

SkyEdge™ II System

One System. A World of Possibilities.

The SkyEdge II platform creates exciting new opportunities for operators and service providers. It simply sets the standard for broadband satellite communications supporting data, VoIP and video applications.

An excellent solution for broadband IP networks with high-speed inbound requirements, SkyEdge II offers a high performance, cost-effective way to deliver the communications services that enterprises, carriers, service providers and governments require.

By incorporating the latest communication technologies such as DVB-S2 and adaptive DVB-RCS based inbound, SkyEdge II offers reduced total cost of ownership (TCO).

A full range of remote terminals (VSATs) are available to address every communication and price/performance requirement. The VSAT offerings enable operators to provide both Star and Mesh type services while supporting a flexible service scheme.

Incorporating high modulation, advanced error correction as well as highly adaptive inbound and outbound channels, SkyEdge II achieves lower space segment costs. This makes higher data rates more affordable by creating new opportunities for VSAT technology.

The SkyEdge II Hub

The SkyEdge II hub is the center point of your scalable satellite network. This redundant grow-as-you-go chassis is located in an earth station/teleport together with the RFT and hub antenna, transmitting and receiving signals towards the VSATs from the satellite. Various RF bands are supported: C-band, Ku-band and X-band.

SkyEdge II NMS

The SkyEdge II Network Management System (NMS) is a carrier-class management system that provides a global network view while allowing the operator to drill-down to the individual element level. The SkyEdge II NMS gives operators multi-tasking, central monitoring and control of the entire network. The operator can view, modify and download individual configuration items of the hub and remote terminals. The NMS server is accessed via a homogeneous user interface that runs on the network's clients.



Benefits

- High performance, up to 4Mbps inbound channels and up to 135Mbps outbound
- Low Total Cost of Ownership with excellent space segment efficiency
- High adaptivity for higher availability and lower bandwidth utilization
- QoS support for converged services with data, voice and video on the same hub
- End-to-end solutions and application-specific optimization
- Mesh and embedded voice ports
- Standards based: DVB-S2 and DVB-RCS with enhanced functionality



Diverse Markets, Superior Offerings

Enterprise

Gilat focuses on solutions for enterprises and industry specific applications, offering the benefits of speed, reliability, security and performance.

National Carriers

SkyEdge II's comprehensive solution enables telecom carriers to extend communication services to remote regions quickly and economically while remaining competitive in a highly volatile market.

Broadband and Internet Service Providers

Governmental, enterprise, SME, SOHO or consumer markets will enjoy the high performance of SkyEdge II, including advanced shared-hub functionality, Managed Private Networks and support for all size networks.

Governments

Gilat works closely with government entities to overcome infrastructure hurdles, save money and serve their citizens' diverse communication needs such as rural telecom projects, e-post, government subsidized Internet access and other e-government services.



SkyEdge II offers a high performance, cost effective way to deliver a large variety of communications services, from interactive data to Broadband IP, VoIP and beyond.

The SkyEdge II hub with main components

High Performance

SkyEdge II enables higher inbound throughputs with inbound carriers over 4Mbps and outbound throughput of over 135Mbps. VSATs supporting higher bandwidth and higher packets-per second ensure that SkyEdge II supports future requirements as well.

Inbound adaptivity (ICM)

The inbound ICM provides 3 dimensions of adaptivity for the inbound traffic, based on adaptive channel selection (ACS) with multiple channel rates, adaptive coding and modulation (IB-ACM) and adaptive uplink power control (AUPC). Mesh traffic also benefits from all the above adaptivity capabilities.

VoIP and Telephony Leadership

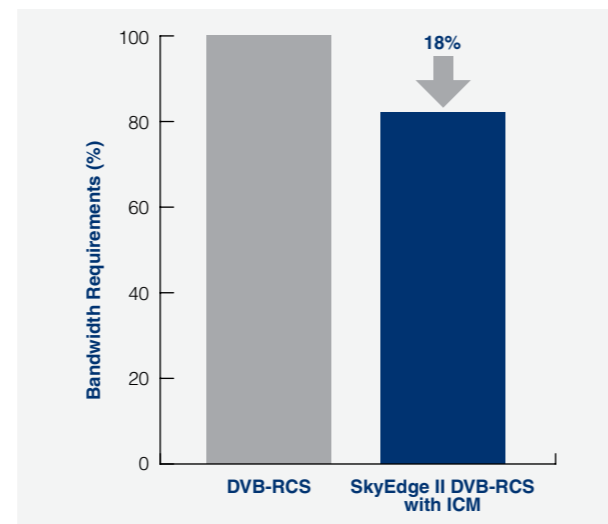
Gilat is a world leader in satellite-based rural telephony. SkyEdge II optimized VoIP telephony assures voice quality, grade-of-service and efficiency for all telephony needs. VoIP traffic receives guaranteed bandwidth for the duration of the call that minimizes jitter to deliver toll-grade quality. Mesh telephony reduces latency and embedded voice ports reduce deployment complexity.

