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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****Letter dated 20 September 2017 from the Legal Services  
Department of the European Space Agency addressed to the  
Secretary-General**

In conformity with the Convention on Registration of Objects Launched into Outer Space (General Assembly resolution 3235 (XXIX), annex), the rights and obligations of which the European Space Agency (ESA) has declared its acceptance of, the Agency has the honour to transmit information regarding space objects launched into Earth orbit or beyond (see annex). The space objects have been duly registered in the ESA space object registry after their launch into Earth orbit or beyond, in accordance with the Convention and pursuant to the relevant bilateral arrangements for those objects launched under international cooperation.

*(Signed)***Marco Ferrazzani**  
ESA Legal Counsel and  
Head of the Legal Services Department

## Annex

### Registration data on space objects launched by the European Space Agency\*

#### LISA Pathfinder

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

Committee on Space Research international designator	2015-070A
Name of space object	LISA Pathfinder
State of registry	European Space Agency
Date and territory or location of launch	3 December 2015 at 0404 hours, 48 seconds UTC; Europe's Spaceport, Kourou, French Guiana
Basic orbital parameters	
Nodal period	Lissajous orbit around Sun-Earth Lagrangian Point (L1)
Inclination	-
Apogee	-
Perigee	-
General function of space object	The LISA Pathfinder mission (formerly called SMART-2) is a technology demonstration mission for the three-satellite constellation LISA/eLISA, the goal of which is to detect gravitational waves. The objective of LISA Pathfinder is to test and verify key technologies needed for highly accurate formation flying and precise measurement of the separation (metrology) between two very distant spacecraft. In the LISA/eLISA three-satellite constellation, the measurement distance (known as the interferometer arm) will be 1 million km or 5 million km. In LISA Pathfinder, the interferometer arm is shortened to about 38 cm so that the setup fits into a single satellite. An attached propulsion module is used to take LISA Pathfinder to the destination orbit at the Sun-Earth L1 point.

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

Change in status of operation	
Date when space object is no longer functional	18 July 2017 at 1757 hours UTC (sending of last command)
Date when space object is moved to disposal orbit	9 April 2017 at 1200 hours UTC
Physical condition when space object is moved to a disposal orbit	Disposal manoeuvre of approximately 1m/s into the Sun's direction. LISA Pathfinder is now on a heliocentric orbit with minimum return probability.

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

	A passivation sequence was commanded after disposal.
Space object owner/operator	Owner and operator: European Space Agency
Launch vehicle	Vega
Other information	The propulsion stage was separated and left in an orbit close to the Sun-Earth Lagrangian Point (L1).

## Sentinel-3A

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

Committee on Space Research international designator	2016-011A
Name of space object	Sentinel-3A
State of registry	European Space Agency
Date and territory or location of launch	16 February 2016 at 1757 hours, 45 seconds UTC; Plesetsk Cosmodrome, Russian Federation
Basic orbital parameters	
Nodal period	100.9 minutes
Inclination	98.63 degrees
Apogee	803 kilometres
Perigee	802 kilometres
General function of space object	<p>The Sentinel-3A satellite mission forms part of the European Copernicus programme. It is primarily an ocean mission, but it is also able to provide atmospheric and land applications, and as such, data continuity for the ERS, Envisat and SPOT satellites. Sentinel-3A makes use of multiple sensing instruments, including a sea and land surface temperature radiometer, the ocean and land colour instrument, a synthetic aperture radar (SAR) altimeter, and a microwave radiometer.</p> <p>Pursuant to the Agreement between the European Union, represented by the European Commission, and the European Space Agency on the Implementation of the Copernicus Programme, including the Transfer of Ownership of the Sentinels (Copernicus Agreement), which entered into force on 28 October 2014, ownership of Sentinel-3A was transferred to the European Union at the moment of lift-off of the satellite's launch vehicle.</p>

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

Space object owner/operator	Owner: European Union Operator: European Space Agency
Launch vehicle	Rokot-KM

