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STARSEM

AUGUST 2021

PRESS KIT
ST34

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MISSION DESCRIPTION

Arianespace's **eighth launch of 2021** with the fifth Soyuz of the year will place its satellite passengers into low Earth orbit. The launcher will be carrying a total payload of approximately **5 518 kg.**

The launch will be performed from **Baikonur,** in **Kazakhstan.**

DATE AND TIME

Liftoff is planned on **Friday, August 20, 2021,** at exactly:

- **06:23** p.m. Washington, D.C. time,
- **10:23** p.m. Universal time (UTC),
- **00:23** a.m. Paris time,
- **01:23** a.m. Moscow time,
- **03:23** a.m. Baikonur Cosmodrome.

MISSION DURATION

The nominal duration of the mission (from liftoff to separation of the satellites) is:
3 hours and 45 minutes.

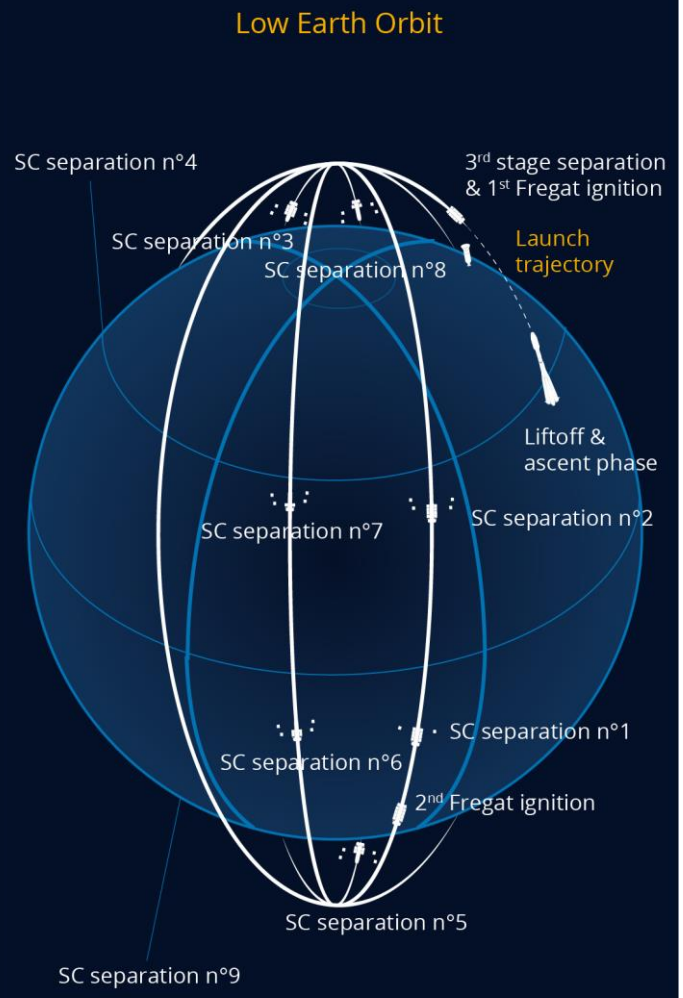
SATELLITES

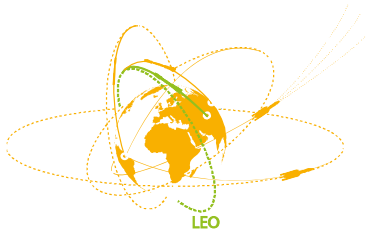
Satellites: **OneWeb satellite #255 to #288**
Customer: **OneWeb**

TARGETED ORBIT

- Altitude at separation: **450 km**
- Inclination: **84.7degrees**

SOYUZ STANDARD LOW EARTH ORBIT





CONTENTS

PRESS CONTACTS

Cyrielle BOUJU
c.bouju@arianespace.com
+33 (0)6 32 65 97 48

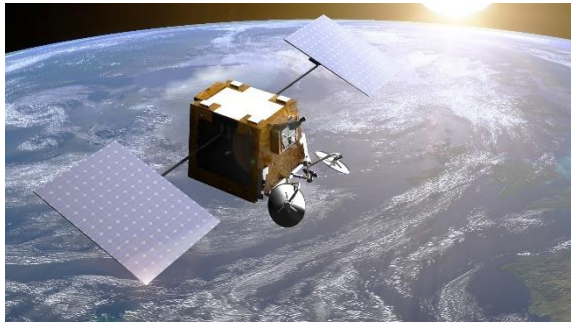
ONEWEB #255 TO #288

ONEWEB SATELLITES TO DELIVER CONNECTIVITY SERVICES IN NORTHERN REGIONS BY THE YEARS END

DID YOU KNOW ?

