

Satellite provision of broadband services

The space industry is delivering commercial satellite broadband services now.

Further deployments are planned that will bring higher data rates at lower cost.

Satellite technology has a role to play in the deployment of next generation broadband.

- Satellite can offer close to 100% geographic coverage
- Satellite is complementary to terrestrial networks
- Satellite solutions have a low carbon footprint, require no street works, are ideal for emergency back-up, allow rapid & flexible roll-out, and R&D developments ensure future-proofing.

Existing Ku-band Fixed Satellite Services (FSS) are already providing a range of satellite-enabled broadband services in the UK today. The existing satellite service offer is largely focussed on addressing those UK customers which are outside the reach of current ADSL coverage and certain business users. Cost reduction and capacity improvement is required to appeal to the larger market.

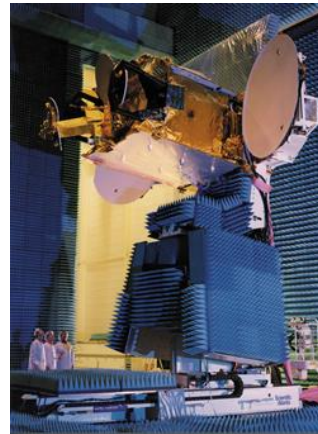
Recently deployed Ka-band FSS satellite systems outside Europe (in particular in the US), are able to offer attractive broadband service packages (both in terms of download / upload data rates and pricing) to their target customers.

SES-Global / SES-Astra

SES ASTRA currently provides a 2-way broadband service in Europe operating in the Ku-band FSS spectrum which is known as ASTRA2Connect. ASTRA2Connect is an always-on 2-way broadband satellite service that operates without any requirement for terrestrial infrastructure.

The service is offered through three service packages with the maximum data rates 1,024 kbit/s downstream – 128 kbit/s upstream

ASTRA2Connect can be enabled to provide customers with satellite 'triple-play' services including; 2-way broadband internet access, VoIP (Voice over IP) and content related TV services (e.g. IPTV, Content-on-Demand).



Astra 2B

Hughes Network Systems

Hughes Network Systems currently sells a variety of Internet Access services, through a chain of value-added resellers, alongside its Enterprise services and hardware sales. Service grades range from 512k/128kbps up to 4M/2Mbps and are targeted at the SME markets. The services are provided via leased capacity on various GEO Ku-band FSS satellites operating over Europe.

Most satellite capacity has been general purpose covering a wide area (e.g. US, Europe) rather than specifically designed for national or local coverage. Whilst this has provided operators with great flexibility to market the wholesale capacity, it has slowed the growth of the consumer broadband satellite market.

Recently in the US, satellite operators have started to deploy satellites specifically for broadband services. Some 670,000 satellite broadband connections were operational at the end of 2007, up 50% on the previous year.

WildBlue

The WildBlue Ka-band FSS satellite system, which was launched in December 2006, offers a range of broadband services in USA

WildBlue has already acquired over 200,000 subscribers to its broadband services since service launch.



WildBlue Modem



WildBlue Dish

Hughes-SpaceWay

In North America Hughes provides consumer and small business Internet Access service directly and through resellers. The Spaceway 3 Ka-band FSS satellite was successfully launched in August 2007 and commercial service in North America began 3 April 2008.

With 10 Gigabits per second of gross capacity, Spaceway 3 is the highest traffic-carrying satellite to be brought into service in North America. It was designed and developed as a next-generation, Ka-band broadband satellite system, and is the world's first commercial satellite to employ on-board traffic switching and routing. Combined with many other advances in satellite technology, such as dynamic beam forming, and direct small-dish-to-small-dish connectivity, Spaceway 3 provides bandwidth-on-demand accessed through a range of high-performance ground terminals.

Satellite infrastructure is the prime example of a high tech low carbon ICT solution. Satellites are powered by sunshine and a launcher such as Ariane 5 produces less CO2 than a jumbo flying to New York.

Europe is starting to follow suit with HYLAS and KaSat in manufacture and both due to come into service before or during 2010. Whilst these satellites should significantly reduce the wholesale cost of bandwidth, they will not be able to provide the capacity required for NGA over the UK as they will also cover Europe. They do however provide a stepping stone towards meeting the requirements of NGA which will require a constellation of small GEO satellites with large antennas.