## ExoMars Trace Gas Orbiter

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

Committee on Space Research international designator	2016-017A
Name of space object	ExoMars Trace Gas Orbiter
State of registry	European Space Agency
Other launching States	Russian Federation
Date and territory or location of launch	14 March 2016 at 0936 hours, 0 seconds UTC; Baikonur Cosmodrome, Tyuratam, Kazakhstan
Basic orbital parameters	
Nodal period	Mars orbit
Inclination	-
Apogee	-
Perigee	-
General function of space object	<p>The ExoMars 2016 mission comprises two spacecraft, an orbiter and a lander. The Trace Gas Orbiter will detect and monitor trace gases in the Martian atmosphere from an orbit approximately 400 km above the planet's surface. The lander, Schiaparelli, is an entry, descent and landing demonstrator module that will test out technologies necessary for future lander missions. It carries a small payload of scientific instruments designed to make atmospheric measurements. ExoMars is a European Space Agency programme undertaken in conjunction with the Roscosmos State Corporation for Space Activities. An additional objective of the Trace Gas Orbiter is to serve as a data relay in communications between the ExoMars 2018 rover and the surface science platform. The full spacecraft has a launch mass of 4,332 kg, which includes the 600 kg Schiaparelli lander and propellant. The Trace Gas Orbiter is box-shaped and measures 3.2 m by 2 m by 2 m. It has two solar panel wings spanning 17.5 m. Schiaparelli is primarily a technology demonstration vehicle. Technologies being tested include special thermal protection material, the parachute system, a radar Doppler altimeter, and a liquid-propulsion braking system. Schiaparelli is disc-shaped, with a diameter of 1.65 m, protected on entry by a 2.4 m diameter heat shield. Total mass is 600 kg. Power is provided by batteries only. The batteries are expected to provide power for two to eight days of surface operations. After a seven-month cruise, the spacecraft reached Mars in October 2016. Three days prior to reaching Mars, the Schiaparelli lander was released.</p>

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

Space object owner/operator	Operator: European Space Agency
Launch vehicle	Proton-M/Breeze-M
Celestial body space object is orbiting	Mars

### **Sentinel-1B**

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

Committee on Space Research international designator	2016-025A
Name of space object	Sentinel-1B
State of registry	European Space Agency
Date and territory or location of launch	25 April 2016 at 2102 hours, 13 seconds UTC; Europe's Spaceport, Kourou, French Guiana
Basic orbital parameters	
Nodal period	98.7 minutes
Inclination	98.18 degrees
Apogee	697 kilometres
Perigee	695 kilometres
General function of space object	<p>Sentinel-1B is a radar imaging satellite and is part of the European Union's Copernicus programme. It is designed for a nominal seven-year mission in Sun-synchronous low-Earth orbit. Complementing its active predecessor in space, Sentinel-1A, the satellite is equipped with a synthetic aperture radar operating in the C-band, which can image with a resolution of up to 5 metres by 5 metres.</p> <p>Pursuant to the Agreement between the European Union, represented by the European Commission, and the European Space Agency on the Implementation of the Copernicus Programme, including the Transfer of Ownership of the Sentinels (Copernicus Agreement), which entered into force on 28 October 2014, ownership of Sentinel-1B was transferred to the European Union at the moment of lift-off of the satellite's launch vehicle.</p>

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

Space object owner/operator	Owner: European Union Operator: European Space Agency
Launch vehicle	Soyuz-ST-A Fregat

## Sentinel-2B

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

Committee on Space Research international designator	2017-013A
Name of space object	Sentinel-2B
State of registry	European Space Agency
Date and territory or location of launch	7 March 2017 at 0149 hours, 24 seconds UTC; Europe's Spaceport, Kourou, French Guiana
Basic orbital parameters	
Nodal period	100.6 minutes
Inclination	98.57 degrees
Apogee	790 kilometres
Perigee	788 kilometres
General function of space object	<p>Sentinel-2B is a satellite launched under Europe's Copernicus programme. Complementing Sentinel-2A with which it forms a constellation orbiting 180 degrees apart, the satellite carries an innovative multispectral imager (MSI) instrument covering 13 spectral bands to provide high-resolution optical images of agriculture, forests, land-use change and land-cover change.</p> <p>Pursuant to the Agreement between the European Union, represented by the European Commission, and the European Space Agency on the Implementation of the Copernicus Programme, including the Transfer of Ownership of the Sentinels (Copernicus Agreement), which entered into force on 28 October 2014, ownership of Sentinel-2B was transferred to the European Union at the moment of lift-off of the satellite's launch vehicle.</p>

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

Space object owner/operator	Owner: European Union Operator: European Space Agency
Launch vehicle	Vega