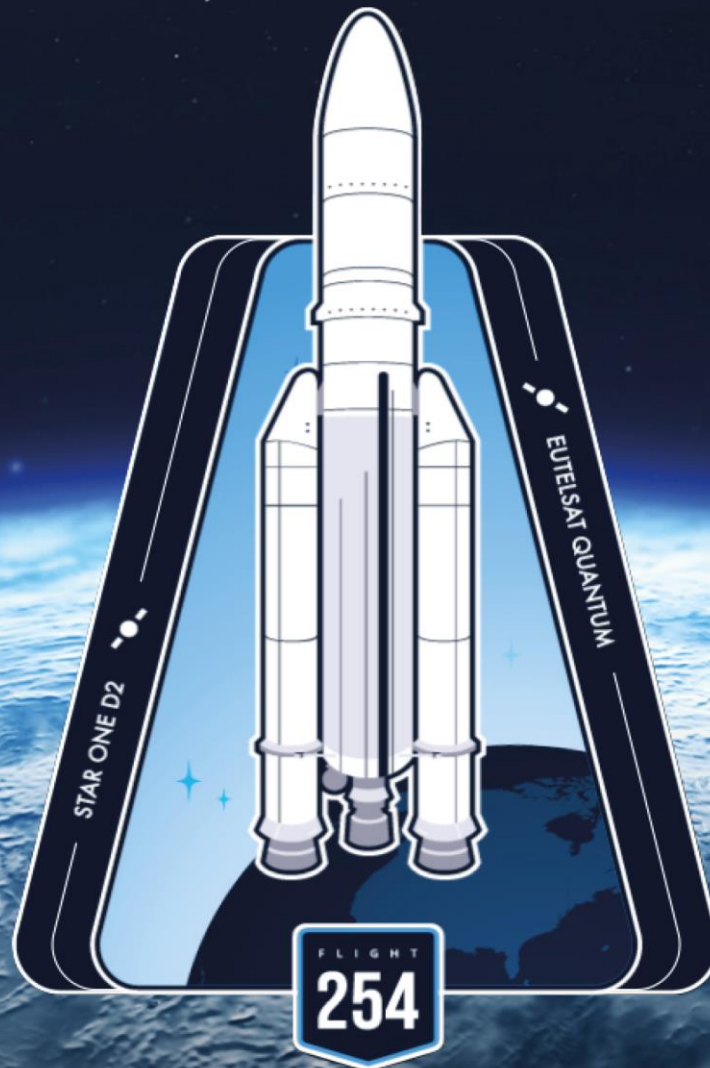


JULY 2021
LAUNCH KIT
VA254



www.arianespace.com



www.ariane.group/en/

MISSION DESCRIPTION

Arianespace's sixth launch of 2021 with the first Ariane 5 of the year will place its satellite passengers into geostationary transfer orbit. The launcher will be carrying a total payload of approximately 10,515 kg.

The launch will be performed in Kourou, French Guiana.



DATE AND TIME

Liftoff is planned on **Friday, July 30, 2021**, as early as possible within the following launch window:

- Between 05:00 p.m. and 06:30 p.m. Washington, D.C. time,
- Between 06:00 p.m. and 07:30 p.m. Kourou time,
- Between 09:00 p.m. and 10:30 p.m. Universal time (UTC),
- Between 11:00 p.m. and 12:30 a.m. Paris time, in the night of July 30 to 31,
- Between 06:00 a.m. and 07:30 a.m. Japan time, in the morning of July 31.



