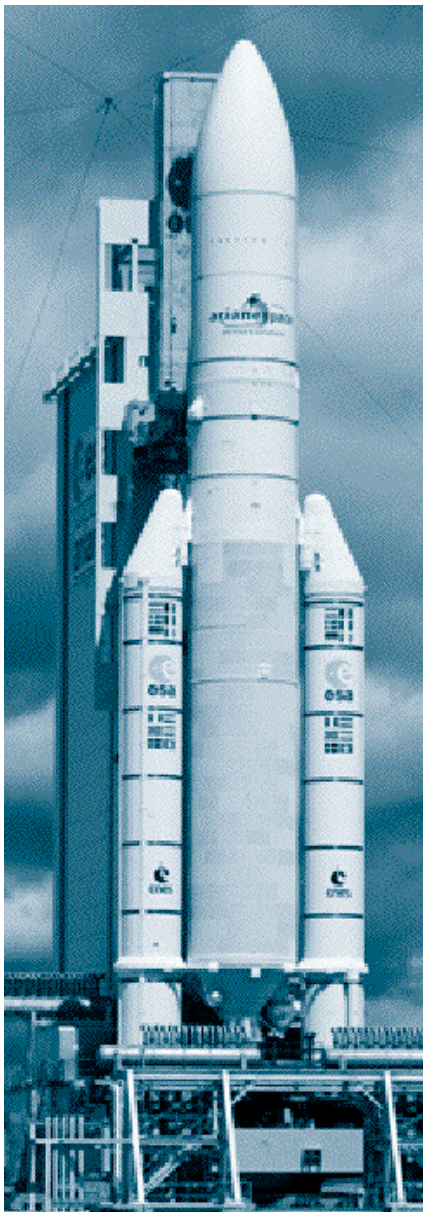
SATELLITE LAUNCHES FOR AFRICA AND THE MIDDLE EAST

For its third launch of the year, Arianespace will orbit the NILESAT 201 direct broadcast satellite for the Egyptian operator Nilesat, and the RASCOM-QAF1R communications satellite for pan-African operator RascomStar-QAF. Both satellites were built by Thales Alenia Space.



The choice of Arianespace by leading space communications operators and manufacturers is clear international recognition of the company's excellence in launch services. Based on the proven reliability and availability of its launch services, Arianespace continues to confirm its position as the world's benchmark launch system.

Ariane 5 is the only commercial satellite launcher now on the market capable of simultaneously launching two payloads.

NILESAT 201 will be the third satellite launched by Arianespace for this operator, following NILESAT 101 and NILESAT 102, launched in 1998 and 2000, respectively.

NILESAT 201 is based on a Spacebus 4000B2 platform, and will weigh nearly 3,200 kg at launch. Fitted with 24 Ku-band and 4 Ka-band transponders, it will provide broadband direct-to-home (DTH) television broadcast services to North Africa and the Middle East. It will be positioned at 7 degrees West and offers a design life exceeding 15 years.

RASCOM-QAF1R, built by Thales Alenia Space within the scope of a turnkey contract with the company RascomStar-QAF, also offers a design life of 15 years. It will provide communications services in rural parts of Africa, including long-distance domestic and international links, direct TV broadcasts and Internet access.

Built on a Spacebus 4000B3 platform, this high-power satellite is equipped with 12 Ku-band and 8 C-band transponders. It will weigh about 3,000 kg at launch, and offers end-of-life power of 6.6 kW. Positioned at 2.85 degrees East, its footprint will cover the entire African continent, as well as parts of Europe and the Middle East.

1 - The ARIANESPACE mission
2 - Range operations campaign: ARIANE 5
3 - Launch countdown and flight events
4 - Flight Trajectory
5 - The ARIANE 5 launch vehicle
6 - The NILESAT 201 satellite
7 - The RASCOM-QAF1R satellite

Appendix
1. Flight Key personnel
2. Launch environment conditions
3. Synchronized sequence
4. ARIANESPACE, its relations wich ESA and CNES

Follow the launch live on the internet broadband
at www.arianespace.com
(starting 20 minutes before lift-off)

1. Mission profile

The 196th Ariane mission will place into geostationary transfer orbit the NILESAT 201 direct broadcast satellite for the Egyptian operator Nilesat, and the RASCOM-QAF1R communications satellite for pan-African operator RascomStar-QAF. Both satellites were built by Thales Alenia Space.

