

CUSTOMER TESTIMONIAL

Premier Communications Provider Doubles Satellite Transponder Throughput

General Communication, Inc. (GCI) is a regional integrated communication provider serving the state of Alaska. They have an established statewide long distance business with a large market share, and provide facilities-based, competitive local exchange services with direct access to 40% of the state's telephone lines. This service provider owns and operates cable television services in many of Alaska's largest communities, and is the region's largest Internet Service Provider. In addition, GCI holds statewide narrow band and broadband wireless licenses and utilizes their own undersea fiber optic, metropolitan area networks and satellite transmission facilities.

GCI owns and operates facilities, including route diverse, undersea fiber optic cables connecting Alaska with the contiguous United States. They employ an array of transmission media including fiber optic cable, satellite and coaxial cable in their 220+ points of presence in Alaska and the lower 48 states. The satellite network includes gateway earth stations that gather traffic from regional sites and distribution centers plus village earth stations that carry traffic from bush villages to regional and hub earth stations.

For rural areas, GCI uses their network of earth stations to deliver digital high-speed communication for voice, data, distance education and telehealth applications. The space segment GCI utilizes has beam coverage for all of Alaska and the lower 48 states in C-band and Ku-band frequencies.

Utilizing new technology to advance communications is integral to GCI's corporate culture. The company invests in integrated communication assets to create value for customers, opportunities for employees and growth for shareholders.



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GCI'S BANDWIDTH-EFFICIENT INFRASTRUCTURE

GCI utilizes the latest technologies available to power their satellite communications network infrastructure. With the introduction of Comtech EF Data's CDM-Qx Multi-Channel Satellite Modem with DoubleTalk™ Carrier-in-Carrier®, they embarked on an early adoption program.



"DoubleTalk Carrier-in-Carrier is doubling our transponder throughput and enabling delivery of new services without any additional transponder costs or operational expenses."

Jimmy Sipes
Vice President Network Services
General Communication, Inc.

After performing functional testing and return on investment analysis, GCI determined that the capital expenditure to purchase the new satellite modems to replace existing units could be justified given the advantages offered by this revolutionary product. GCI proceeded to deploy the CDM-Qx with DoubleTalk Carrier-in-Carrier throughout their network. The advanced technology of the CDM-Qx with DoubleTalk Carrier-in-Carrier enabled GCI to reduce four transponders of 16-QAM modulation, Single Carrier Per Channel (SCPC) traffic to two. GCI is now using the two recovered transponders to deliver new services to rural areas without any additional transponder costs or operational expenses.

Using the Comtech solution, GCI is reducing effective transponder costs per T1, which offsets pricing pressure and provides a competitive advantage. And, with the optional HSSI interface on the CDM-Qx, the modem is interfacing directly with the routers in their IP network.

CDM-QX MULTI-CHANNEL SATELLITE MODEM



The CDM-Qx is the first 70/140 MHz Multi-Channel Satellite Modem with a modular architecture that fits in a 1RU chassis. Designed with the needs of satellite operators, communications service providers and enterprise users in mind, it offers exceptional flexibility, redundancy, integration and performance. The unique four-slot chassis architecture allows a cost-effective deployment of multiple modulators, demodulators or modems. The CDM-Qx is also the first satellite modem to offer DoubleTalk Carrier-in-Carrier capability.

DOUBLETALK CARRIER-IN-CARRIER

Carrier-in-Carrier® is based on Applied Signal Technology's DoubleTalk™ bandwidth compression technology. DoubleTalk uses "Adaptive Cancellation," a patented technology that allows the transmit and receive carriers of a full-duplex satellite link to be transmitted in the same transponder space.

Available as an option, DoubleTalk Carrier-in-Carrier, when combined with advanced forward error correction and modulation techniques, can deliver unprecedented operating expense savings.