MISSION DURATION

The nominal duration of the mission (from liftoff to separation of the satellites) is: **36 minutes and 24 seconds.**



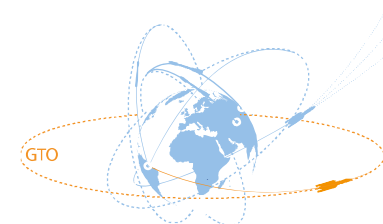
SATELLITES

- Satellite: Star One D2
- Customer: Maxar for STAR ONE S.A
- Satellite: EUTELSAT QUANTUM
- Customer: Eutelsat



TARGETED ORBIT

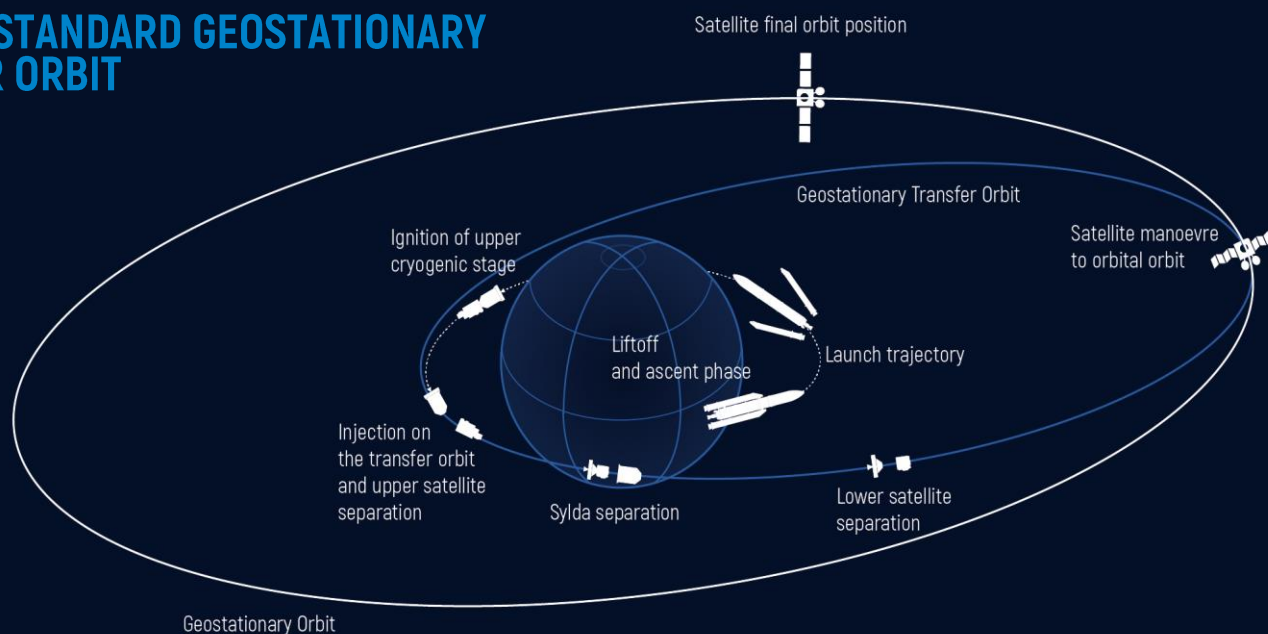
- Perigee altitude: 250 km.
- Apogee altitude: 35 726 km.
- Inclination : 3 degrees



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ARIANE 5 STANDARD GEOSTATIONARY TRANSFER ORBIT



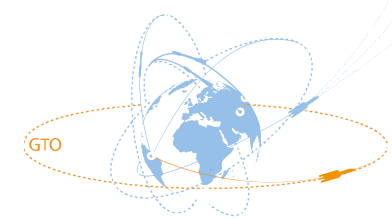
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STAR ONE D2 SATELLITE

THE GROWING FAMILY OF EMBRATEL



DID YOU KNOW?

Star One D2 is the third satellite that Maxar has manufactured for Embratel. Maxar previously built Star One C4, which launched in July 2015 and provides direct-to-home television service in Brazil, and Star One D1, which launched in December 2016 and was the first satellite in Embratel's fourth-generation family of satellites.



