



# MARKET BRIEFS

**Executive summaries of market trends and opportunities  
in key market segments and regions worldwide**

## Opportunities in the Canadian FSS Market

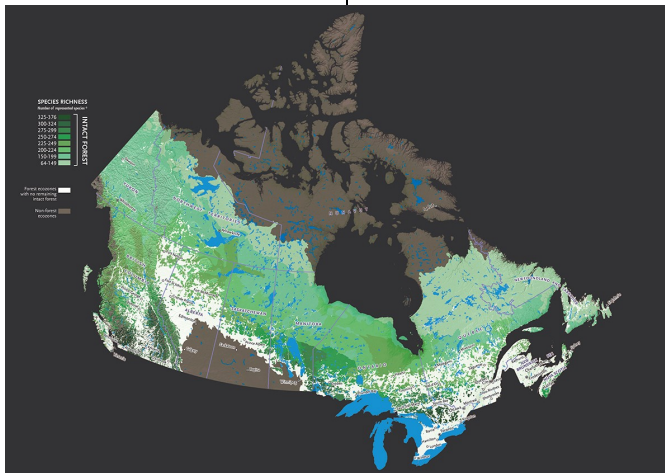
### Canada Highlights



- Canada is the second largest country on earth with nearly 10 million square miles and has the longest coastline in the world.
- Canada is the biggest producer of minerals and has the third largest proven oil reserves, most of which are still untapped.
- The Canadian satellite communications industry generated US\$ 2.3 Billion in revenues in 2012, 73% of which were in the provision of services.

by Virgil Labrador, *Editor-in-Chief*  
Satellite Markets and Research

Canada is the second largest country on earth, with nearly 10 million square miles (6 mil. sq. miles) and the longest coastline in the world. Due to its geographic vastness and extreme weather conditions as well as a sparsely distributed population, Canada heavily depends on satellite technology to deliver essential services, including broadband communications, emergency services and monitoring of its landmass and waters in support of sovereignty, public safety and natural resource management.



**Canada has one of the largest mineral deposits, oil and gas reserves, timber and other natural resources in the world. A substantial part of these resources are located in the remote regions of Northern Canada where satellite technology is one of the most viable means of communications.** (image showing Canada forest resources from the National Forest Inventory)

Given the challenges posed by its unique geography, Canada is one of the pioneers in applying satellite technology as part of its national communications strategy. It is the fourth country in the world (after the former Soviet Union, US and the UK) to launch its own satellite, Allouette 1 in 1962. Canada was the first country to launch its

own commercial domestic satellite system in 1972 with the launch of the Anik A1 satellite in 1972 by Telesat, a joint-venture between the Canadian government and private telecom companies. The Anik A1 satellite enabled the Canadian Broadcasting Company to broadcast television to the remote communities in the north of Canada for the first time.

Today, Canada has one of the most developed satellite communications industries in the world. It has a healthy Direct-to-Home (DTH) satellite broadcast market as well as a developed satellite broadband sector. Canadian companies are leaders in various segments of the satellite industry including satellite manufacturing, ground equipment and satellite services. It has an extensive telecommunications network—including a number of teleports. Companies planning to enter the Canadian market will have no problem finding partners in any segment of the industry.

According to Industry Canada, the federal government department responsible for Canadian orbital positions, spectrum and licensing satellites, among the key services that use satellite communications in Canada today include the following:

- Delivery of broadcasting programs to CATV cable head-ends;
- Delivery of broadcasting program networks;
- Distribution of Direct-to-Home (DTH) broadcasting satellite services;
- Provisioning of VSAT networks;
- Enabling access to broadband Internet services in remote rural areas;
- Provisioning of specialized government communications; and
- Enabling mobile satellite services.
- Carriage of public switched telecom network (PSTN) traffic across Canada, including Northern Communities;
- Internet trunking to various hubs, including remote locations;
- Specialized communication networks for enterprises and government use;
- Carriage of broadcasting programs, from production to distribution centres and to broadcasting station, including SNG (satellite news gathering);
- Use of satellite to restore terrestrial fiber and microwave radio relay systems, and other applications.

