

OPTIMIZING COMMUNICATIONS FOR **BROADCAST & SNG**

Satellite is a widely deployed infrastructure for broadcast communication systems. Its point-to-multipoint nature and cost-effective scalability make satellite the preferred method for content distribution. It can provide instant connectivity between your mobile fleets and central broadcast locations. It can serve your expanding audiences globally. And, satellite can support your contribution and distribution content for a variety of applications – Digital Satellite News Gathering (DSNG), digital cinema, digital signage, studio-to-studio, entertainment and sports events.

While each broadcast/SNG organization is unique, there are common requirements to fully leverage satellite communications systems, including the need to:

- Support the migration from DVB-S to the emerging DVB-S2 transmission standard
- Enable instant deployment in mobile environments
- Integrate voice, data and video field office functions with studio(s)
- Employ technologies compatible with flyaways and uplink trucks' portable antennas
- Facilitate communications with minimal delay
- Maximize transponder utilization to reduce costs

○ **DVB-S TO DVB-S2
MIGRATION**

○ **OPTIMIZED IPTV
DELIVERY**

○ **LINK EFFICIENCY**

○ **IMMEDIATE
REMOTE ACCESS**

○ **ON-DEMAND
CAPACITY**





DVB S2
SATELLITE

DVB
Digital Video
Broadcasting

COMTECH EF DATA SOLUTIONS

Comtech EF Data understands your need to optimize satellite communication links. As a long-time supplier of modulator, demodulator and frequency conversion equipment to broadcasters, our products are installed in more than 160 countries. And, the recent addition of the Digiicast products has enhanced our IP-based broadcast solutions. Our solutions encompass contribution and distribution for various broadcast applications. We are compliant with key Digital Video Broadcasting standards, such as DVB-S2 and DVB-S, and interoperate with major satellite service providers and key encoding device vendors.

MODEMS, MODULATORS & DEMODULATORS

We offer the widest range of bandwidth efficient modems available in the satellite industry. Based on technologically advanced components and innovative design, our modems include application software to provide superior performance and features.

Ideal for optimizing satellite communications, the design of our modems is centered around highly advanced FPGA-based architectures and powerful 32-bit processors, allowing an unprecedented feature set and flexibility. Most systems are available in a 1RU chassis, providing the rack adaptability you need.

Available with numerous configurations and options, our family of modems offers the functionality required for broadcast and satellite news gathering communications. Our technologies are compatible with flyaways and uplink trucks' portable antennas, and support both contribution and distribution:

- Support for DVB-S2, DVB-DSNG & DVB-S
- L-Band or 70/140 MHz Support
- Range of Interfaces – Including ASI & Gigabit Ethernet
- Data Rates Up To 155 Mbps
- Variety of Forward Error Correction
- Selection of Modulation Techniques – Including 32-APSK
- External Switch and On-Board Redundancy
- Optional IP Module for IP-Based Networking
- Compatible with Vipersat Network Products for Bandwidth & Capacity Management





MODEMS, MODULATORS & DEMODULATORS

The CDM-710 Broadcast Satellite Modem is based on the transmission standard, DVB-S2, and is ideally suited for High Definition Television (HDTV) contribution. DVB-S2 extends the scope of possible applications by combining functionality of previous standards developed for Direct To Home (DTH) and professional environments. The broad range of modulation and coding formats of DVB-S2 enable link performance optimization – delivering on average 30% greater throughput when compared to DVB-S services. Users can tailor a link for the available bandwidth and power. Whether a link is for Direct To Home (DTH) or Digital Satellite News Gathering (DSNG), Contribution or Distribution, there is a format available to suit each application. The ASI or optional Gigabit Ethernet interface for the CDM-710 support both legacy and green field video production builds. And, beyond the DVB-S2 support, the CDM-710 offers spectral roll-off functionality that delivers additional satellite transponder cost savings.

Our CDM-570/L Satellite Modems, CDD-564/L Quad Demodulators and CDD-562L Dual Demodulator are IP-enabled and take bandwidth optimization to a higher level. Available features such as Payload Compression, Header Compression and Quality of Service (QoS) enable significant bandwidth savings, improve transmission quality and increase control of bandwidth provisioning. And, these products are compatible with the Vipersat Network Products for bandwidth and capacity management.

With the flexibility and features provided by our modems, modulators and demodulators, you can:

- Cost-effectively migrate to DVB-S2
- Optimize satellite power and bandwidth
- Increase link efficiency
- Reduce the total cost of ownership associated with satellite communications



RF PRODUCTS

Comtech EF Data also offers an extensive line of RF products – converters, amplifiers, transceivers and terminals – for a range of configurations, which are deployed globally. Compact and rugged platforms, field replaceable power supplies, redundancy and a variety of frequencies are just some of the options available in our RF products.

DIGICAST PRODUCTS

The line up of Digicast Products includes IP encapsulators, receivers, filtering & encryption. The product line is IP-based and supports the range of Digital Video Broadcasting standards for satellite, cable and terrestrial, including DVB-S, DVB-S2, DVB-C and DVB-T. The products optimize end-to-end solutions for stand-alone and overlay broadband IP networks. A range of interfaces, redundancy options and IP-based management are provided to accommodate diverse network configurations. Spanning satellite, cable, wireless and cellular networks, the Digicast Products support video and IP-based content contribution and distribution.

Most commonly supporting broadcast communications, ideal applications for the Digicast Products are IPTV, digital cinema, digital signage, IP multicasting, file delivery, streaming audio and video, and multicast file transfers.