This will be the 52nd Ariane 5 launch

The launcher will be carrying a total payload of 7,085 kg, including 6,250 kg for the NILESAT 201 and RASCOM-QAF1R satellites, which will be released into their targeted orbits.

The launch will be from Ariane Launch Complex No. 3 (ELA 3) in Kourou, French Guiana.

Injection orbit	
Perigee altitude	***250 km***
Apogee altitude	***35,919 km at injection***
Inclination	***2° degrees***

The lift-off is scheduled on the night of August 4 to 5, 2010 as soon as possible within the following launch window:

Launch opportunity

	Universal time (GMT)	*Paris time*	*Kourou time*	*Cairo time*	*Port-Louis (Mauritius) time*
Between	*8:45 pm*	*10:45 pm*	*5:45 pm*	*11:45 pm*	*12:45 am*
and	*11:34 pm*	*1:34 am*	*8:34 pm*	*2:34 am*	*3:34 am*
on	*August 4, 2010*	*August 4-5, 2010*	*August 4, 2010*	*August 4-5, 2010*	*August 5, 2010*

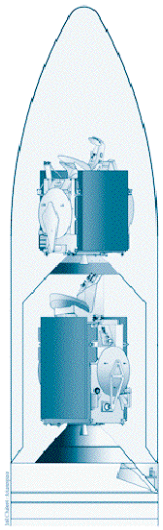
Configuration of Ariane payload

The NILESAT 201 satellite was built by Thales Alenia Space, in Toulouse and Cannes, France, for the operator Nilesat.

Orbital position: 7° West

The RASCOM-QAF1R satellite was built by Thales Alenia Space in Toulouse and Cannes, France, for the operator RascomStar-QAF.

Orbital position : 2,85° East



2. Range operations campaign: ARIANE 5 - NILESAT 201 & RASCOM-QAF1R

Satellites and launch vehicle campaign calendar

Ariane activities	*Dates*	*Satellites activities*
Campaign start review	*June 8, 2010*	
EPC Erection	*June 8, 2010*	
EAP transfer and positionning	*June 9, 2010*	
Integration EPC/EAP	*June 11, 2010*	
ESC-A and VEB Erection	*June 16, 2010*	
	June 29, 2010	*Arrival in Kourou of NILESAT 201 and beginning of preparation campaign in building S1 B*
	June 29, 2010	*Arrival in Kourou of RASCOM-QAF1R and beginning of preparation campaign in building S1 B*
	July 9-13, 2010	*NILESAT 201 filling operations*
	July 12-15, 2010	*RASCOM-QAF1R filling operations*
Roll-out from BIL to BAF	*July 16, 2010*	
	July 19, 2010	*NILESAT 201 integration on adaptor (ACU)*

Satellites and launch vehicle campaign final calendar

J-10	*Wednesday, July 21*	*NILESAT 201 transfer to Final Assembly Building (BAF) and integration on Sylda*
J-9	*Thursday, July 22*	*RASCOM-QAF1R integration on adaptor*
J-8	*Friday, July 23*	*Fairing integration on Sylda - RASCOM-QAF1R transfer to Final Assembly Building (BAF)*
J-7	*Monday, July 26*	*RASCOM-QAF1R integration on launcher*
J-6	*Tuesday, July 27*	*Upper composite integration with NILESAT 201 on launcher*
J-5	*Wednesday, July 28*	*ESC-A final preparations and payloads control*
J-4	*Thursday, July 29*	*Launch rehearsal*
J-3	*Friday, July 30*	*Arming of launch vehicle*
J-2	*Monday, August 2*	*Arming of launch vehicle* *Launch readiness review (RAL) and final preparation of launcher*
J-1	*Thursday, August 3*	*Roll-out from BAF to Launch Area (ZL), launch vehicle connections and filling of the EPC liquid Helium sphere*
J-0	*Wednesday, August 4*	*Launch countdown including EPC and ESC-A filling with liquid oxygen and liquid hydrogen*

3. Launch countdown and flight events

The countdown comprises all final preparation steps for the launcher, the satellites and the launch site. If it proceeds as planned, the countdown leads to the ignition of the main stage engine, then the two boosters, for a liftoff at the targeted time, as early as possible in the satellites launch window.
The countdown culminates in a synchronized sequence (see appendix 3), which is managed by the control station and onboard computers starting at T-7 minutes.
If an interruption in the countdown means that T-0 falls outside the launch window, then the launch will be delayed by one, two or more days, depending on the problem involved, and the solution developed.