According to the Canadian Space Agency, the satellite communications sector in Canada represented 80% of total space sector revenues in 2012. Of the CDN\$ 2.655 billion in satellite communications revenue, CDN \$ 1.941B (73%) was derived from activities in Applications and Services. Of the remaining 27%, the breakdown was as follows: CDN\$ 262 million

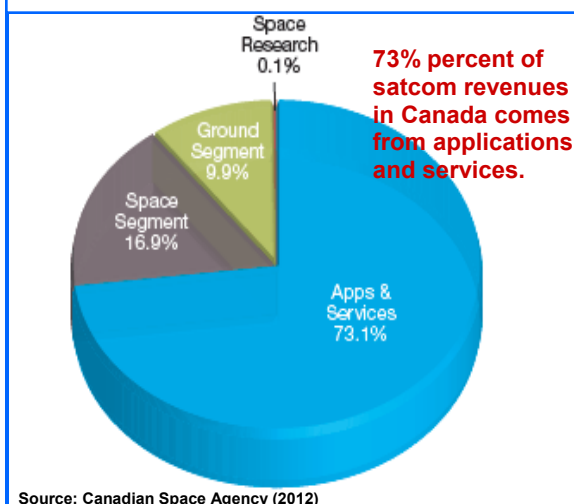
from Ground Segment activities; CDN\$ 449 million from Space Segment; and CDN\$ 2.5M from Space Research. Over the last five years, satellite communications revenues have increased 24% or CDN\$ 510 million. ( 1 Canadian Dollar= .91 US cents approximately)

Despite its healthy communications industry, most of the services are concentrated on the southern part of the country bordering the United States where the majority of the population are concentrated. "While Canadians generally are well-served by their communication system, the Commission must remain vigilant and responsive to emerging trends and issues," said Jean-Pierre Blais, Chairman of the Canadian Radio-television and Telecommunications Commission (CRTC). added. "Canadians in rural parts of our country, and especially in the North, do not enjoy the same telecommunications services as those living in urban centers. We are working to provide those Canadians with an even greater choice," he added.

### Satellite Industry Deregulation

From its establishment by an Act of Parliament in 1969, Telesat was granted a legal monopoly of the Canadian fixed satellite services (FSS) market. The legal monopoly ended with the repeal of the Telesat Canada Act when the government sold its shares to BCE Inc., the holding company of the country's largest incumbent telephone firm. Canada signed the World Trade Organization (WTO) agreement that came into effect on January 1, 1998, that country was forced to liberalize its foreign ownership restrictions in the telecommunications industry. Although Canada decided to maintain the 80% Canadian ownership and control requirements set out in the country's Telecommunications Act and regulations for most telecommunications industries, it agreed to remove the foreign ownership and control restrictions in two areas: namely, international submarine cables and satellite services.

**Figure 1. Canada Satellite Communications Revenues**



Under the 1998 WTO Agreement, Canada agreed to remove its restrictions on commercial operations in Canada by foreign owned and controlled satellite carriers in three stages, as follows:

- 1) Mobile satellite systems owned and controlled up to a level of 100% by a foreign service provider may be used by a Canadian service provider to provide services in Canada;
- 2) Fixed satellites owned and controlled up to a level of 100% by foreign service providers may be used to provide services between points in Canada and all points outside of Canada, except in the United States;
- 3) Fixed satellites owned and controlled up to a level of 100% by foreign service providers may be used to provide services between points in Canada and between Canada and points in the United States.

Canada also agreed to remove all restrictions on cross-border supply of satellite services. In addition, Canada agreed to allow competition in space segment facilities used to provide national and Canada-U.S. fixed satellite services. But Canada was permitted to retain ownership and control restrictions on broadcasting and related services in accordance with the country's broadcasting laws.

Since deregulation, many of the world's satellite operators have established a

presence in Canada. There are over fifty satellites licensed to operate in Canada today, but most of these satellites cover both Canada and the United States and serve primarily the US market. Because of this, Canadian satellites continue to dominate the Canadian FSS market. In 2007, Telesat was acquired by Loral Space and Communications and the Public Pension Investment Board of Canada and merged with Loral Skynet. The new company became one of the four major satellite operators with global coverage.

“A variety of factors have limited any companies from truly competing with incumbent operators, many of them technical and related to lack of possible frequency use with the majority of orbital locations,” said Brent Perrott, President of Hunter Communications, which recently contracted hosted payload capacity from Satmex, now known as Eutelsat Americas, to serve the Canadian market.