SATELLITE	Star One D2
CUSTOMER	Maxar for STAR ONE S.A (subsidiary of Embratel)
MANUFACTURER	Maxar
MISSION	Telecommunications
MASS AT LAUNCH	6 190 kg.
PLATFORM	Maxar's 1300-class platform
COVERAGE AREA	Central, South America, and Atlantic Ocean
LIFETIME	15 years

Star One D2 satellite, operated by the Brazilian operator Embratel is a high-capacity, multi-mission satellite with Ku-, Ka-, C- and X-band transponders that will enable it to expand broadband coverage to new regions in Central and South America, provide internet access to underserved populations and add an updated X-band payload for government use over the Atlantic region. This powerful, multi-mission communications satellite built on Maxar's proven 1300-class platform at the company's Palo Alto, California, manufacturing facility, Star One D2 will improve access to high-quality services, serving the parabolic fleet in Brazil, Pay TV, cell phone backhaul, data, video and Internet for corporate customers and government agencies.

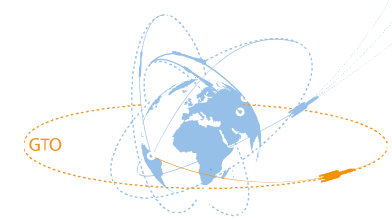
Star One D2 satellite hosts multiple payloads, which will enable it to expand broadband coverage to new regions, provide internet access to underserved populations and add an updated X-band payload for government use over the Atlantic region.

Maxar has decades of mission experience working closely with customers to design, manufacture and operate communications and Earth observation satellites, among other spacecraft. Maxar is a world leader in commercial GEO communication satellites and a global leader in commercial satellite manufacturing.

- Since 1985, Embratel has entrusted all its satellites to Arianespace, demonstrating the trust of this strong relationship. Star One D2 will be the 12th satellite to be launched by Arianespace for Embratel.
- Star One D2 will be the 68th Maxar satellite to be launched by Arianespace; there are currently four Maxar satellites in Arianespace's backlog.

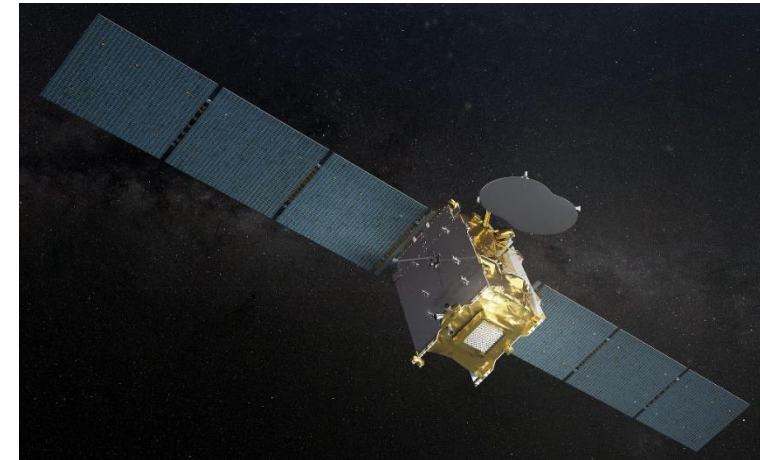
EUTELSAT QUANTUM SATELLITE

A SATELLITE UNLIKE ANY OTHER



DID YOU KNOW?

The EUTELSAT QUANTUM satellite is a world first, marking the start of a new era of commercial satellites. Putting agility and flexibility in the hands of Eutelsat's customers, the satellite paves the way for dynamic resource management to meet changing demands in real-time.



SATELLITE	EUTELSAT QUANTUM
CUSTOMER	Eutelsat
MANUFACTURER	Airbus Defence and Space
MISSION	Telecommunications
MASS AT LAUNCH	3 461 kg.
PLATFORM	SSTL GMP-T Bus
COVERAGE AREA	Possibility to position EUTELSAT QUANTUM beams from West Africa to Asia
LIFETIME	15 years

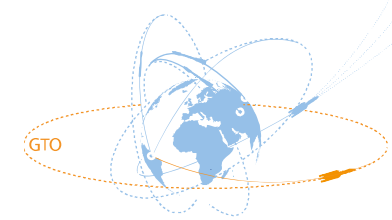
EUTELSAT QUANTUM satellite: revolutionizing telecoms markets with its active antenna is a first for the European commercial telecommunications industry. It will enable users in government, mobility and data markets in order to actively define and shape the performance to reach they need from the satellite. Using a software-based design, EUTELSAT QUANTUM will be the first universal satellite to repeatedly adjust to business requirements.