Time		*Events*
– 11 h	*30 mn*	*Start of final countdown*
– 7 h	*30 mn*	*Check of electrical systems*
– 4 h	*50 mn*	*Start of filling of main cryogenic stage with liquid oxygen and hydrogen*
– 3 h	*20 mn*	*Chilldown of Vulcain main stage engine*
– 1 h	*10 mn*	*Check of connections between launcher and telemetry, tracking and command systems*
	– 7 mn 00 s	*"All systems go" report, allowing start of synchronized sequence*
	– 4 mn 00 s	*Tanks pressurized for flight*
	– 1 mn 00 s	*Switch to onboard power mode*
	- 05,5 s	*Command issued for opening of cryogenic arms*
	– 04 s	*Onboard systems take over*
	– 03 s	*Unlocking of guidance systems to flight mode*

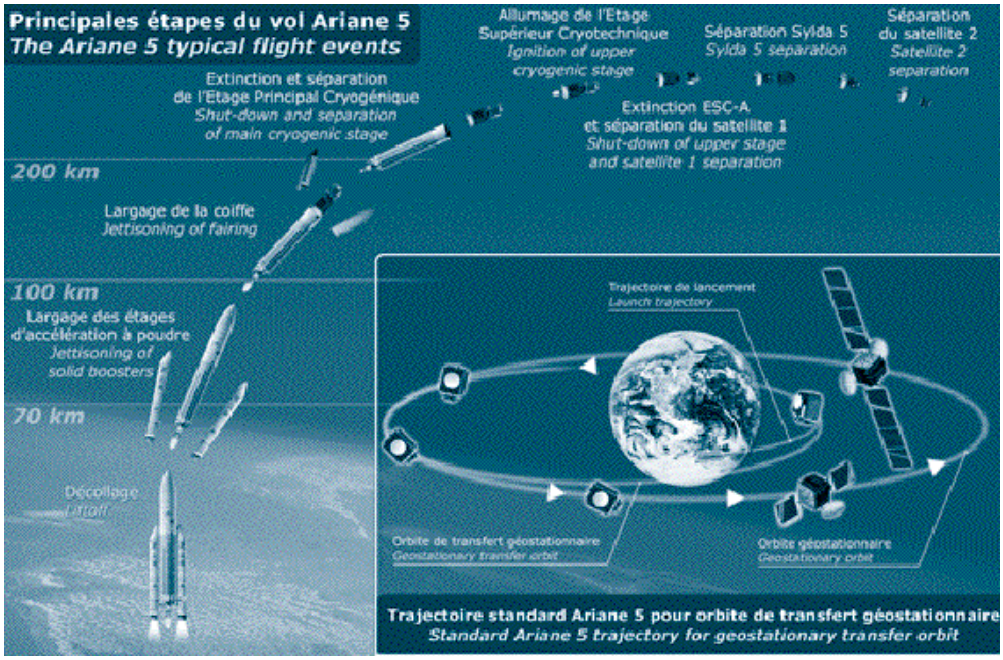
HO	*Ignition of the cryogenic main stage engine (EPC)*		*ALT (km)*	*V. rel. (m/s)*
	+ 7,05 s	*Ignition of solid boosters*	*0*	*0*
	+ 7,3 s	*Liftoff*	*0*	*0*
	+ 12,5 s	*End of vertical climb and beginning of pitch rotation (10 seconds duration)*	*0.087*	*36.6*
	+ 17 s	*Beginning of roll manoeuvre*	*0.341*	*75.4*
+ 2 mn	*22 s*	*Jettisoning of solid boosters*	*121.0*	*2004*
+ 3 mn	*28 s*	*Jettisoning of fairing*	*121.2*	*2269*
+ 7 mn	*14 s*	*Acquisition by Natal tracking station*	*227*	*4448*
+ 8 mn	*55 s*	*Shut-down of main cryogenic stage*	*259.2*	*6653*
+ 9 mn	*01 s*	*Separation of main cryogenic stage*	*259.3*	*6680*
+ 9 mn	*05 s*	*Ignition of upper cryogenic stage (ESC-A)*	*259.3*	*6682*
+ 13 mn	*04 s*	*Acquisition by Ascension tracking station*	*249*	*7276*
+ 18 mn	*38 s*	*Acquisition by Libreville tracking station*	*219*	*8264*
+ 23 mn	*37 s*	*Acquisition by Malindi tracking station*	*343*	*9233*
+ 24 mn	*40 s*	*Shut-down of ESC-A / Injection*	*551.5*	*9442*
+ 28 mn	*44 s*	*Separation of NILESAT 201 satellite*	*1159*	*8940*
+ 30 mn	*22 s*	*Separation of Sylda 5*	*1473*	*8700*
+ 32 mn	*43 s*	*Separation of RASCOM-QAF1R satellite*	*1969*	*8349*
+ 48 mn	*48 s*	*End of Arianespace Flight mission*	*5982*	*6252*