RUAG Space AB (Linköping, Sweden) is the prime contractor in charge of development and production of the dispenser system used on Flight ST34. It will carry the satellites during their flight to low Earth orbit and then release them into space. The dedicated dispenser is designed to accommodate up to 36 spacecraft per launch, allowing Arianespace to timely deliver the lion's share of the initial OneWeb constellation.

SATELLITES	OneWeb #255 to #288
CUSTOMER	OneWeb
MANUFACTURER	OneWeb Satellite (Florida factory)
MISSION	Global connectivity
OPERATIONAL ORBIT	Low Earth orbit, at 1,200 km. altitude and 87.4° inclination
PLATEFORM	Specific
COVERAGE AREA	Global



Flight ST34, the 29th commercial mission from the Baikonur Cosmodrome in Kazakhstan performed by Arianespace and its Starsem affiliate, will put 34 of OneWeb's satellites bringing the total fleet to 288 satellites into a near-polar orbit at an altitude of 450 kilometers. After separation, the satellites will raise themselves to their operational orbit.

OneWeb's mission is to bring internet everywhere to everyone, by creating a global connectivity platform through a next generation satellite constellation in low Earth orbit. OneWeb's constellation of 650 satellites will deliver high-speed, low-latency enterprise grade connectivity services to a wide range of customer sectors including enterprise, government, maritime and aviation customers. Central to its purpose, OneWeb seeks to bring connectivity to every unconnected area where fiber cannot reach, and thereby bridge the digital divide. Once deployed, the OneWeb constellation will enable user terminals that are capable of offering 3G, LTE, 5G and Wi-Fi coverage, providing high-speed access globally – by air, sea and land.

In 2021, the company is focused on scaling the satellite constellation to launch commercial services starting at the end of 2021 to the UK, Alaska, Canada, Northern Europe, Greenland, Iceland, and the Arctic Seas.

- With Flight ST34, Arianespace will put in orbit a total of 421 spacecraft from Airbus Defence and Space (including OneWeb Satellites – a joint-venture between OneWeb and Airbus Defence and Space founded in 2016). The Arianespace backlog of payloads remaining to be launched for Airbus Defence and Space (excluding the remaining OneWeb satellites) counts 18 additional payloads.
- The first eight OneWeb missions carrying 254 satellites were successfully orbited by Arianespace.