IP Encapsulators

The MENCAP IP Encapsulators are Multi-Protocol Encapsulator (MPE) devices that encapsulate IP data into MPE format for distribution over DVB-S, DVB-S2, DVB-C, DVB-T and ATSC networks. Supporting up to 73 Mbps, the IP encapsulators provide unmatched value for broadcasters. The products are:

- Based on an embedded platform
- Available in a desktop form factor; 1RU form factor for redundant units
- Configurable in real-time
- Software upgradeable
- Managed via Web, console, Telnet & SNMP

Receivers

The line up of receivers are media routing devices that enable the reception of DVB-S and DVB-S2 transport stream and IP-based multimedia (video, audio and data) content to be delivered over satellite or high-speed ASI links and distributed to remote devices. Supporting both MPE and MPEG-2 TS (Transport Stream), the receivers facilitate standard data broadcasts, as well as the transport of MPEG-2 video service over IP. With our receivers, cost-effective delivery of an IPTV service from an existing video feed is achievable. A number of Media Router models are available to support varying network configurations.

COMTECH'S DVB-S2 SOLUTION

Leveraging the bandwidth efficiencies of DVB-S2, the combined solution of our modems, modulators, demodulators, IP encapsulators and receivers can increase throughput by up to 30% compared to DVB-S. Now, operating expenses to deliver your IP-based broadcast connectivity can be significantly reduced.



BANDWIDTH & CAPACITY MANAGEMENT

Our feature rich and cost-effective bandwidth and capacity management solution integrates with our IP-enabled satellite modems. It is based on dynamically managed Single Carrier Per Channel (SCPC) and automatic application switching technologies.

A complete suite of IP-based transmission services including broadcast video, Internet/intranet, e-mail, facsimile, file transfer, communications/IFB and Voice over IP (VoIP) are provided using our unique approach to satellite bandwidth management.

Network Entry

Once an uplink truck or flyaway managed by the Vipersat Management System (VMS) and equipped with Comtech EF Data's IP-enabled modem is on location and the antenna is coarsely pointed, it automatically joins the network. The VMS detects the new network device and sends tuning commands to the modem, switching it out of STDMA (burst) mode and into a dedicated SCPC connection. This connection provides low latency and requires limited bandwidth. Once the SCPC connection is established, the antenna can be fine-tuned. Instant deployment and tear down in highly mobile environments are greatly simplified with Comtech solutions.

Remote Office

Field personnel need no longer depend on cellular or satellite phone services. Utilizing VoIP phones for connectivity to your company's telephone system, accessing e-mail and transmitting file transfers for pre-production video are all possible via our real-time, interactive two-way connectivity between remote locations and your broadcast center or hub. And, with adequate RF sizing of the truck's antenna and BUC, operators can have mesh connectivity between remotes for VoIP calls.





BANDWIDTH & CAPACITY MANAGEMENT

Dynamic Bandwidth Allocation

When it is broadcast time, the dynamic SCPC (dSCPC) technology automatically resizes the SCPC carrier from the truck or flyaway, based on the application or data load. DAMA carriers and associated RF constraints are avoided. The SCPC carrier can also be resized via a pre-determined schedule using the Vipersat Circuit Scheduler (VCS) or manually resized by the VMS operator. This flexible functionality enables transmission management from remote sites in a network to control ingested content.

For upstream switching, we offer an Application Programming Interface (API) for implementation in third party vendors' equipment to enable requests for bandwidth by VMS.

Transmission in Native Broadcast Formats

A network powered with VMS also provides the control of our non-IP modems, such as:

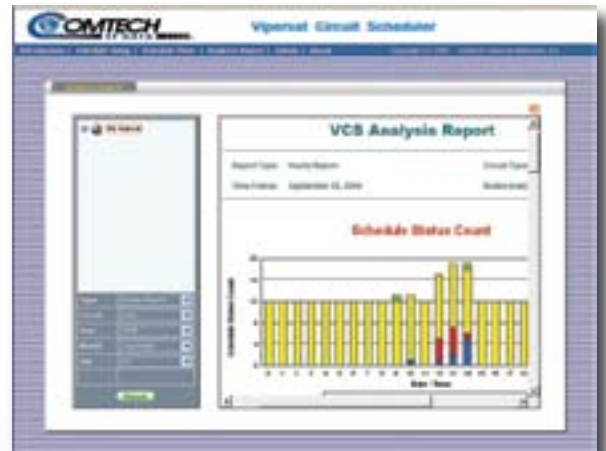
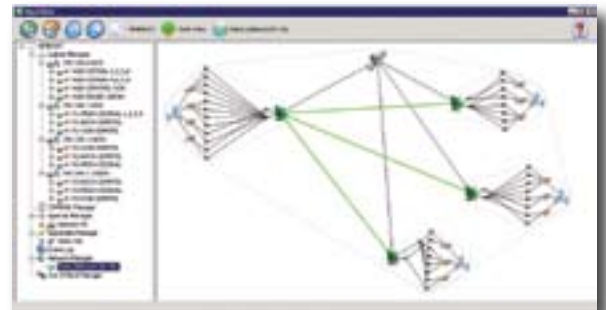
- CDM-600/L utilizing LVDS, ASI or G.703 interfaces and data rates up to 20 Mbps
- CDM-710 using DVB, DVB-S2 or DVB-DSNG formats and symbol rates up to 45 Msps

Point-to-Multipoint Transmission

Employing VCS, feeds or other high priority data can be sent from the remote to multiple locations simultaneously utilizing SCPC carriers in the same bandwidth pool. VCS works in conjunction with VMS to tune multiple modems to listen to the broadcast from the remote.

MORE INFORMATION

Providing on-demand capacity, immediate remote access, link efficiency, reliability and optimized IP-based connectivity, Comtech EF Data solutions are equipped to support your broadcast and satellite news gathering communication needs. Contact us to learn more about how our infrastructure products can be integrated into your network to optimize satellite communications.



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