

ARCHIVED REPORT

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AlphaBus

Outlook

- Facing strong competition and changing market dynamics; no market for the system has materialized
- Inmarsat transferred its Broadband Global Area Network (BGAN) service to Alphasat in March 2015
- First AlphaBus launched on July 25, 2013 for Inmarsat

Orientation

Description. The AlphaBus is a telecommunications satellite platform.

Sponsor. The European Space Agency (ESA) and the French Space Agency (CNES) are jointly sponsoring the AlphaBus; Airbus Defence and Space and Thales Alenia Space developed the satellite platform under a joint prime contractorship; the two companies jointly market the satellite.

Status. The AlphaBus has completed its development phase. The first launch occurred in July 2013.

Total Produced. One.

Application. The AlphaBus is a telecommunications satellite intended to supplement the Eurostar and Spacebus at the top range of satellites in the European market.

Price Range. AlphaBus was expected to cost about EUR500 million to develop. ESA and CNES covered a great deal of this cost. The first satellite, Inmarsat I-XL, was estimated to cost \$270 million.

Contractors

Prime

Airbus Defence and Space	http://airbusdefenceandspace.com , 31, Ave des Cosmonautes, ZI du Palays, Toulouse, France, Tel: + 33 5 62 19 62 19, Fax: + 33 5 61 54 57 10, Prime
Thales Alenia Space France	http://www.thalesgroup.com/en/worldwide/space , 26 ave JF Champollion, BP 1187, Toulouse, France, Tel: + 33 05 34 35 36 37, Fax: + 33 05 61 44 49 90, Second Prime

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

AlphaBus

Technical Data

Characteristics. The AlphaBus is a large top-end telecommunications satellite that will be reconfigurable for a variety of missions, including new-generation mobile technology, broadband services, digital audio services, and HDTV. AlphaBus competes with large satellites such as the Lockheed Martin A2100X, Boeing 702HP, and Space Systems/Loral 1300. It is expected to have a launch weight between 6 and 8 tons and will carry a payload of 1,000-1,200 kilograms. The

lifespan of each satellite will be about 15 years. The payload power, provided by a gridded ion engine system, will be between 12 and 18 kilowatts. Customers who use the AlphaBus can expect 190-200 transponders and 10-12 antennas capable of broadcasting 1,000 TV channels and 200,000 audio channels. The AlphaBus will be launched on an Ariane 5, or American equivalents.

	<u>Metric</u>	<u>U.S.</u>
Weight	6,600 to 8,800 kg	14,550 to 19,400 lb
Lifetime	15 yr	
Payload Power	12-22 kW	
Payload Mass	1,000-1,200 kg	2,200-2,640 lb
Transponders	Up to 200 (estimated)	



Rendition of an AlphaBus Satellite

Source: ESA

Variants/Upgrades

AlphaBus Extension. ESA has agreed to begin work on an upgraded version of the AlphaBus. The new version will increase power capability from 18 kW to 22 kW. The satellite will feature improved heat dissipation capabilities and an ability to handle payloads

weighing 2,000 kilograms, up from 1,250 kilograms. These improvements will allow the satellite to support 230 transponders, up from 190. Planners expect the satellite to be able to fit inside both Proton and Ariane 5 rockets for launch.

Program Review

Background. In November 2001, both ESA and CNES gave the go-ahead to begin development of the AlphaBus. This was followed by a definition phase, in September 2002, in which the basic requirements of the program were established. In 2003, Alcatel (now Thales Alenia Space) and Astrium (now Airbus Defence and Space) announced the signing of a cooperation agreement.

Under the agreement, Airbus would design and build the electrical power system, solar array, and chemical propulsion system, in addition to handling assembly, integration, and testing. Thales Alenia Space would design and build the mechanical and thermal subsystems, the avionics, and the optional electrical propulsion.

ESA and CNES pressed on for development of the AlphaBus, despite the report by the European Satellite Operators Association that the group saw no market for such large telecommunications satellite platforms. In late 2004, the program entered the development phase.