It features an electronically steerable receiving antenna and operates in Ku-band with eight independent reconfigurable beams. This configuration allows the operator to reconfigure in-orbit the radio-frequency beams over the coverage zones, providing unprecedented flexibility in data, government and mobility services. This new antenna technology complements new generation fully digital payloads where the operator can thus change the coverage, frequencies and the power of its spacecraft.

It is developed under a public-private partnership between ESA, operator Eutelsat and Airbus Defence and Space.

- EUTELSAT QUANTUM will be the 36th Eutelsat satellite to be launched by Arianespace.
- EUTELSAT QUANTUM will be the 132nd Airbus Defence and Space satellite to be launched by Arianespace and there are currently 19 Airbus satellites in Arianespace's backlog (without taking into account the OneWeb satellites).

ARIANE 5 LAUNCHER



775 metric tons (total mass at liftoff)

Fairing
(RUAG Schweiz AG)
Height: 17 m.
Mass: 2.4 t.

PA – Payload adaptors (2)
(Airbus Defence and Space - ASE)
(RUAG Space AB)
Mass: 202 kg.

SYLDA – Internal structure
510 kg.

Vehicle equipment bay
Height: 1.13 m.
Mass: 1,100 kg.

ESC-D – Cryotechnic upper stage
Height: 4.71 m.
Mass: 19 t.

HM-7B engine
Thrust: 67 kN. (in vacuum)
995 sec. of propulsion

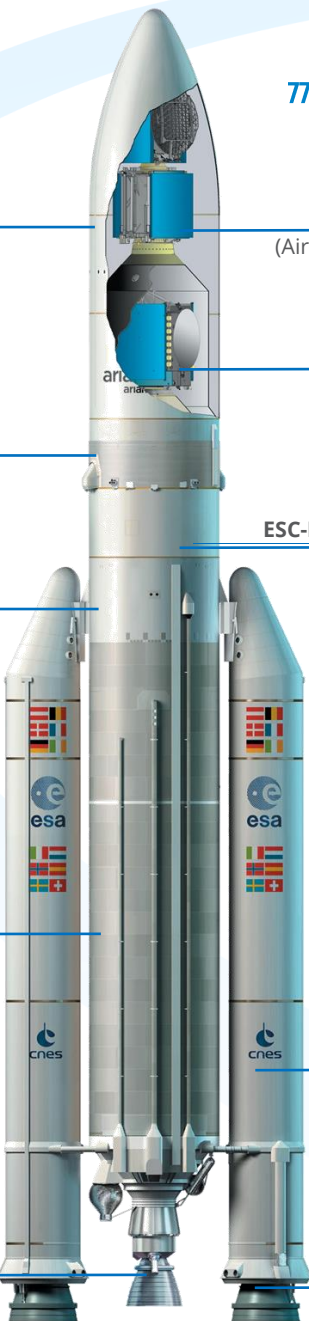
Propellants (in metric tons) at T0
H: Cryogenic
P: Solid

EPC – Cryogenic main stage
Height: 31 m.
Mass: 190 t.

EAP – Solid rocket boosters
Height: 31.6 m.
Mass: 277 t.

Vulcain 2 engine
Thrust: 1,410 kN. (in vacuum)
520 sec. of propulsion

MPS – Solid rocket motor
Average thrust: 5,060 kN.
Max thrust: 7,080 kN. (in vacuum)
133 sec. of propulsion



13,000 kN. at liftoff (atT+7.3 sec)

DID YOU KNOW?

