



**Notice DGRB-003-09**

**17 GHz BSS Spectrum  
at 113°W**

**Canadian Satellite  
Capacity and Services  
Plan**

**31 March 2009**

# Canadian Satellite Capacity and Services Plan

Ciel Satellite Limited Partnership (“Ciel”) is applying for a radio spectrum licence in the 17 GHz BSS band at 113°W in accordance with Gazette Notice DGRB-003-09, *Call for Applications to License 17 GHz BSS Spectrum and the 111.1°W and 113°W Orbital Positions* (the “Call for Applications”) issued on January 29, 2009 by Industry Canada. This Canadian Satellite Capacity and Services Plan (the “CSCS Plan”) explains Ciel’s intended use of the spectrum.

Ciel plans to develop and make the 17 GHz BSS spectrum at 113°W available for the benefit of Canadian broadcasters and distributors. Ciel’s proposal offers two clear benefits to the Canadian satellite user community:

- Additional capacity at an affordable price, which is located adjacent to an existing DTH and BDU orbital location; and
- Preservation of Canadian spectrum at 113°W for the longer term, using an interim solution that would extend Canada’s International Telecommunications Union (“ITU”) rights at this orbital position.

## **1. A BRIEF DESCRIPTION OF CIEL**

Ciel was licensed at the 129°W 12 GHz BSS orbital position in 2004, and commenced operations there with an interim satellite in 2005, making history by becoming the first competitive Canadian satellite operator. Ciel-2 was successfully launched on December 10, 2008 and is now fully operational at 129°W.

On November 15, 2006 Ciel filed nine applications with Industry Canada for multiple satellite orbital positions across several frequencies. The applications were submitted in response to Industry Canada's 2006 Satellite Licensing Initiative, the largest in Canadian history. The Department awarded six of these licences to Ciel.

Ciel is owned by Borealis Infrastructure Management Inc., an investment unit of the Ontario Municipal Employees Retirement Systems (OMERS); Brian Neill, a Canadian DTH industry pioneer; and SES Americom, Inc., a unit of Luxembourg-based satellite operator, SES S.A. Ciel is Canadian owned and controlled.

Ciel is a vibrant and innovative Canadian organization with unique qualifications to deliver high-quality competitive satellite services to Canadians. Ciel has quickly established itself in the Canadian market as a credible alternative supplier of satellite capacity and has developed a strong relationship with and the respect of the Canadian satellite user community. Ciel has the benefit of the technical, financial and regulatory expertise of an outstanding management team, and the substantial industry experience and financial support of its shareholders. The shareholders of Ciel are committed to making the investment needed to grow the business and as a result, Ciel is uniquely well-positioned to fulfill the policy goals set by the Department in issuing the Call for Applications.

## **2. CONSULTATION WITH CANADIAN SATELLITE USERS**

Ciel has undertaken extensive direct and indirect consultations over the past year with Canadian broadcasters and BDUs in order to better understand users' requirements. These discussions have allowed Ciel to gain a detailed understanding of the objectives, technical requirements and commercial terms that many in the industry seek.

In addition, Ciel has maintained an ongoing "Call for Interest" in connection with all of Ciel's new and developing satellite programs, and continues to actively market this future capacity to Canadian users.

Ciel is committed to providing non-discriminatory access to its satellite capacity. Ciel will issue an industry-wide Call for Interest in order to determine potential interest from Canadian satellite users, prior to seeking Industry Canada approval of the satellite design. Ciel's ultimate goal is to foster the efficient deployment of satellite technology in Canada at rates which are just and reasonable. Ciel has committed to reserving 100% of the capacity on Ciel-8 for Canadian use.

### **3. CANADIAN SATELLITE USERS' REQUIREMENTS**

Ciel has measured Canadian satellite user requirements through the consultation process in both the broadcast distribution and broadband Internet access sectors. As this Application addresses the broadcast distribution requirements exclusively, this CSCS Plan addresses only the broadcast market requirements. However, there is an evident need for a significant amount of additional satellite capacity in both market segments.

The demand for programming, and corresponding bandwidth, continues to grow with the introduction of new kinds of programming content, new digital specialty channels, pay-per-view, video-on-demand, interactive television and HDTV. Simply stated, Canadian broadcasters require significant additional satellite capacity to distribute their content.

The penetration of digital television in Canada continues to grow as consumers show keen interest in higher quality digital services, HDTV and specialty programming. Of the approximately 12.5 million Canadian households, the five largest cable and satellite providers combined for over 9.8 million subscribers. By the end of 2007, approximately 40% of Canadian households were capable of accepting an HD signal and this number was expected to have risen to 58% of households in 2008 according to Consumer Electronics Marketers of Canada. In 2008, 1.5 million households are estimated to subscribe to, and receive, HD. As more of these HD ready households upgrade to digital and HD packages, we expect a continued increase in the availability of HD programming.