“Even with such a dominating player in one market, there are unique opportunities for new entrants in the market,” according to Jan Stoop, Managing Director of Montreal-based consulting firm Atlantic Crossing. A FSS provider that can provide services at a better value proposition in terms of both cost and technical advantages can present a challenge to Telesat’s dominance. “Quasi-monopoly markets may present interesting opportunities to new market entrants who can offer more interesting business cases based on their experience in the competitive markets they are already operating in. So the incumbent enjoying the monopoly will always lose market share to the new entrant,” said Stoop.

In November 2013, to facilitate entry of new players in the Canadian market, Industry Canada revised its the licensing framework for FSS and broadcast satellite service as well as its license fee structure.

Among the key aspects of the changes include the use of a first-come, first-served process by Industry Canada to license satellite spectrum to competing Canadian satellite operators. It also made changes to the fee regime that applies to

satellite operators using Canadian satellite spectrum, bringing the fees more in line with those in place in foreign jurisdictions.

Hunter Communications and other satellite operators welcomed the changes. “As satellite markets and service providers have become increasingly international, it is important that Canadian

national licensees have a level playing field with all other operators,” said Brent Perrott. “Hunter fully supports the new framework that reduces these burdens on Canadian satellite operators, as well as opening any remaining barriers to NAFTA and other foreign-flagged operators,” he added.

“While participants in the Industry Canada consultation process had argued against continuing the requirement for full northern Canada coverage, Hunter has purposefully designed its Ku-band satellite capacity to do exactly that -- provide full Canadian coverage, because Hunter believes in the potential of the Canadian north,” said Perrott.

With increased competitive telecommunications service in northern Canada and a competitive satellite environment across Canada, Perrott said the additional capacity at excellent prices will play an important role in providing alternatives, significantly reduced ground station costs, diversity and redundancy.

### Satellite Operators in Canada

Currently Telesat remains the largest satellite operator in Canada. Headquartered in Ottawa, the company owns a fleet of 14



**In Northern Canada, where the transportation and communication infrastructure are not as developed as in the southern part of the country, companies rely on satellite communications to connect remote sites.**  
(photo courtesy of Kuhnke International)

satellites plus the Canadian payload on ViaSat-1, with another satellite under construction. Telesat also manages the operations of additional satellites for third parties in other countries.

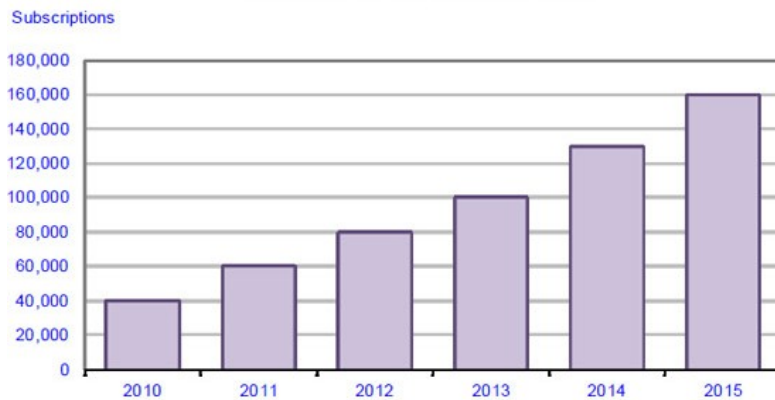
The Ciel Satellite Group, also located in Ottawa, is a privately-held Canadian satellite operator offering space segment to customers throughout North, Central and South America. It owns and operates the Ciel-2 satellite at 129° West providing broadcast services throughout North America. Ciel plans to develop several Canadian orbital positions to provide a choice of high quality video and broadband services to commercial and government customers throughout the Americas. Ciel’s main shareholder is Luxembourg-based global satellite operator SES.

SkyTerra Canada Inc. owns and operates MSAT-1 satellite. The company develops hybrid wireless network for cell sites and a satellite constellation to deliver wireless services to end-users over wireless devices in North America. SkyTerra was granted authority by Industry Canada in March 2012 to provide mobile satellite services to SkyTerra Canada’s subscriber earth stations via the MSAT-1, MSAT-2 and SkyTerra-1 satellites.

Skyterra was formerly known as Mobile



**Figure 2. Canada Fixed Satellite Broadband Subscribers**



Source: Industry Canada

Satellite Ventures Canada Inc. and changed its name in December 2008. The company was founded in 1996 and is based in Ottawa. SkyTerra operates as a subsidiary of SkyTerra Communications, Inc. On May 14, 2012, SkyTerra Communications filed a voluntary petition for reorganization under Chapter 11 in New York. It is now in joint administration with LightSquared Inc.