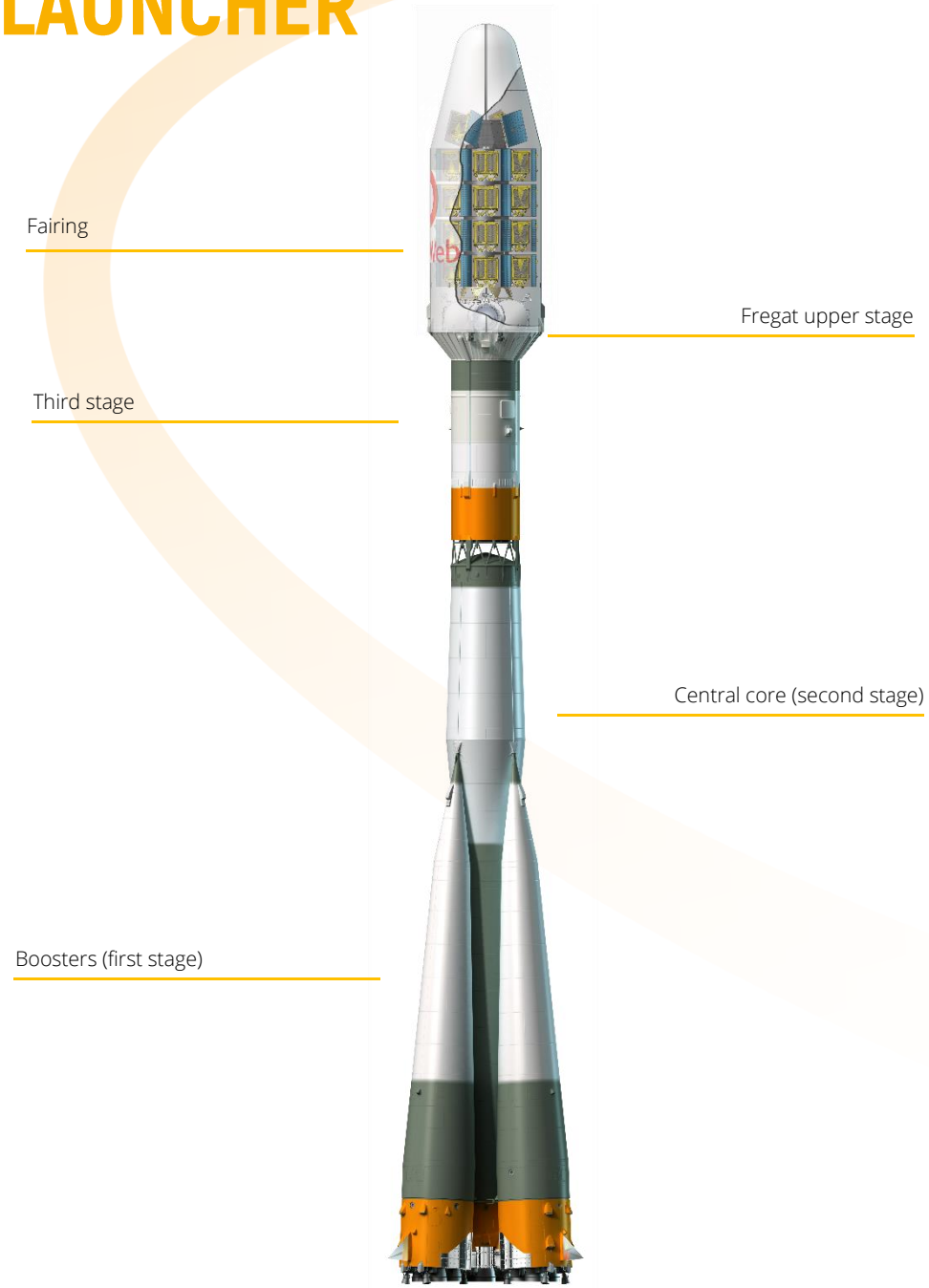
PRESS CONTACTS

OneWeb UK, Europe, MENA, APAC
Tabitha Aldrich-Smith
Mail: taldrich-smith@oneweb.net
Tel: +44 7970 440291

OneWeb USA, Latin America, Canada
Katie Dowd
Mail: kdowd@oneweb.net
Tel: +1 202 415 4030

Airbus Defence and Space
Ralph Heinrich
Mail: ralph.heinrich@airbus.com
Tel: +49 171 304 9751
Site: www.airbus.com

SOYUZ LAUNCHER



DID YOU KNOW ?

The Soyuz launch vehicle family has provided reliable and efficient launch services since the start of space exploration. Soyuz rockets, which launched both the first artificial satellite and the first human into space, have performed more than 1,925 launches to date. Today, Soyuz is used for manned and unmanned flights to the International Space Station, as well as Russian government launches and commercial launches. Introduced in 1966, Soyuz has been the workhorse of the Soviet/Russian space program. As the only manned launch vehicle in Russia and the former Soviet Union, Soyuz meets very high standards of reliability and robustness.

The decision of the European Space Agency to introduce Soyuz launch capability at the Guiana Space Center (CSG) in French Guiana marked a major step forward in expanding the range of missions. With the introduction of Soyuz at CSG, this famed medium-lift Russian launch vehicle is now an integral part of the European launcher fleet, together with the heavy-lift Ariane 5 and the lightweight Vega. Offered exclusively by Arianespace to the commercial market for launches from CSG, Soyuz becomes Europe's standard medium launcher for both government and commercial missions.

The Soyuz version currently offered by Arianespace is a four-stage launch vehicle composed of: four boosters (first stage), a central core (second stage), a third stage, and the restartable Fregat upper stage (fourth stage). It also includes a payload adapter/dispenser and fairing.