4. Flight trajectory of NILESAT 201 & RASCOM-QAF1R

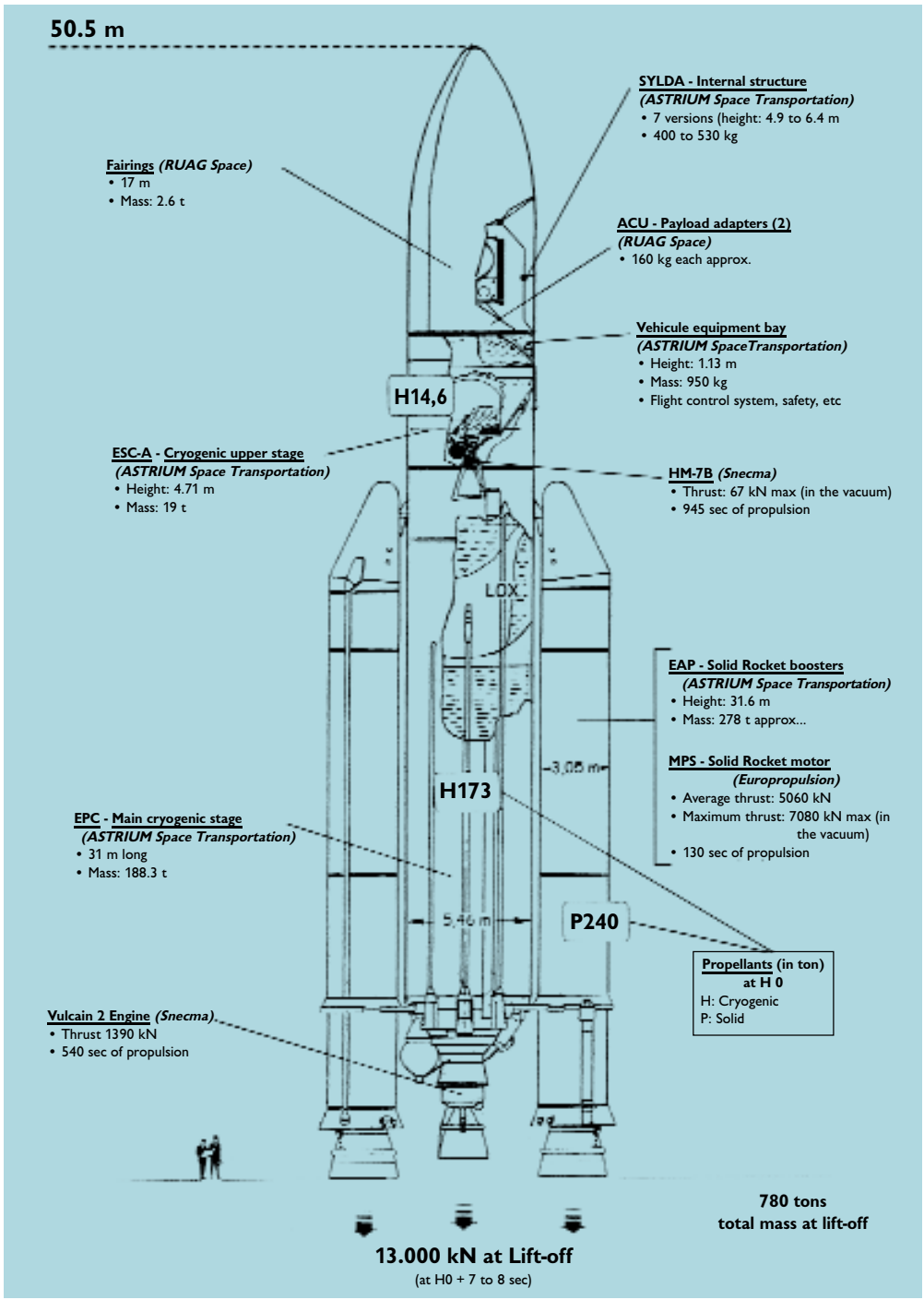
The launcher's attitude and trajectory are totally controlled by the two onboard computers, located in the Ariane 5 vehicle equipment bay (VEB).
7.05 seconds after ignition of the main stage cryogenic engine at T-0, the two solid-propellant boosters are ignited, enabling liftoff. The launcher first climbs vertically for 6 seconds, then rotates towards the East. It maintains an attitude that ensures the axis of the launcher remains parallel to its velocity vector, in order to minimize aerodynamic loads throughout the entire atmospheric phase, until the solid boosters are jettisoned.
Once this first part of the flight is completed, the onboard computers optimize the trajectory in real time, minimizing propellant consumption to bring the launcher first to the intermediate orbit targeted at the end of the main stage propulsion phase, and then the final orbit at the end of the flight of the cryogenic upper stage.
The main stage falls back off the coast of Africa in the Atlantic Ocean (in the Gulf of Guinea).