Another company, Gamma Acquisition Canada ULC (Gamma Canada), has authority to provide mobile satellite services to Gamma Canada's subscriber earth stations in Canada via the TerreStar-1 satellite.

### Prospects in the Canadian Satellite Market

According to Industry Canada's "Study of Future Demand for Radio Spectrum in Canada 2011-2015" there is "unmet incremental satellite capacity demand to address broadcast, broadband and VSAT requirements in the Canadian market." The study cites two DTH satellite broadcasters that have not secured satellite capacity for hundreds of CRTC Category 2 licensed broadcasts (digital specialty and pay programs) as well as a significant demand for Ku- and Ka-band broadband VSAT services.

The study projects that an estimated one million Canadian homes and business will need broadband satellite services in the next 10 years, up from only 100,000 fixed broadband satellite subscribers in 2013

(see Figure 2). The study says that around 18% of the rural market is considered underserved and that broadband satellite service provides the best business case for serving this market.

The study further says that the planned satellites in Ka-band in the next three years will not be sufficient to meet the demands from households and small to medium enterprises.

### Opportunities in Northern Canada

In "Mapping the Long-Term Options for Canada's North: Telecommunications and Broadband Connectivity" by Adam Fiser, the Conference Board of Canada recently found that "Governments and businesses are seeking improved broadband connectivity to meet their needs..." (Fiser, p.63). For the inhabited Arctic, the greatest technological constraints currently involve access to network transport backbones and satellite backhaul" (Fiser, p.29).

Jan Stoop of Atlantic Crossing sees opportunities in the vast Northern part of Canada in key vertical markets such as oil and gas, mining, maritime, emergency and disaster preparedness. The resource-rich but remote, inaccessible and sparsely populated north has seen a boom in activity in recent years that shows no sign of abating in the next few years, said Stoop.

In addition, Stoop sees opportunities in providing IP connectivity to remote communities in the North as well as government initiatives to promote distance education and health delivery services in remote communities.

### Oil and Gas

Canada has the third largest proven oil reserves in the world after Saudi Arabia and Venezuela. The oil and gas sector is Canada's largest industry accounting for over 18% of its exports in 2012. The Canadian oil and gas industry made an estimated CDN\$ 55 Billion in investments in 2012, according to the Canadian Association of Petroleum Producers. Fueled by rising demand from the US and the emerging markets of India and China, coupled by the instability of the Middle East oil supplies, the growth of the Canadian oil and gas industry is assured in the years to come.

One quarter of Canada's discovered resources of conventional petroleum are in the North and remain undeveloped, as well as about one third of the country's estimated potential. Thus, most oil and gas operations, such as land-based drilling rigs are in the north.

According to Canada's National Energy Board, approximately 35% of Canada's remaining marketable resources of natural gas and 37% of remaining recoverable light crude oil is in northern Canada. This potential offers a diversity of opportunity for oil and gas companies, ranging from onshore resource development to deep water exploration. Total exploration expenditures in the North are provisionally estimated at CDN\$ 111 million in 2012, a large portion of which was spent for satellite communications equipment and services.

The discovery of large oil sand reserves and new technologies such as hydraulic fracturing has opened up new opportunities for development of Canada's oil resources. This has resulted in massive investment in exploration and development of Canada's vast oil reserves.

According to VSAT provider iDirect, as companies expand their operations further north, terrestrial networks have a difficult time connecting to these sites. Oil and gas companies are able to leverage satellite networks in these remote areas to run applications like pipeline monitor-



ing and data transfer. Satellites can support broadband applications like video to monitor drilling equipment as well as voice, data and Internet to meet the basic connectivity needs of oil workers.

### Mining

Canada is the world's largest exporter of minerals and metals. Northern Canada is rich in natural resources like iron ore, nickel, diamonds and uranium, among others. And a lot of resources are being allocated to finding new mineral deposits for potential mining.

Satellites are an important tool for the mining industry for data transmission and video to help determine new, untapped mining sites. Satellite is crucial in maintaining employee moral by enabling staff access to voice, data, and video. Internet applications to connect with family members and stream video are critical to staff retention, according to iDirect.

### Emergency and Disaster Management

Severe weather conditions can obstruct terrestrial networks and leave remote villages in northern Canada in the dark. The government now views competitive and redundant communications networks as critical in the north for day-to-day and emergency situations. First responders including the military utilize satellite communications to support voice, data and Internet access to keep connected when terrestrial networks fail.