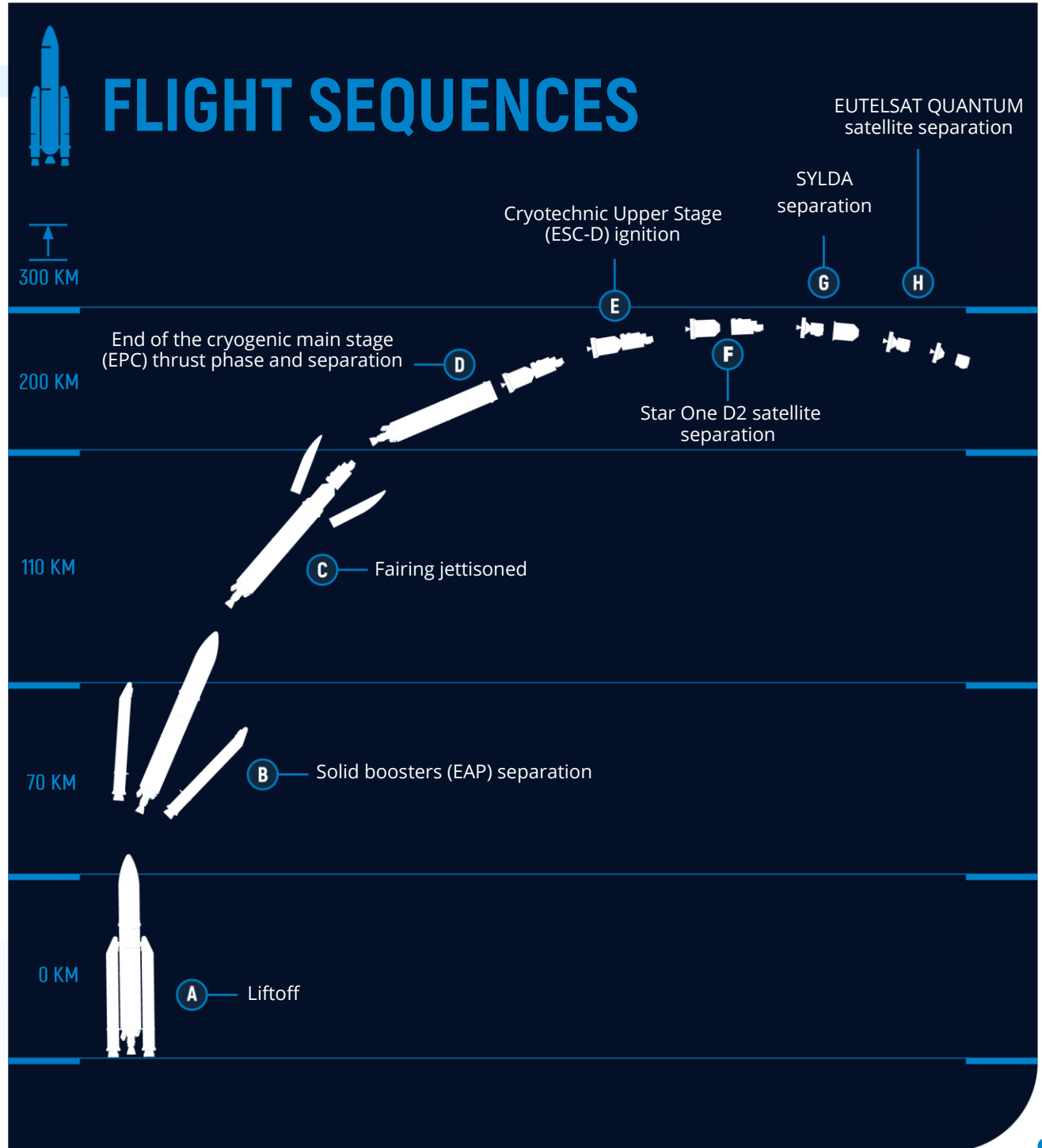
ArianeGroup, as prime contractor for Ariane 5, leads a number of European companies in launcher production, including management of upgrades and the flight software for each mission. This team effort underpins the success of Ariane 5.