Designed for Reliability and Maintainability

Gilat designs, builds and tests equipment not only for an air-conditioned office but also for extreme conditions. With an MTBF of over 100,000 hours, SkyEdge II VSATs are designed to keep working.

Installation is easy with a simple WEB interface, whereby all operational software is automatically downloaded from the hub.

SkyEdge II with 8PSK and ICM Compared to Alternatives



* Based on representative network

Full ACM support

DVB-S2 adaptive coding and modulation ensures high availability and maximal bandwidth efficiency, taking into account maximized frame utilization, real-time traffic requirements, and total network efficiency. ACM mechanisms are tightly integrated to QoS so that as capacity changes, the correct QoS policy is maintained.

Advanced QoS

- Support multiple services; Voice, Video and Data
- Full DiffServ based QoS support
- Managed Private Networks (MPN) partitions satellite resources for separate customers or networks

Scalable

SkyEdge II provides scalable solutions so networks with outbound carriers as small as 300 Ksps can grow as traffic requires, supporting up to 45Msps and 32,000 VSATs. Up to 4 satellites/transponders are supported on the same hub.

IP Data Support

- Embedded TCP & HTTP Acceleration
- Multi VRF and VLAN Support

Bandwidth Efficiency

New levels of efficiency can be achieved with SkyEdge II with DVB-S2 support of QPSK/8PSK/16APSK and 32APSK providing almost 5 bits per Hz. The inbound channel modulation is QPSK and 8PSK, for efficient inbound traffic. Mesh traffic shares the same bandwidth as other Inbound traffic.

Market Specific Solutions

Cellular Backhaul

SkyAbis™ is a superior solution for GSM and CDMA2000, lowering satellite costs by up to 50% over SCPC links. It transparently connects cells to the network in an efficient manner, while maintaining high quality voice and data services. SkyAbis works in shared hub environments as another service from satellite hub operators.

CellEdge is an integrated 2G/3G solution.