Canada is one of the most forested countries in the world. Forests are prone to

fires which can have devastating economic consequences. Satellite communications help monitor forest fires before they spread. Satellite communications also help firefighting by facilitating communications.

### Maritime Market

As mentioned earlier, Canada has the longest coastline in the world spanning the strategic areas of the Pacific, Arctic and Atlantic oceans as well as the Great Lakes. It also has one of the busiest maritime industries in the world with 18 major international ports handling 310 million tons annually.

Besides the Royal Canadian Navy and the Coast Guard, there are also thousands of leisure and commercial craft engaged in yachting, fishing, cruising and ferry service. The rapidly growing cruise industry in Canada sees more than two million passengers going through Canadian ports annually.

Satellites are used for navigation and weather monitoring application for all type of vessels. There is also an increasing requirement for broadband connections for passengers and for crew welfare.

There has been a dramatic increase in maritime traffic in the Northwest Passage between mainland Canada and the islands in the Arctic Ocean. Climate change appears to have caused Arctic ice to recede allowing the Northwest Passage to open for commercial

shipping for part of the year. In September 2013, a large cargo ship, the Nordic Orion, sailed through the North-

west Passage, the first time ever for a large commercial vessel. The route of the Nordic Orion through the Northwest Passage was 1,000 miles (1,600 kms) shorter than going through the Panama Canal, cutting four days sailing time to Europe. Commercial bulk carrier ships such as the Nordic Orion are also able to carry 25 percent more cargo through the Northwest Passage than would be possible in the shallower waters of the Panama Canal. In 2013, 21 vessels sailed through the Northwest Passage. If the ice continues to melt at its present rate, some maritime analysts are estimating that shipping via the Northwest Passage could account for up to 25% of the cargo traffic between Europe, Asia and North America by 2030.

Canada requires registration of all vessels of more than 500 tons before traversing the Northwest Passage, mainly to assert its sovereignty over the area. As traffic increases in this vital route, Canada will beef up its monitoring and search and rescue infrastructure in the region, requiring increased satellite communication services. Canada has already announced plans for developing a deep water port and naval facility in Nanisivik in Northern Canadian Territory of Nunavut, which will be used as a base to patrol the Northwest Passage and provide air and sea rescue capabilities.

### Aeronautical

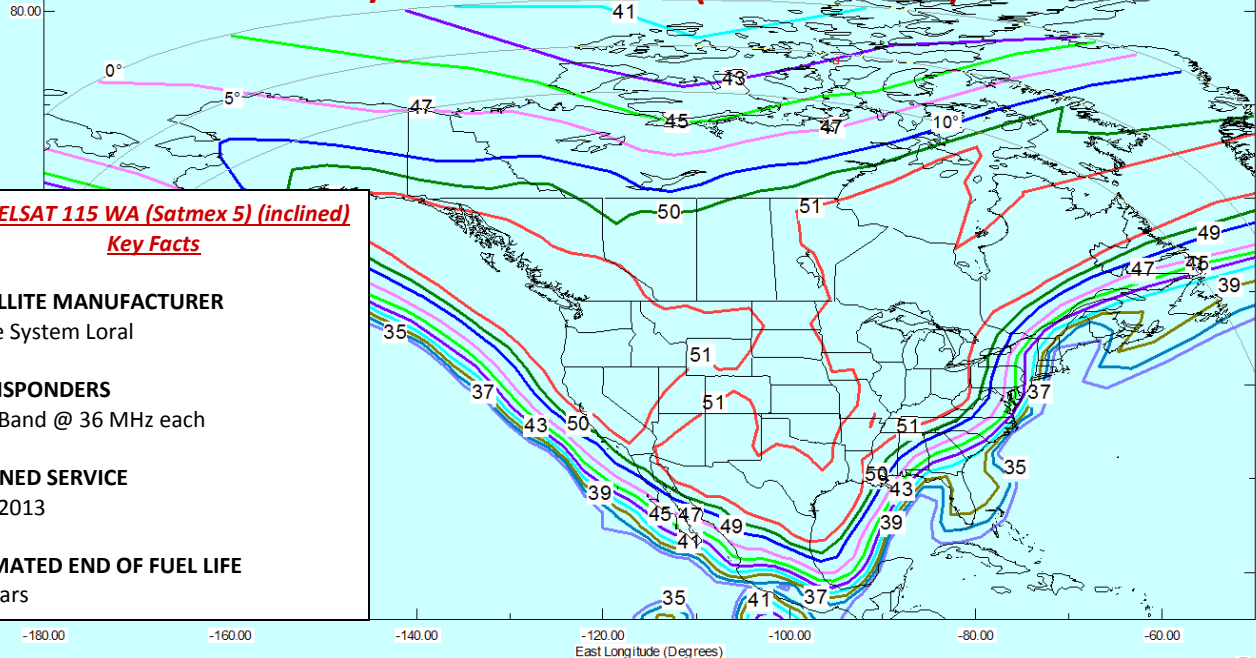
One of the fastest growing markets for commercial satcom is in the aeronautical industry – both to serve commercial and