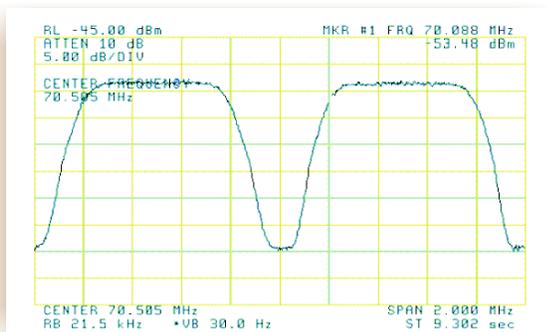


Figure 1:
Without DoubleTalk Carrier-in-Carrier

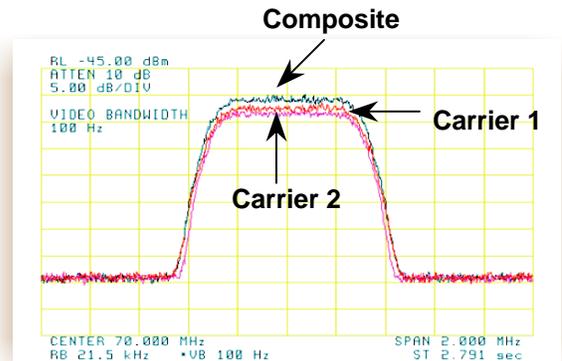


Figure 2:
With DoubleTalk Carrier-in-Carrier

Figure 1 shows the typical full-duplex satellite link, where the two carriers are adjacent to each other. Figure 2 shows the typical DoubleTalk Carrier-in-Carrier operation, where the two carriers are overlapping, thus sharing the same spectrum. When observed over a spectrum analyzer, only the composite is visible. Carrier 1 and Carrier 2 are shown in Figure 2 for reference only.

Figure 3 shows a spectrum analyzer image of the T1 SCPC traffic on one of GCI's transponders. The satellite links are utilizing 16-QAM modulation and DoubleTalk Carrier-in-Carrier.

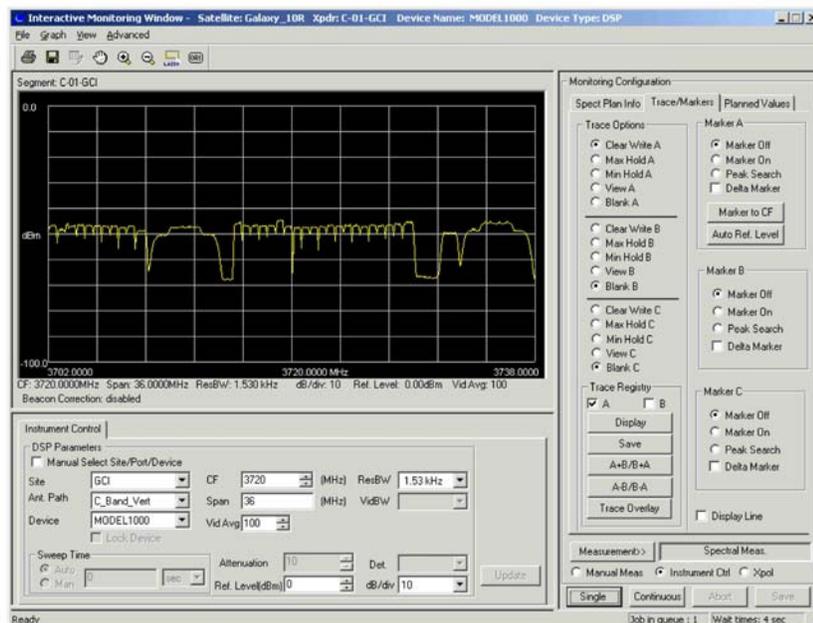


Figure 3: GCI Transponder



The CDM-Qx has a much higher spectral and power efficiency compared to other satellite modems. It can significantly reduce the required bandwidth or increase throughput using the same transponder bandwidth. And, the CDM-Qx with DoubleTalk Carrier-in-Carrier generally allows equivalent spectral efficiency using a lower order modulation and/or forward error correction code. This translates into lower BUC/HPA power, higher link margin and the requirement for smaller BUC/HPA and antennas. These savings are above and beyond the monthly operating expense savings that can be realized.

The CDM-Qx with DoubleTalk Carrier-in-Carrier provides multi-dimensional satellite communications optimization. The benefits provided include reduced operating and capital expenditures, increased throughput and link availability and reduced rack space.

MORE INFORMATION

GCI (Nasdaq: GNCMA) is the largest telecommunications company in Alaska. A pioneer in bundled services, GCI provides local, wireless, and long distance telephone, cable television, Internet and data communication services throughout Alaska. More information about the company can be found at www.gci.com.



To learn more about how your network can benefit from the bandwidth-efficient technologies that GCI has implemented, contact Comtech EF Data. We offer complimentary tools to highlight the multi-dimensional optimization that can be achieved with our advanced technologies for new or existing links. For more information, visit www.comtechefdata.com.



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