (BEESat-12)
National designator/registration number	D-R072
State of registry	Germany

Other launching States	Czechia, Ecuador, Estonia, Finland, France, Israel, Russian Federation, Sweden, Thailand, United Kingdom and United States
Date and territory or location of launch	5 July 2019 at 0541 hours 46 seconds UTC; Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	95.19 minutes
Inclination	97.49 degrees
Apogee	550 kilometres
Perigee	520 kilometres
General functions of space object	Precise determination of position and orbit with a GPS receiver; student education; amateur radio
Date of decay/re-entry/deorbit	5 July 2029 UTC (prospective)

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Change of status in operations	
Date when space object is no longer functional	5 July 2029 UTC (prospective)
Space object owner or operator	Technical University Berlin
Website	www.raumfahrttechnik.tu-berlin.de/menue/research/current_projects/%20beesat_5_6_7_8/parameter/en
Launch vehicle	Soyuz 2.1b Fregat-M

BEESat-13

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2019-038
Name of space object	Berlin Experimental and Education Satellite 13 (BEESat-13)
National designator/registration number	D-R073
State of registry	Germany
Other launching States	Czechia, Ecuador, Estonia, Finland, France, Israel, Russian Federation, Sweden, Thailand, United Kingdom and United States
Date and territory or location of launch	5 July 2019 at 0541 hours 46 seconds UTC; Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	95.19 minutes
Inclination	97.49 degrees
Apogee	550 kilometres
Perigee	520 kilometres

General functions of space object	Precise determination of position and orbit with a GPS receiver; student education; amateur radio
Date of decay/re-entry/deorbit	5 July 2029 UTC (prospective)

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Change of status in operations	
Date when space object is no longer functional	5 July 2029 UTC (prospective)
Space object owner or operator	Technical University Berlin
Website	www.raumfahrttechnik.tu-berlin.de/menue/research/current_projects/%20beesat_5_6_7_8/parameter/en
Launch vehicle	Soyuz 2.1b Fregat-M

Eu:CROPIS

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2018-099BB
Name of space object	Euglena and Combined Regenerative Organic Food Production in Space (Eu:CROPIS)
National designator/registration number	D-R074
State of registry	Germany
Other launching States and organizations	Australia, Brazil, Finland, India, Italy, Jordan, Kazakhstan, Netherlands, Poland, Republic of Korea, Spain, Switzerland, Thailand, United Kingdom, United States and European Space Agency
Date and territory or location of launch	3 December 2018 at 1634 hours 05 seconds UTC; Vandenberg Air Force Base/Western Test Range, California, United States
Basic orbital parameters	
Nodal period	96 minutes
Inclination	97.77 degrees
Apogee	581.44 kilometres
Perigee	565.68 kilometres
General functions of space object	Eu:CROPIS is focused on testing the long-term stability of a biological life-support system for missions to the Moon and Mars. It is expected to demonstrate that such a closed life-support system can be operated and reinitiated under various gravity conditions

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Space object owner or operator	German Aerospace Center (DLR)
Website	www.dlr.de/content/en/articles/missions-projects/eucropis/mission.html
Launch vehicle	Falcon 9b 1.2 (Block 5)
Other information	The satellite was launched as part of the SSO-A: SmallSat Express mission, which carried a total of 64 satellites into orbit

Annex II

Additional information on space objects previously registered by Germany*

Mobile Asteroid Surface Scout (MASCOT)

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Committee on Space Research international designator	2014-076
Name of space object	Mobile Asteroid Surface Scout (MASCOT)
National designator/registration number	D-R061
State of registry	Germany
Registration document	ST/SG/SER.E/894
Other launching States	Japan
Date and territory or location of launch	3 December 2014 at 0422 hours 24 seconds UTC; Tanegashima Space Centre, Kagoshima, Japan
Basic orbital parameters	
Nodal period	525,960 minutes
Inclination	22.1 degrees
Apogee	163,376,100 kilometres
Perigee	137,100,000 kilometres
General functions of space object	MASCOT is a surface science package that performs in-situ investigation of Ryugu, a C-type asteroid, to study the origin and evolution of the solar system, as well as material forming the basis of life
Date of decay/re-entry/deorbit	3 October 2018 at 0203 hours 05 seconds UTC

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Change of status in operations	
Date when space object was no longer functional	3 October 2018 at 1903 hours 58 seconds UTC
Space object owner or operator	German Aerospace Center (DLR)
Website	www.dlr.de/content/en/articles/missions-projects/mascot/mascot-lander.html
Launch vehicle	H-IIA Launch Vehicle Flight No. 26 (H-IIA-F26)
Celestial body space object is orbiting	Asteroid 162713 Ryugu
Other information	MASCOT was carried to the asteroid Ryugu by the Hayabusa2 spacecraft of Japan (registered in document ST/SG/SER.E/766). It separated from Hayabusa2 on 3 October 2018 at 0158 hours UTC and

* The information was submitted using the form prepared pursuant to General Assembly resolution 62/101 and has been reformatted by the Secretariat.

	made contact with the asteroid's surface approximately 20 minutes later. It was operational until its batteries ran out of power on 3 October 2018 at 1904 hours UTC

D-Star One Phoenix

Information provided in conformity with the Convention on Registration of Objects Launched into Outer Space

Name of space object	D-Star One Phoenix
State of registry	Germany
National designator/registration number	D-R062
Registration document	ST/SG/SER.E/894
Other launching States	Russian Federation and United States of America
Date and territory or location of launch	1 February 2018 at 0207 hours 00 seconds UTC; Vostochny Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	not applicable (approximately 90 minutes planned)
Inclination	not applicable (sun-synchronous orbit planned)
Apogee	not applicable (585 kilometres planned)
Perigee	not applicable (585 kilometres planned)
General function of space object	Planned function was the qualification of novel hardware and amateur radio services
Date of decay/re-entry/deorbit	1 February 2018

Additional voluntary information for use in the Register of Objects Launched into Outer Space

Change of status in operations	
Date when space object was no longer functional	1 February 2018 at 1903 hours 56 seconds UTC
Date when space object is moved to a disposal orbit	not applicable
Physical conditions when space object is moved to a disposal orbit	not applicable
Space object owner or operator	German Orbital Systems GmbH
Website	www.orbitalsystems.de
Launch vehicle	Soyuz
Other information	Separation of the satellite from the container could not be confirmed; the satellite might have been stuck in the separation container. Only two short signals were received. Re-entry was not confirmed and the exact date and time of re-entry is uncertain; it is most likely that re-entry occurred on the day of launch (1 February 2018)