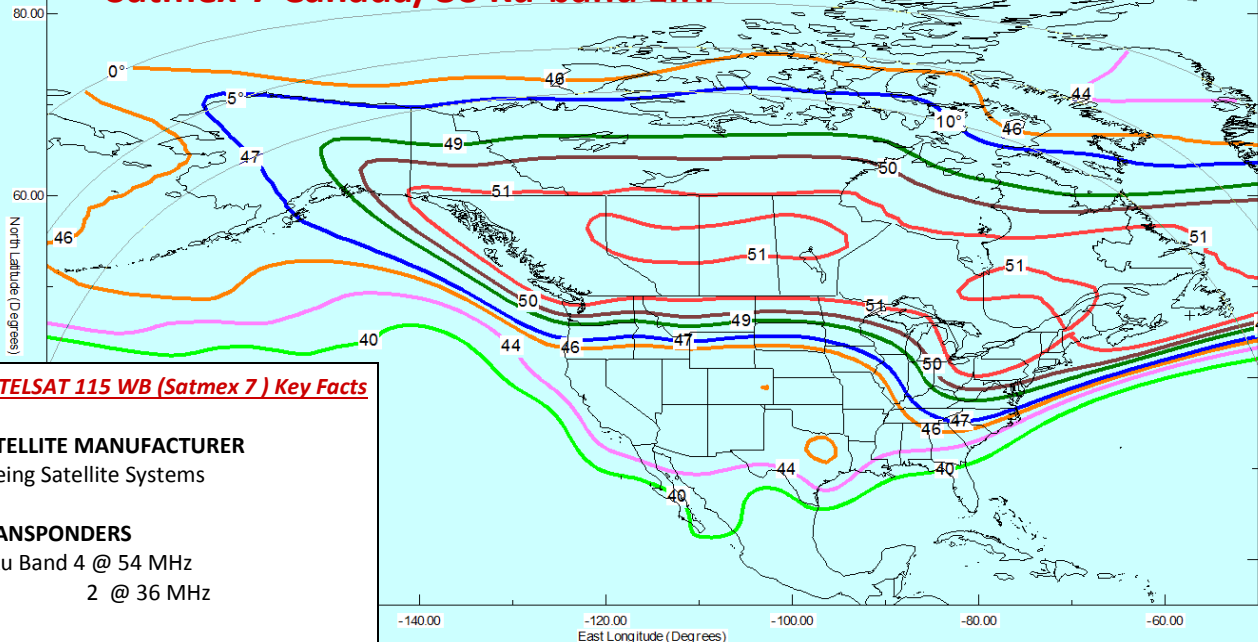
## Expanding Ku-Band Capacity Over Canada

Hunter Communications has invested in an expansion of Ku-band capacity over Canada and the U.S. Through its partnership with Satmex Corp, now called EUTELSAT Americas, Hunter has made the investments to add "The Canada/US beam" at a prime orbital position - adding much needed Ku-band space segment over the region for data network requirements— i.e. maritime, aeronautical, land-based mobile, and fixed VSAT. By adding a new beam and new transponder capacity, this will be the first material increase for non-DTH customers that will add much needed Ku-band capacity with full-Canada coverage—up to 576 MHz in inclined orbit on EUTELSAT 115 WA (formerly Satmex-5) until September 2015 and up to 288 MHz on a new stabilized satellite, EUTELSAT 115 WB (formerly Satmex-7).