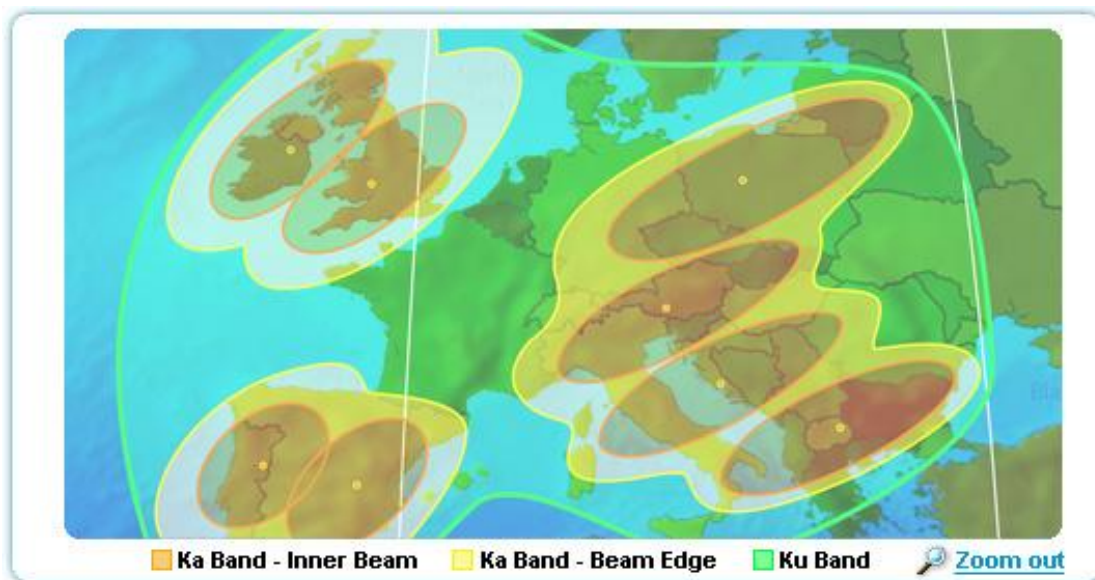
Avanti - HYLAS

To be deployed in 2009. The HYLAS satellite system will offer 2-way broadband services and SDTV/HDTV broadcast services in Ka-band FSS spectrum in the UK and various other major EU markets.

Avanti presently projects an addressable market of several 100,000 customers in the UK alone for its broadband services.

Avanti's HYLAS broadband service offer will be similar to (or higher than), in terms of broadband data rates to that of WildBlue in the USA. The expected pricing for Avanti's broadband services will be announced closer to service launch.

Avanti's HYLAS Satellite System Coverage



Eutelsat - KaSat

KA-SAT is the European equivalent to ViaSat-1, a high-capacity Ka-band broadband satellite ordered by ViaSat to serve the North American market and planned to launch in 2011.

ViaSat and Eutelsat are cooperating closely around ViaSat's SurfBeam® networking system and a similar wholesale business model that works through ISPs, telecommunications companies and pay-TV platforms to serve subscribers.

KA-SAT will deliver a total throughput of over 70 Gigabits per second.

Eutelsat is targeting the 15 million homes in Europe still beyond range of terrestrial broadband networks in 2010.



KaSat

Future Ka-band satellite systems are expected to provide broadband services with much higher capacity and data throughput rates. It is also expected that there will be further steps in the attractiveness of pricing points continuing the historical trend. The cost per unit satellite capacity continues to fall with the implementation of new satellite system technologies and associated consumer equipment. Together this will result in a significant reduction of price per Mbit delivered to the end-user.

Intellect is the trade association for the UK technology industry.

Intellect provides a collective voice for its members and drives connections with government and business to create a commercial environment in which they can thrive. Intellect represents over 800 companies ranging from SMEs to multinationals. As the central hub for this networked community, Intellect is able to draw upon a wealth of experience and expertise to ensure that its members are best placed to tackle challenges now and in the future.

Our members' products and services enable hundreds of millions of phone calls and emails every day, allow the 60 million people in the UK to watch television and listen to the radio, power London's world leading financial services industry, save thousands of lives through accurate blood matching and screening technology, have made possible the Oyster system, which Londoners use to make 28 million journeys every week, and are pushing Formula One drivers closer to their World Championship goal.

In the past 12 months 14,500 people have visited Intellect's offices to participate in over 550 meetings and 3,900 delegates have attended the external conferences and events we organise.

The technology industry contributes over 10% of the UK GDP and directly employs over a million people in the UK.

For further information visit www.intellectuk.org

UKspace is the trade association of the British space industry.

Founded in 1975 and originally known as the United Kingdom Industrial Space Committee (UKISC), UKspace is sponsored jointly by SBAC and Intellect.

UKspace represents over 75 per cent of the UK space industry by both turnover and people employed, with member companies engaged in all aspects of space activity.

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