On orbital injection, the launcher will have attained a velocity of approximately 9442 meters/second, and will be at an altitude of about 551 kilometers.
The fairing protecting the NILESAT 201 et RASCOM-QAF1R spacecraft is jettisoned shortly after the boosters are jettisoned at about T+208 seconds.

Standard Ariane 5 trajectory for geostationary transfer orbit



5. The Ariane 5-ECA (Industrial prime contractor: ASTRIUM SpaceTransportation)



6. The NILESAT 201 satellite

Customer	**THALES ALENIA SPACE for Nilesat**
Prime contractor	*Thales Alenia Space*
Mission	*Satellite for Direct Television (DTH)*
Mass	*Total mass at lift-off 3 200 kg*
Stabilization	*3 axis stabilized*
Dimensions	*2.9 x 1.8 x 2.8 m*
Span in orbit	*29.6 m*
Platform	*SPACEBUS 4000 B2*
Payload	*24 Ku-band transponders and 4 Ka-band transponders*
On-board power	*6.0 kW (end of life)*
Life time	*15 years*
Orbital position	*7° West*
Coverage area	*The Middle East, Africa, the Gulf States*

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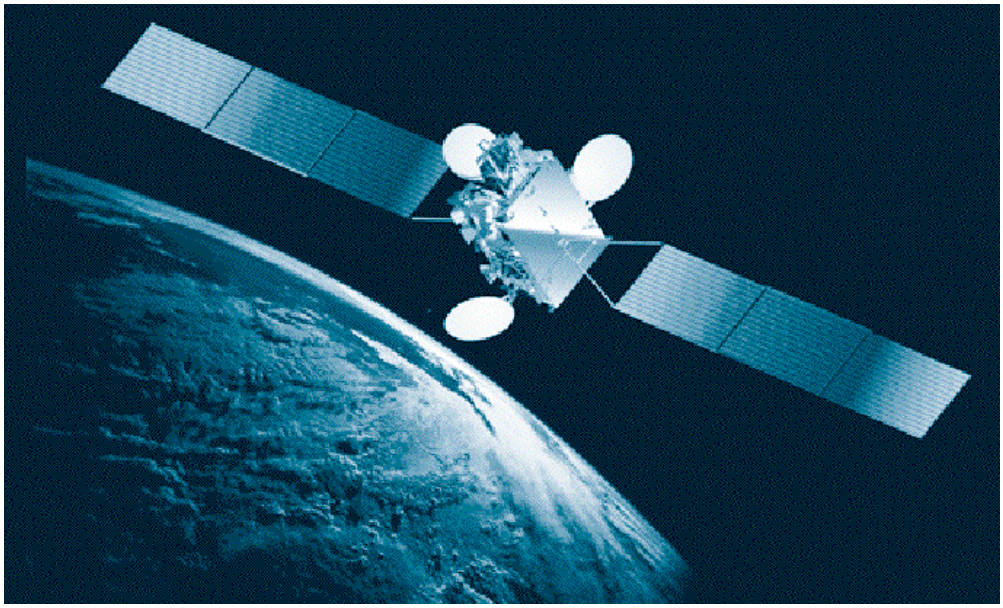
7. The RASCOM-QAF1R satellite