### Satmex-5 Canada/US Ku-band EIRP (Inclined Orbit)



### Satmex-7 Canada/US Ku-band EIRP





private aircraft, as well as government-sponsored aircraft for a variety of environmental, sovereignty and safety purposes. Firms like Gogo and Panasonic Avionics have both recently won contracts to provide in-flight internet access on Canadian flagged airlines, as well as many foreign airlines, many of whom fly international air routes that transit Canadian airspace.

All of these aircraft are served by Ku-band and Ka-band satellites, and will require a significant increase in capacity and coverage over the Canadian land-mass.

### Facilitating Broadband Access

Many remote communities in northern Canada still lack access to competitive communications networks. In addition to individual company and private sector initiatives to improve communications across Canada, the government also has its own programs. There have been several government funding programs to improve northern and remote services. In 2009, the Canadian government presented its "Northern Strategy" which aims among other things to protect its environmental heritage, promote social and economic development and improve and devolve northern governance.

In October 2013, the government launched a CDN\$ 155 million National Satellite Initiative. This joint project between Infrastructure Canada, Industry Canada, and the Canadian Space Agency (CSA) will provide high-speed broadband Internet access services via satellite to communities located in the far and mid-north, and in isolated or remote areas of Canada.

Through Canada's Economic Action Plan 2012, the federal government is also investing another CDN\$ 38.9 million over three years for new satellite data reception facilities and the development of a data management system. Canada's investment will provide funding mostly for equipment and installation of antennas at Natural Resources Canada's satellite station facilities.

In February, 2014, the government an-

**"...Given Canada's massive land mass and vast areas still unexploited for economic purposes, many applications requiring satellite communications will emerge in the years to come..."**

nounced that CDN\$ 305 million would be allocated to northern and remote broadband communications.

### New Service Offerings

Hunter Communications has the exclusive use of EUTELSAT 115 WA, formerly known as Satmex-5 for much needed Ku-Band capacity for the Canadian market. EUTELSAT 115 WA was repositioned over Canada for Hunter as an interim solution until the firm's hosted payload is made available on the EUTELSAT 115WB (formerly known as Satmex-7) satellite, scheduled for launch in 2015. EUTELSAT 115 WB is designed to be the highest-powered Ku-band satellite over the entire Canadian landmass and surrounding waters. Satmex satellites are operated by the Mexico-based Satélites Mexicanos S.A., which was recently acquired by Paris-based satellite operator Eutelsat and rebranded as "Eutelsat Americas." Hunter chose EUTELSAT 115 WB for its Canadian payload due to its orbital location of 114.9° W is in the center of the Canadian arc. This position provides some key advantages, according to Hunter, including:

- It is the only satellite orbital location that can see both the northwest tip of the Yukon and the southeast tip of Newfoundland at a 10 degree elevation or better.
- All other satellites in the US and Canadian domestic arcs have restrictions placed on them due to adjacent satellites. There are no Canadian beams on either of its two neighboring satellites, so Satmex 7 enjoys no adjacent satellite interference. For any application involving small antennas less than 1 meter, this is a critical benefit that allows clients to use fewer MHz of transponder capacity to achieve

the same Mbps of throughput.

- The Hunter beam in Canada has the strongest power, measured as EIRP, of any beam available on competing satellites. While the beam covers the continental US, the power is concentrated across Canada's mid-north. This allows for efficient teleport operations through all of North America, while still providing the highest EIRP's in Canada, where it is most needed. From the oil fields of Alberta through the Northwest Passage and Hudson Bay, to Newfoundland and Labrador, there is no other Ku-beam with such high power, allowing for smaller antennas and lower costs per Mbps for service.

### Conclusion

Satellite communications will continue to play a vital role in the development of northern Canada as both government and businesses continue to leverage communications to bridge the digital divide, spur natural resource development and strengthen rural communities and economies.

Given Canada's massive land mass and vast areas still unexploited for economic purposes, many applications requiring satellite communications will emerge in the years to come.

### Key References

Adam Fisher, *Mapping the Long-Term Options for Canada's North: Telecommunications and Broadband Connectivity*. Conference Board of Canada (2013).

Canadian Space Agency, *State of the Canadian Space Sector (2012)*.

Industry Canada, *Study of Future Demand for Radio Spectrum in Canada 2011-2015*.



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- New Canadian Ku-band coverage with upcoming hosted payload
- Wholesale Bandwidth
- Mobile two way applications
  - Aeronautical
  - Maritime
- Fixed V-SAT Networks
- Engineering support
  - Network Design
  - Link budget analysis
  - Cost Optimization



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