

High-Capacity Satellite System

The ViaSat high-capacity satellite system is designed to transform satellite broadband in terms of economics and the quality of the user experience. This system is a new concept, conceived by ViaSat, which enables satellite to compete more effectively with other broadband alternatives.

Traditionally an alternative only for rural customers unserved by any other broadband, satellite will now be able to supply a level of service that can satisfy the growing consumer demand for bandwidth, which is now doubling every two to three years. New service packages will match the speed and price of terrestrial alternatives such as DSL and wireless. For the first time, satellite will be able to economically deliver the media-rich Internet that consumers demand.

The new system is a combination of a new satellite architecture and innovative ground system that maximizes the total bandwidth throughput. The combination increases the “inventory” of bits in space and reduces the cost per bit to a fraction of previous satellite systems. ViaSat-1 will supply more total throughput than all other satellites over North America combined.

Eutelsat KA-SAT (supplying services in Europe since May) and ViaSat-1 are the first two satellites designed with this transformational architecture.

ViaSat-1 Satellite

Satellite Type: Ka-band spot beam

Number of Beams: 72

Satellite Bus: SS/L 1300

Mass: 14, 860 lbs; 6,740 kg

Total Throughput: 140 Gigabits/second

Orbital Slot: 115° West

Satellite Mission Life: 15 years

Primary Application: Residential broadband

Coverage: 75% of Continental U.S., plus most populated areas of Alaska, Hawaii, and Canada.

Manufacturer: Space Systems Loral (www.ssloral.com)

Launch Partner: International Launch Services (www.ilslaunch.com)

This is the first satellite launched by ViaSat, but the company already owns and operates WildBlue-1, all the Ka-band capacity on Telesat Anik F2, and additional capacity on SES AMC-15.

SurfBeam® 2 Ground System

The SurfBeam 2 system is an integrated satellite ground infrastructure designed specifically to achieve the full potential of high-capacity Ka-band satellites, and is able to deliver broadband service to millions of customers. The system includes gateways, subscriber terminals, and network management:

- Gateways are the hub for network traffic and connect the satellite network to the Internet through fiber backbones, allocate subscriber feeds, and manage system operation.
- Terminals include a small, consumer modem (similar to cable or DSL modem) for inside the home and an integrated antenna and transceiver outside.
- Integrated Management Framework combines three key components: Network Management System (NMS), Operations Support System (OSS), and Business Support System (BSS).

The SurfBeam 2 system can deliver more than ten times the speed and capacity of current systems at a much lower cost per subscriber. The system is already in use in Europe providing services over KA-SAT.

Launch Mission

ViaSat-1 is scheduled to launch on the Proton M launch vehicle from Pad 39 at the Baikonur Cosmodrome in Kazakhstan. The Proton M consists of three main booster stages, plus the Breeze M upper stage that remains attached to the satellite until the satellite separates for its final move into geostationary orbit. The full sequence of ignition to separation of the spacecraft takes a little over nine hours.