ArianeGroup's responsibilities on Ariane 5 include structures and equipment, propulsion systems, integration of the different stages and integration of the launcher at the Guiana Space Center in French Guiana. It coordinates more than 600 European companies contributing to the launcher, including some 350 small and medium-size enterprises.

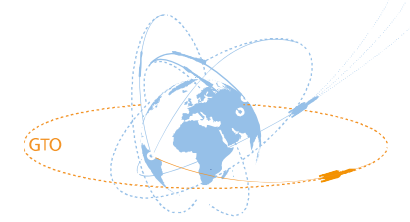
We continuously improve the competitiveness of the Ariane 5 system, while also ensuring that it benefits from the production improvements developed on the Ariane 6 program.

LAUNCH CAMPAIGN

- 06/09/2021 Campaign start review
- 06/21/2021 Arrival of Star One D2 in French Guiana
- 06/29/2021 Arrival of EUTELSAT QUANTUM in French Guiana
- 07/01/2021 Transfer from BIL (Launcher Integration Building) to BAF (Final Integration Building)
- 07/08/2021 Star One D2 fueling operations
- 07/15/2021 Star One D2 integration on SYLDA
- 07/16/2021 EUTELSAT QUANTUM fueling operations
- 07/22/2021 EUTELSAT QUANTUM integration on launch vehicle
- 07/23/2021 Composite (Star One D2 under fairing) integration on launch vehicle (EUTELSAT QUANTUM under SYLDA)
- 07/24/2021
- 07/26/2021 Dress rehearsal
- 07/28/2021 Launch readiness review and arming of launch vehicle
- 07/29/2021 Roll-out from BAF to the Launch Pad
- 07/30/2021 Start of launch countdown, cryogenic main stage (EPC) and cryogenic upper stage (ESC-A) filling with liquid oxygen and liquid hydrogen
- Launch vehicle 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.

ARIANEGROUP

ArianeGroup is the prime contractor for the development and production of Ariane 5 and Ariane 6 launchers. The company coordinates an industrial network of more than 600 companies (including 350 SMEs).

ArianeGroup oversees the entire industrial supply chain, from performance optimization and the corresponding studies associated with Ariane 5 to production, from the supply of mission-specific data and software to the marketing of the launcher through Arianespace. This chain includes equipment and structures, engine manufacturing, integration of the various stages, and launcher integration in French Guiana.

ArianeGroup delivers a flight-ready launcher on the launch pad to its subsidiary Arianespace, which operates the flight from lift-off, on behalf of its customers.

ESA

The European Space Agency (ESA) is tasked with guiding the development of Europe's space capabilities and making sure that its investments in space benefit the citizens of Europe and worldwide. An international organization with 22 member states, ESA coordinates its members' financial and intellectual resources to conduct programs and activities that largely surpass the scope of action of a single European country. ESA is now coordinating Europe's future launcher programs, Ariane 6 and Vega C. On Ariane 6, ESA supervises the overall launch system procurement and architecture, while European industry builds the launcher, with ArianeGroup as prime contractor and design authority.

ESA also provides the launcher's specifications for institutional missions. Thirteen European countries contribute to funding for the Ariane 6 program, led by France, Germany and Italy, along with Austria, Belgium, Spain, Ireland, Norway, the Netherlands, Romania, Sweden, Switzerland and the Czech Republic.

CNES

French space agency CNES (Centre National d'Etudes Spatiales) defines national space policy and proposes it to public authorities. CNES oversees the application of this policy in five main areas: Ariane, science, observation, telecommunications and defense.

ESA chose CNES as prime contractor for Ariane 6 ground facilities in French Guiana, including the construction of a new launch pad and development of the existing installations at the Guiana Space Center (CSG).

CNES also supports ESA, as the contracting authority, and ArianeGroup, as prime contractor for launcher development, and is responsible for applying the French law on space operations.