LAUNCH CAMPAIGN

D-7 — Upper composite (satellites + dispenser + Fregat with intermediate bay + fairing) is transferred to the launch vehicle assembly facility.

D-6 TO D-4 — Launch vehicle integration and preparation for roll-out to launch pad. The upper composite is mated to the launch vehicle's third stage, which in turn is mated to the packet "central core + 4 lateral blocs" completing the full assembly of the launch vehicle enabling connections to be verified.

D-4 — An overall Readiness review ensures the Soyuz launch vehicle including its payload are ready for roll-out and launch pad systems are ready for LV final preparation and launch.

D-3 — Launch vehicle roll-out to launch pad, installation on the launch system. Launch Pad Servicing plate forms closing ("les fermes") and feeding line connections; spacecraft and dispenser status checks; autonomous verifications of the three-stage and associated ground support equipment (first, second and third stages) (Part 1).

D-2 — Fregat upper stage functional check autonomous and complex verifications for the three-stage launcher elements (Part 2).

D-9 HOURS — Final countdown begins. Systems checks begin for all launch vehicle and ground support equipment.

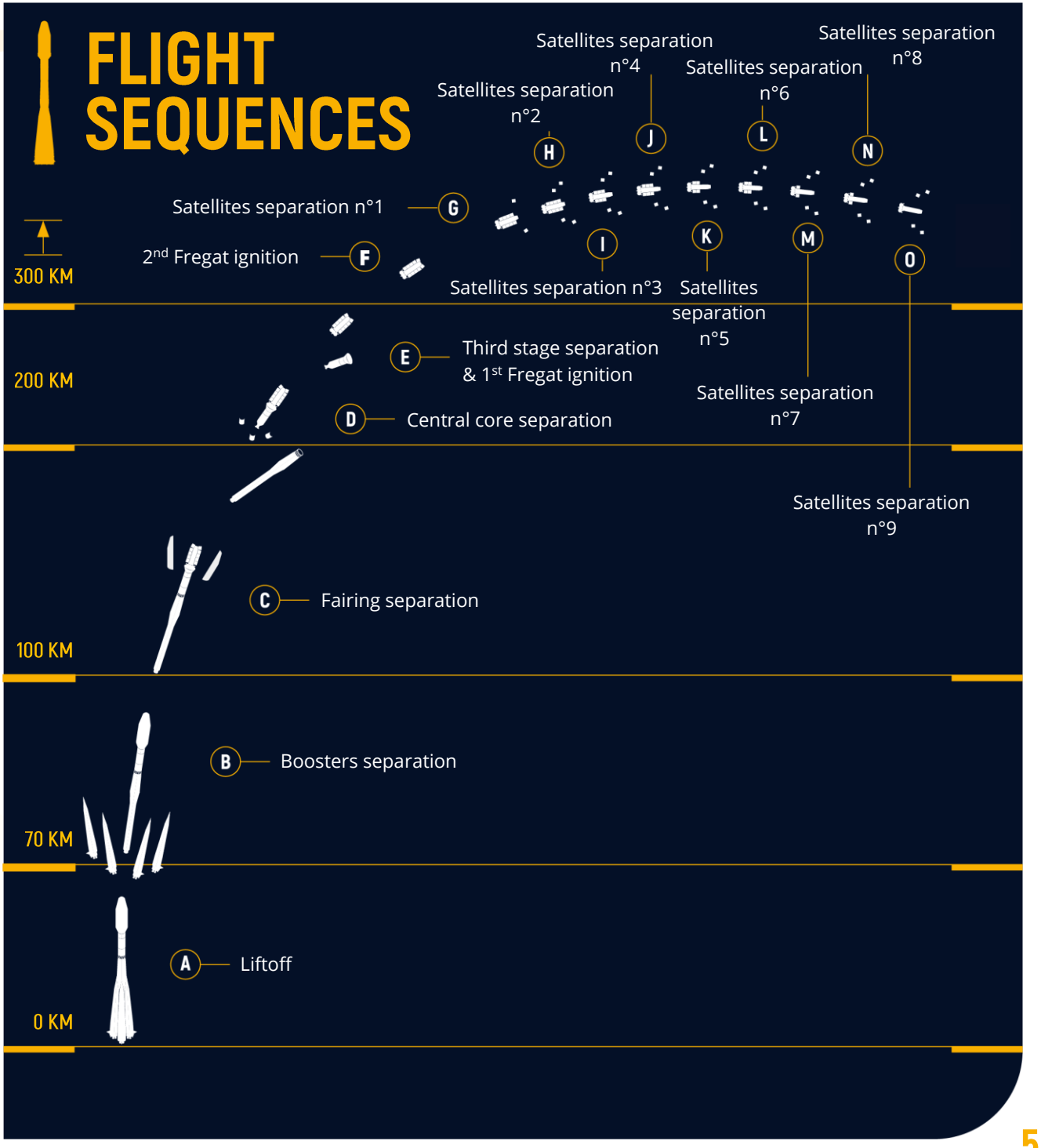
D-5 HOURS, 10 MINUTES — Automatic launch sequence begins on the Fregat upper stage. Launch vehicle fueling authorization review.