Project Fuels European Consolidation Rumor

Many believe the French had another reason to urge the development of this satellite. By supporting joint operations by EADS Astrium and Thales Alenia Space, the French government hoped the two companies would be convinced to merge, creating a single European satellite manufacturer to compete with the likes of Boeing and Lockheed Martin. While the French government is keen on this idea, many European satellite operators are not, because they feel a single company would slow development and increase costs. Both EADS Astrium and Thales Alenia Space worked to reassure prospective customers that a merger was not in the works.

Despite financial support from both ESA and CNES, as well as an expected lower cost per transponder than

other satellite platforms, the program has yet to develop a strong backing among satellite operators. The market for top-end satellites is small, and many companies rely on medium-size satellites (in the 4- to 5-ton range) for their telecommunications needs. CNES and ESA have selected Eutelsat, Inmarsat, and Telespazio as operators for the initial AlphaBus platform, Alphasat.

Development Contract Signed

The contract for the development of AlphaBus was signed in Le Bourget by ESA, CNES, EADS Astrium, and Thales Alenia Space on June 16, 2005. The signing marked the start of the AlphaBus development program with a view to production of the first flight model. The contract stipulated that CNES would manage development of the platform line, with cofinancing from ESA as the first client.

Inmarsat. Inmarsat formally awarded a contract to EADS Astrium on November 23, 2007, for an AlphaBus experimental satellite. Inmarsat purchased the Alphasat I-XL satellite from Astrium at an estimated cost of EUR260 million (\$385 million), a figure that included the satellite, the cost of launch, and insurance. The spacecraft weighed over 6,000 kilograms at launch and features a 12-meter antenna and an L-band communications payload.

In February 2010, Thales Alenia delivered the first service module to EADS Astrium. The service module consists of the main structure, central tube, and internal deck, as well as other structural elements. It also contains components of the satellite's propulsion system. The satellite began final assembly and testing in March 2011. The satellite launched on an Ariane 5 on July 25, 2013. In March 2015, Inmarsat transferred its Broadband Global Area Network (BGAN) services to Alphasat.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Jul	2001	French call for top-end satellite platform to compete with Boeing and Lockheed
Nov	2001	Program given go-ahead by ESA and CNES
Sep	2002	Definition phase of program
Jun	2003	Alcatel Alenia Space and EADS Astrium announce cooperation agreement
Feb	2004	Announcement of Agora Project by CNES
Dec	2004	Development phase begun
Feb	2010	First service module delivered to EADS Astrium from Thales Alenia Space
Mar	2011	Final assembly and testing of first AlphaBus
Jul	2013	Inmarsat's Alphasat I-XL launched on an Ariane 5
Mar	2015	Inmarsat transfers BGAN services to Alphasat

AlphaBus

Forecast Rationale

The European Space Agency (ESA) and the French Space Agency (CNES) have provided strong support to the AlphaBus program. Still, a market for the satellite has never materialized. Only one official sale has been recorded since development began in 2001.

Large communications satellites are often used for broadband Internet and mobile communications applications, such as Inmarsat's BGAN service. These markets require large satellites that have enough power to provide high-speed Internet to customers, or to reach small mobile antennas.

The AlphaBus is facing tough competition from other companies in this market. Boeing, Lockheed Martin, and Space Systems/Loral all make high-powered satellites that feature a launch mass of 6,000 kilograms or above, and have been successful in the commercial marketplace in recent years. While the AlphaBus features a launch mass of up to 8,800 kilograms, a market for satellites that size has yet to materialize.

Furthermore, new technologies – such as miniaturized electronic components and electric propulsion – as well as the desire among satellite operators to take advantage of the low-priced Falcon 9 launch vehicle, have increased the appeal of smaller satellites. While large satellites will continue to play a role, these relatively small satellites are gaining market share.

AlphaBus' prime contractors Airbus Defence and Space (formerly Astrium) and Thales Alenia Space continue to offer their own satellite platforms. Airbus' Eurostar E3000 and Thales' Spacebus 4000 have been successful and will continue to be the cornerstones of the two companies' offerings. With Airbus and Thales Alenia focusing on their own offerings, the AlphaBus may not be the favored solution to meet customers' needs.

For those reasons, Forecast International does not expect any further production of the AlphaBus. Barring further developments, this report will be archived next year.

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