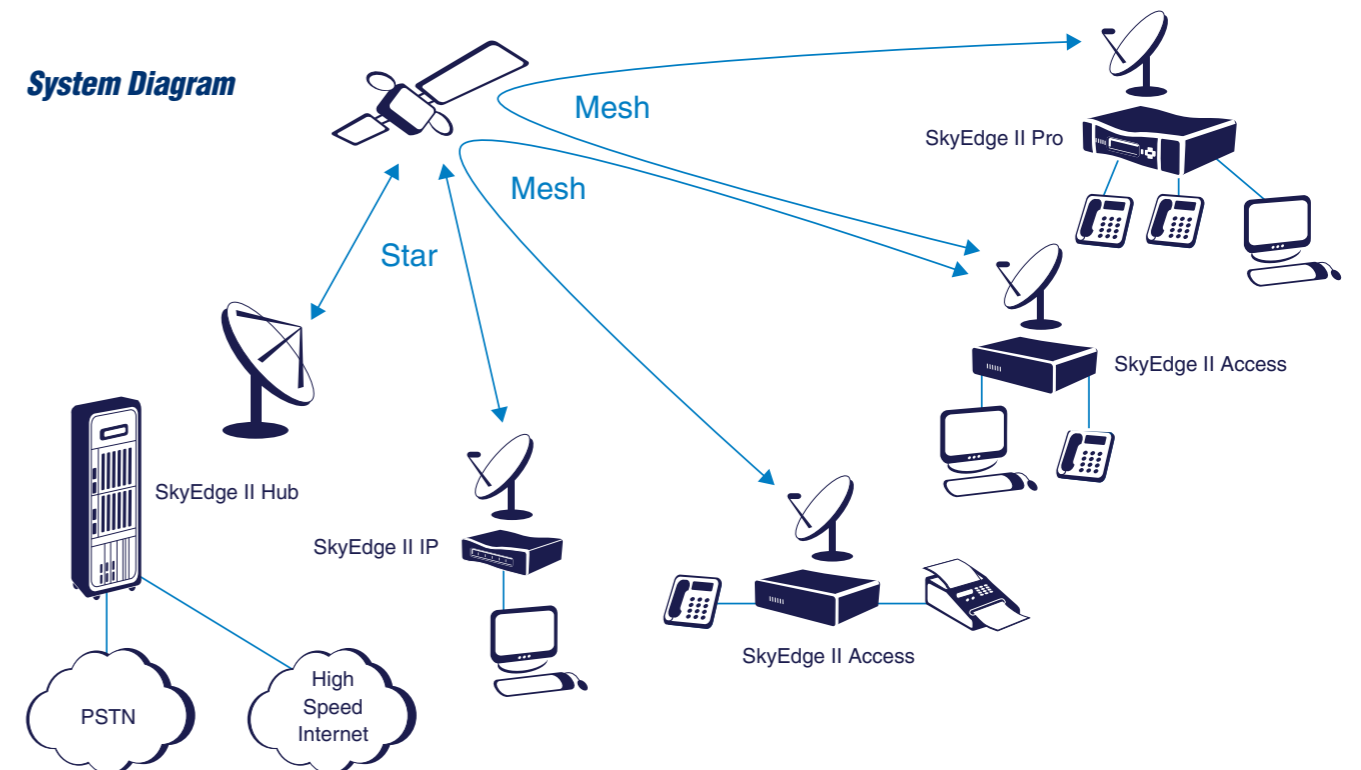
Rapid Deployment

Gilat transportable solutions combine antenna and outdoor unit into a single package that can be mounted on a vehicle's roof or put inside a protective case, providing communications that can quickly be set up and providing communications wherever a vehicle can go.

e-Government

Gilat has experience with elections, e-post, education and other critical government initiatives. Gilat has helped local service providers create satellite systems supporting e-Gov initiatives and also produce outsourcing services and turnkey project implementation.

System Diagram



Technical Specifications

<i>Outbound Carrier</i>	
Standard	DVB-S2-ACM
Framing and Encapsulation	MPEG Normal/Short frames
Carrier Data Rate	Up to 135 Mbps
Carrier Rate	300Ksps - 45Msps (in 1Ksps steps)
Modulation	QPSK, 8PSK, 16APSK, 32ASPK
Coding	LDPC & BCH (DVB-S2)
BER	Quasi Error Free as per EN302307
FEC Rate (DVB-S2)	1/4, 1/3, 2/5, 1/2, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
<i>Inbound Carrier</i>	
Access Scheme	MF-TDMA DVB-RCS Based: RBDC, VBDC, RBDC, FCA
Channel Rates	128Ksps-2.56Msps
Modulation	QPSK, 8PSK
Coding	DVB-RCS based Turbo coding FEC 1/2; 2/3; 3/4; 4/5; 6/7
<i>Remote Outdoor Unit</i>	
Antenna Size (typical)	Ku-Band: 0.55 m to 1.2 m C-Band: 1.8 m
Operating Temperature	-40° to +60° C
Humidity	Up to 100%
Transmitter ODU	Linear 2W and 4W Ku-Band or Ext Ku-Band, 4W and 8W C or Ext C Band, 4W Ka-Band Transceiver
LNB	Standard TVRO type, PLL LNB
<i>Remote Indoor Unit</i>	
RF Input/Output	Two F connectors, 75 Ω female
Data Interface	1 to 4 Ethernet 10/100BaseT
Operating Voltage	100-240V AC or 10-59V DC
Security	AES-128 or AES-256 encryption
<i>IP Features</i>	
Enhanced IP Features	BGP, RIP, DHCP, NAT/PAT, IGMP, IP prioritization, ACL, DiffServ, Multi VRF & VLAN
Other Features	Bandwidth on Demand, Multiple satellite support, Multiple outbound, TCP & HTTP acceleration, Multi-Level QoS
<i>Hub Interfaces</i>	
RFT	L-Band
LAN	100BT/GbE
<i>NMS</i>	
Platform	Windows Server 2012 with SQL DB, Server - Client system
Standards for NBI	SNMPv2c, XML, SOAP
VNO & GIS	Visualization of a network on a geographic map. VNO support with SKYVNO
<i>Hub Mechanical & compliances</i>	
Dimensions	Starting from one 19" rack for Basic redundant hub
Power Consumption	AC 110/220V @ 50/60 Hz, typical 2 KVA (changes according to configuration)
Operating Conditions	0° to +40° C, up to 90% relative humidity
Standards Compliance	EMC - ETSI EN 300 386, FCC CFR 47, Part 15, Safety - EN 60950, Company - ISO 9001

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