D-4 HOURS, 30 MINUTES — Launch vehicle fueling begins.

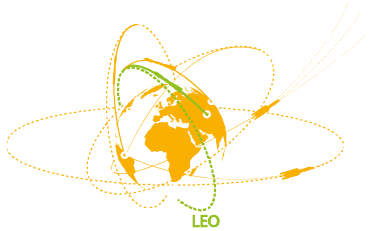
D-35 MINUTES TO LIFTOFF — Launch Pad Servicing Platforms opening (20 minutes duration). Pressurization of propellant tanks umbilical connectors for Spacecraft lines drop-off. KZM umbilical mast release. Ignition of lateral blocs and central core engines (first and second stage of the Soyuz 3-Stage) and liftoff

Launcher operations

Satellite operations



STAKEHOLDERS OF A LAUNCH



ARIANESPACE

Arianespace uses space to make life better on Earth by providing launch services for all types of satellites into all orbits.

It has orbited over 940 satellites since 1980, using its family of three launchers, Ariane, Soyuz and Vega, from a launch site in French Guiana (South America) and the Russian cosmodromes in Baikonur and Vostochny.

Arianespace is already marketing Europe's new launchers, Ariane 6 and Vega C.

Arianespace is headquartered in Evry, near Paris, and has a technical facility at the Guiana Space Center, Europe's Spaceport in French Guiana, plus local offices in Washington, D.C., Tokyo and Singapore. Arianespace is a subsidiary of ArianeGroup, which holds 74% of its share capital, with the balance held by 15 other shareholders from the European launcher industry.

STARSEM

Starsem is the Soyuz company, dedicated to providing commercial launch services with the reliable and proven Soyuz family of launch vehicles.

The European-Russian organization brings together all key players involved in the production and operation of Soyuz and is responsible for international sales of the world's most versatile launch vehicle.

Created in 1996, Starsem offers the Soyuz for a broad range of mission needs, including satellite telecommunications systems, scientific spacecraft, and Earth observation / meteorological platforms.

Starsem provides each customer a true turnkey service, from manufacture of the launch vehicle to mission preparations at the Baikonur Cosmodrome and successful in-orbit delivery of payloads.

Press contact: communication@starsem.com

ROSCOSMOS & RUSSIAN PARTNERS

ROSCOSMOS is a State Corporation that was established in August 2015 to oversee and implement a comprehensive reform of the Russian space industry.

State Space Corporation ROSCOSMOS ensures the implementation of the Russian government's space program and its legal regulation. ROSCOSMOS is also placing orders for the development, manufacture and supply of space equipment and space infrastructure objects.

The state corporation is also responsible for international space cooperation and tasked with setting the stage for the future use of results of space activities in the social and economic development of Russia.

Glavkosmos is responsible of the launch campaign planning, and all associated activities of the Russian partners linked with the launch campaign. RKTs-Progress (the Samara Space Center) is responsible for the design, development, and manufacture of launch vehicles, including the Soyuz launch vehicle's first, second, third stages and fairing. It also integrates vehicle stages and handles flight operations. NPO Lavochkin manufactures and integrates the Fregat upper stage, and is responsible for its launch operations. TsENKI is in charge of the launch campaign and the final chronology, and the provision of associated services, including systems engineering, the design, and technical and operational management of the launch pad and associated facilities dedicated to the Soyuz launcher.

Press contact: info@roscosmos.ru