GALAXY®

Enterprise Networks that Deliver

Ka Band: The Need For Speed

If you have a C Band satellite service and are looking for more speed, there is a very cost effective solution you need to know about.

GALAXY® Broadband Communications Inc. offers excellent coverage to most of the mining regions of Yukon, Northwest Territories and Nunavut. Based out of Edmonton, Alberta and Mississauga, Ontario, GALAXY® has provided coverage throughout North America on its SKYDATA Ku Band enterprise service for the past 6 years. As of January 2012, GALAXY® has launched a SKYDATA Ka Band enterprise service to Northern Canada. Starting in May 2013 GALAXY® will offer this same Enterprise Ka service across Northern Ontario, Quebec and Labrador.

Ka Band offers a bigger "bang for the buck" because it is an affordable technology and operates on a smaller dish size. Though Ka band has been around for 6-7 years, GALAXY® Broadband is the first company to use the frequency for enterprise grade service. All others have been consumer grade without any QoS (Quality of Service) to support features like VoIP, Remote Desktop or Virtual Private Network (VPN) applications.

The most important benefit of Ka Band is the amount of data you can pack into the signal. Coupled with a powerful spot beam, Ka has the capability to deliver more bits of data for a lower price. Furthermore, VoIP quality on the GALAXY® Broadband Ka enterprise service is excellent. The clarity is amazing and the delay is minimal.

Though C Band dishes or BUD's (Big Ugly Dishes) have been around since the 1980s and work reliably in virtually any weather, the cost is very high for them to be upgraded to access faster speeds. Despite being a mainstay for data and voice communications in remote mining operations, C Band has not been a direct benefactor to cost reductions due to the small market size and unique aspects like size and mounting requirements.

Today's internet use forces faster connections, which can put enormous pressure on core systems. Operators face a difficult dilemma; either invest many thousands to upgrade internet capacity on site or tolerate complaints. Since the internet capabilities have a great influence on camp morale and crew welfare, it is critical that operators opt to increase bandwidth.

GALAXY® Enterprise Networks that Deliver 20 YEARS

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In our modern economy, it's always a good idea to cut costs when you can. Instead of considering an increase in throughput capacity of your C Band link, you should add a Ka system as a supplement to your current service. This can dramatically increase speeds, plus it can be easily configured in a load sharing arrangement with an inexpensive router. If you lose signal due to bad weather, equipment outage, or some other issue, the backup C Band system will keep you connected. One of the strong advantages of C Band dishes is they work through most weather, so your location will maintain connectivity. The supplementary bandwidth may experience some downtime depending on where the site is located.

Rainfall per Year (2012)

Source: The Weather Network

Town	Millimeters	Town	Millimeters
Prince George, BC	399	Fort Liard, NT	350
Kamloops, BC	217	Phoenix, AZ	194
Cambridge Bay, NU	69	Fort McMurray, AB	342
Baker Lake, NU	157	Moosonee, ON	494
Rankin Inlet, NU	180	Pickle Lake, ON	494
Whitehorse, YT	162	Timmins, ON	560
Norman Wells, NT	166	Schefferville, QC	408

If availability is measured in terms of rainfall you could assume that areas which have a high amount of annual rainfall like Timmins, ON would typically experience more downtime than an area in the Arctic which has little precipitation. However, it is important to note that downtime will only be experienced in circumstances which present a torrential downpour and you see a large amount of rainfall occur in a short period of time. The chart above gives an annual amount of rainfall in each region but it is suggested that you check the local weather statistics to determine the amount of heavy rainfall at any specific time to establish if there will be service outages.

Ka Network Availability

Source: GALAXY® Broadband

Rainfall	Availability
< 100 mm	99.998%
< 200 mm	99.95%
< 300 mm	99.9%
< 400 mm	99.8%
< 500 mm	99.85%
< 600 mm	99.8%

Satellite Network Availability Chart

*Assumes 30-day month

Availability %	Downtime per year	Downtime per month*	Downtime per week
99.8%	17.52 hours	86.23 minutes	20.6 minutes
99.9% ("three nines")	8.76 hours	43.8 minutes	10.1 minutes
99.95%	4.38 hours	21.56 minutes	5.04 minutes
99.99% ("four nines")	52.56 minutes	4.32 minutes	1.01 minutes

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Many mines are now switching to GALAXY®'s Ka Band enterprise service for the morale need in their respective camps. Several mines have used first generation consumer class systems, with some success, but faster connections with a managed service on a QoS network will make a noticeable difference in performance and will result in far fewer employee complaints.

If you already have a BUD, keep it, and configure it to meet your minimum needs for bandwidth. When you need more, GALAXY®'s SKYDATA Ka Band enterprise service may be the solution.

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