As part of its submissions for the 2006 Satellite Licensing Initiative, Ciel retained the Nordicity Group to evaluate the demand for additional broadcasting capacity in Canada. In summary, Nordicity found that the requirement for additional broadcasting capacity is occurring in 'waves' of capacity demand based on the established broadcasters transition to HDTV, the introduction of new broadcasting technology, and the supply of satellite capacity.

Star Choice currently operates from two Ku band orbital positions (111.1°W and 107.3°W) with approximately one and a half satellites worth of capacity. Bell ExpressVu operates from two orbital positions (82°W and 91°W) with approximately two satellites worth of capacity. Nordicity's research showed that four additional satellites will be needed to supply the future demand at the two established broadcast distribution neighbourhoods. The progression of the 'waves' of

capacity has been slower than projected, but the assumptions of total amount of additional capacity needed (four new satellites) have remained. Ciel's proposal addresses this demand.

#### **4. CIEL-8 AT 113°W 17 GHZ BSS – OPTIMAL SOLUTION**

Canada enjoys excellent regulatory priority at the 113°W orbital position. The International Telecommunications Union (ITU) coordination request underlying 113°W 17 GHz BSS is CAN-BSS13, published in IFIC 2570 on May 30, 2006. The orbital position offers full coverage of Canada, and the 17 GHz BSS spectrum is ideal expansion capacity for existing Canadian Direct-to-Home (“DTH”) operators, for new direct-to-consumer services, and for the development of emerging competitive video distribution services. However, given the uncertain economic circumstances currently facing the Canadian broadcast industry, and the understandable caution of many Canadian satellite users in making long-term investment decisions at this time, it is important that Canada adopt a measured approach to spectrum deployment, an approach that ensures suitable spectrum-orbital resources are available when they are required. Ciel proposes a measured approach to spectrum deployment, designed to preserve Canadian access to this important spectrum while the market for 17 GHz BSS matures.

Ciel has made contractual arrangements for interim satellite facilities to bring the Canadian 17 GHz BSS ITU filings at the 113°W orbital position into use prior to their expiry in May 2012. The use of interim facilities preserves Canadian ITU priority at 113°W while maximizing decision-making flexibility for Canadian satellite users. Construction of Ciel-8, a new dedicated 17 GHz BSS spacecraft, is projected to start in early 2012, and Ciel anticipates an in-service milestone for Ciel-8 of no later than Q1 2015. As additional protection of future Canadian access to the available spectrum, Ciel has also secured the agreement of the party holding future ITU priority at adjacent orbital positions to facilitate the coordination of 113°W for use in Canada.

#### **5. CIEL-8 AT 113°W 17 GHZ BSS – TECHNICAL SOLUTION**

The 17/25 GHz BSS payload of the Ciel-8 spacecraft will be designed to implement Canadian frequency assignments at 113°W in the ITU Region 2. The spacecraft's coverage area will include all of Canada. The design of Ciel-8 is optimized for use by a DTH BDU – as more definitive customer requirements are identified, the design of the network will be refined to offer optimal performance for the customer's specific application.

The 17/25 GHz BSS payload of Ciel-8 will distribute video programming in digital format. The minimum antenna diameter of fixed consumer terminals will be approximately 50 cm and the average consumer terminal in the Provinces will be between 50 and 60 cm (depending on the availability desired by the customer), assuming that there will be at least 2° spacing between adjacent Canadian and U.S satellites. Antenna sizes in the northern Territories will be approximately 65 to 90 cm. Modulation of the digital carriers will be QPSK or 8PSK.

The spacecraft will operate in the 17 GHz BSS band DTH downlink frequencies allocated by Industry Canada, i.e. 24.75 – 25.25 GHz for feeder links and 17.3-17.8 GHz for the downlink.

The transponder bandwidth and frequency plan will most likely be 24 to 26 transponders of 31 MHz bandwidth, which optimizes the cost and technical performance of the spacecraft, but Ciel will continue to monitor the planned architecture and orbital spacing of other operators in this band to determine if there are advantages to other frequency/bandwidth plans.

The satellite will be built by one of the major satellite manufacturers using a state-of-the-art bus design of the manufacturer chosen. The satellite will be designed for at least 15 years of operation.

Canadian satellite users seek choice, quality and innovative services in order to sustain and grow their businesses. These fundamentals define Ciel's approach to the Canadian broadcast sector. Ciel's presence as a Canadian satellite operator enhances the level of competition in the Canadian market and provides customers a choice among potential suppliers. The award to Ciel of a licence in the 17 GHz BSS at the 113°W orbital position would support these goals.