Customer	**THALES ALENIA SPACE for RascomStar-QAF**
Prime contractor	*Thales Alenia Space*
Mission	*Telecommunications, Direct TV, Internet*
Mass	*Total mass at lift-off 3,050 kg*
Stabilization	*3 axis*
Dimensions	*2,3 x 1,8 x 3,7 m*
Span in orbit	*31.8 m*
Platform	*SPACEBUS 4000 B3*
Payload	*12 Ku-band transponders and 8 C-band transponders*
On-board power	*6.6 kW (end of life)*
Life time	*15 years*
Orbital position	*2.85° East*
Coverage area	*Africa, parts of Europe and the Middle East*

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Appendix 1. Arianespace NILESAT 201 & RASCOM-QAF1R launch key personnel

In charge of the launch campaign			
Mission Director	*(CM)*	*Daniel MURE*	*ARIANESPACE*
In charge of the launch service contract			
Program Director NILESAT 201	*(CP1)*	*Pierre-Yves BERTIN*	*ARIANESPACE*
Program Director RASCOM-QAF1R	*(CP2)*	*Thomas PANOZZO*	*ARIANESPACE*
In charge of NILESAT 201 satellite			
Satellite Mission Director	*(DMS)*	*Frédéric COUGNAUD*	*THALES ALENIA SPACE*
Satellite Program Manager	*(CPS)*	*Frédéric COUGNAUD*	*THALES ALENIA SPACE*
Satellite Preparation Manager	*(RPS)*	*Pierre GABILLET*	*THALES ALENIA SPACE*
In charge of RASCOM-QAF1R satellite			
Satellite Mission Director	*(DMS)*	*Guy BURLE*	*THALES ALENIA SPACE*
Satellite Program Manager	*(CPS)*	*Guy BURLE*	*THALES ALENIA SPACE*
Satellite Preparation Manager	*(RPS)*	*Stéphane RAPUC*	*THALES ALENIA SPACE*
In charge of the launch vehicle			
Launch Site Operations Manager	*(COEL)*	*Daniel GROULT*	*ARIANESPACE*
Ariane Production Project Manager	*(CPAP)*	*Arnaud SOVICHE*	*ARIANESPACE*
Launcher Production Quality Manager	*(RQLP)*	*Damien GILLE*	*ARIANESPACE*
Launch Campaign Quality Manager	*(CQCL)*	*Jean-Claude NOMBLOT*	*ARIANESPACE*
In charge of the Guiana Space Center (CSG)			
Range Operations Manager	*(DDO)*	*Emmanuel SANCHEZ*	*CNES/CSG*
Range Operations Deputy	*(DDO/A)*	*Tony GUILLAUME*	*CNES/CSG*

Appendix 2. Launch environment conditions

Acceptable wind speed limits at lift-off range from between 7.5 m/s to 9.5 m/s according to the wind direction. The most critical is a northerly wind. For safety reasons, the wind's speed on the ground (Kourou), and at a high altitude (between 10,000 and 20,000 m) is also taken into account.

Appendix 3. The synchronized sequence

The synchronized sequence starts 7 mn beforre ignition (T-0), it is primarily designed to perform the final operations on the launcher prior to launch, along with the ultimate checks needed following switchover to flight configuration. As its name indicates, it is fully automatic, and is performed concurrently by the onboard computer and by two reduntant computers at the ELA 3 launch complex until T-4 seconds.

The computers command the final electrical operations (startup of the flight program, servocontrols, switching from ground power supply to onboard batteries, etc.) and associated checks. They also place the propellant and fluid systems in flight configuration and perform associated checks. In addition, it handles the final ground system configurations, namely:

- Startup of water injection in the flame trenches and jet guide (T-30 sec).
- Hydrogen aspiration for chilldown of the Vulcain engine in the jet guide (T-18 sec).
- Burnoff of hydrogen used for chilldown (T-5.5 sec).

At T-4 seconds, the onboard computer takes over control of final engine startup and lift-off operations:

- It starts the ignition sequence for the Vulcain main stage engine (T-0).
- It checks engine operation (from T+4.5 to T+7.3 sec).
- It commands ignition of the solid boosters for immediate lift-off at T+7.3 seconds.

Any shutdown of the synchronized sequence after T-7 mn automatically places the launcher back in its T-7 min configuration.

Appendix 4. Arianespace and the Guiana Space Center

Arianespace was founded in 1980 as the world's first launch Service & Solutions company. Today, Arianespace has 24 shareholders from ten European countries (including French space agency CNES with 34%, EADS with 30%, and all European companies participating in the construction of Ariane launchers).
Since the outset, Arianespace has signed more than 300 launch contracts and launched 281 satellites. More than two-thirds of the commercial satellites now in service worldwide were launched by Arianespace.
The company posted sales of 1046 million euros in 2009.
At January 1, 2009, Arianespace had 309 employees, working at the company's headquarters in Evry (near Paris), the Guiana Space Center in French Guiana, where the Ariane, Soyuz and Vega launch pads are located, and offices in Washington, D.C., Tokyo and Singapore.
Arianespace offers launch Service & Solutions to satellite operators from around the world, including private companies and government agencies. These Service & Solutions call on three launch vehicles:
- The Ariane 5 heavy launcher, operated from the Guiana Space Center in Kourou, French Guiana.
- The Soyuz medium launcher. Currently in operation at the Baikonur Cosmodrome in Kazakhstan under the responsibility of Starsem, a Euro-Russian subsidiary of Arianespace, it will be launched from the Guiana Space Center starting in 2010.
- The Vega light launcher, to be launched from the Guiana Space Center starting in 2011.

Arianespace has also signed a mutual backup agreement with Boeing Launch Services and Mitsubishi Heavy Industries, through an entity called the Launch Services Alliance. This arrangement guarantees that customers' payloads will be launched in case the chosen launcher is unavailable for technical reasons.
With its family of launchers and this backup agreement, Arianespace won over half of the commercial launch contracts up for bid worldwide in the last two years. Arianespace now has a backlog of more than 40 satellites to be launched.

The Guiana Space Center: Europe's Spaceport
For over 30 years, the Guiana Space Center (CSG), Europe's Spaceport in French Guiana, has offered a complete array of facilities for rocket launches.
It mainly comprises the following:
- CNES/CSG technical center, including various resources and facilities that are critical to launch base operations, such as radars, telecom network, weather station, receiving sites for launcher telemetry, etc.
- Payload processing facilities (ECPU), in particular the S5 facility.
- Ariane launch complexes (ELA), comprising the launch zone and launcher integration buildings.
- Various industrial facilities, including those operated by Regulus, Europropulsion, Air Liquide Spacial Guyane and EADS, which contribute to the production of Ariane 5 elements. A total of 40 European manufacturers and local companies are involved in operations.

The Guiana Space Center is preparing to welcome two new launch vehicles, Soyuz and Vega. The Soyuz launch complex (ELS) and the Vega launch complex (SLV) are now under construction.
Europe's commitment to independent access to space is based on actions by three key players: the European Space Agency (ESA), French space agency CNES and Arianespace.
ESA has helped change the role of the Guiana Space Center, in particular by funding the construction of the launch complexes, payload processing buildings and associated facilities. Initially used for the French space program, the Guiana Space Center has gradually become Europe's own spaceport, according to the terms of an agreement between ESA and the french government.
To ensure that the Spaceport is available for its programs, ESA takes charge of the lion's share of CNES/CSG fixed expenses, and also helps finance the fixed costs for the ELA launch complexes.
French space agency CNES plays several roles at the Space Center.
- It designs all infrastructures and, on behalf of the French government, is responsible for safety and security.
- It provides the resources needed to prepare the satellites and launcher for missions.

Whether during tests or actual launches, CNES is also responsible for overall coordination of operations. It collects and processes all data transmitted from the launcher via a network of receiving stations, to track Ariane rockets throughout their trajectory.
In French Guiana, Arianespace is the contracting authority in charge of operating the family of three launchers, Ariane, Soyuz and Vega.
Arianespace supervises the integration and functional checks of the Ariane launcher, built by EADS Astrium as production prime contractor, in the Launcher Integration Building (BIL). It then carries out acceptance tests of the launcher at the same time as satellite preparations in the Payload Preparation Complex (EPCU), operated by the Guiana Space Center (CSG). Arianespace next oversees final assembly of the launcher and integration of satellites in the Final Assembly Building (BAF), followed by transfer of the launcher to Launch Zone No. 3 (ZL3), and then final countdown and liftoff from Launch Complex No. 3 (CDL3).
Arianespace has created a top-flight team and array of technical resources to get launchers and satellites ready for their missions. Building on this unrivalled expertise and outstanding local facilities, Arianespace is now the undisputed benchmark in the global launch services market.