

Gazette Notice No. DGSO-001-10
Decisions on the Transition to Broadband Radio
Service (BRS) in the Band 2500-2690 MHz and
Consultation on Changes Related to the Band Plan

**Comments from Yourlink Inc.
Saskatoon, Saskatchewan**

July 15, 2010

Introduction and General Comments:

Yourlink is pleased to have the opportunity to provide a response to Notice No. DGSO-001-10 – Decisions on the Transition to Broadband Radio Service (BRS) in the Band 2500-2690 MHz and Consultation on Changes Related to the Band Plan. Yourlink has been involved in the BRS consultation processes to date and provided input and comments to the 2009 BRS Stakeholder Proposal Development process.

Since the release of Notice DGTP-002-06 in 2006, Industry Canada has indicated its intention to repurpose the MCS/MDS bands with the objective of enabling worldwide services in the new “BRS” band. This involves a process to recover a portion of spectrum in the 2500-2690 MHz range and to displace the current incumbents from portions of the MCS and MDS bands.

Yourlink Inc. of Saskatoon SK is the incumbent MDS broadcaster and MDS Spectrum License holder in the Province of Saskatchewan.

Yourlink currently utilizes 100% of the MDS spectrum bandwidth to deliver digital television broadcast and wireless broadband internet services to customers throughout the province of Saskatchewan. Yourlink operates 25 MDS broadcast locations and another 10 trunking sites which provide coverage to a cumulative area in the order of 100,000 square kms covering several hundred rural Saskatchewan communities, and providing service to several thousand active subscribers. Yourlink’s current coverage significantly exceeds the coverage targets proposed in the BRS license conditions in all three Saskatchewan Tier 3 spectrum license areas. Yourlink has made significant investments in towers, equipment, subscriber devices, organizational and support infrastructure, and technology development in order to offer services utilizing the current MDS spectrum. Yourlink’s utilization of the current MDS spectrum bandwidth is much higher than other incumbents in Saskatchewan or even across Canada. Replacement of existing services will be a major challenge for Yourlink.

A factor that must be considered by the Department is that Saskatchewan is a geographically large, and primarily rural, service area – 650,000 sq. km. in total, with approximately 300,000 sq. km. representing areas with markets interested in wireless services. The population density is much lower than a national average, and the required capital investment per prospective subscriber is proportionately greater than elsewhere in Canada. The deployment of services in a new band plan will require a significant investment for incumbents as well as for any new license holder.

Saskatchewan has two incumbents – Yourlink operating in the current MDS band, and, *SaskTel* operating in the current MCS band. The provisions of Notice No. DGSO-001-10 will require both operators to convert licenses, return spectrum to the Department, plan for and eventually implement termination of all current services to existing customers, and make extensive investments to re-establish completely new services for our customers in a reduced amount of wireless spectrum. Major business and logistic risks and challenges exist with the requirement to terminate existing services and to deploy new technologies and services while attempting to maintain a viable subscriber base. Both incumbents have also invested heavily in subscriber

acquisition and support and have built strong brands in rural Saskatchewan. The overall process mandated by DGSO-001-10 will be feasible only if a reasonable service migration period is made available to the incumbents.

While the nature of this BRS consultation phase is primarily technical, and the responses will be mainly focused on band plan and FDD/TDD operational and technology issues, Industry Canada should not lose sight of the some of the broader spectrum management considerations. In particular, Industry Canada must insure that plans for the new BRS band do not perpetuate or exacerbate the "digital divide". Larger operators, including expected new license holders, will be focusing on BRS spectrum issues relating primarily to large urban markets. Companies such as Yourlink have focused their efforts on service provision to more rural areas. Industry Canada should include serious consideration of the potential impacts on wireless network services to rural areas (and on rural service providers) in decisions and rules which emerge from the BRS consultations.

Consultation on the Band Plan

A. The Frequency Band Plan

8. The Frequency Band Plan

Given the benefits of the internationally harmonized band plan, Industry Canada proposes to adopt the Option 2 model of the band plan for BRS in the band 2500-2690 MHz.

The Department seeks comments on its proposal to adopt the Option 2 model and on the following related elements:

- 1. Should operation of the TDD systems be permitted in the FDD portion of the band plan and, if so, under what conditions?*
- 2. Should the guard band blocks 2570-2575 MHz and 2615-2620 MHz be held in reserve by Industry Canada or should they form part of the unpaired block (TDD)?*
- 3. If the guard bands are to be held in reserve, should they be considered for future use by licence-exempt wireless systems?*

Please provide comments on any additional technical details related to the band plan which are not addressed above.

Yourlink, consistent with its position during the 2009 SPD process, supports the adoption of the ITU band plan, identified as "Option 2" in the DGSO-001-10 consultation document. This option provides for a 5 MHz-wide channel grid across the FDD and TDD portions of the BRS band.

Yourlink notes that the purposes originally identified for the BRS band in the DGTP-002-06 Policy document and in the DGRB-005-09 Consultation document indicated that "*any of mobile, fixed or broadcasting services may be deployed.*" Much of the 2009 SPD discussion (with the exception of the Manitoba situation) was undertaken in the context of expanded (FDD-based)

mobile services in higher-density service areas. However, fixed wireless data and broadcast services both remain as potentially viable BRS service offerings for more rural markets at least in the foreseeable future. In the case of broadcast services, Yourlink would expect that the Department may wish to confine broadcast operations to the "TDD" portion of the band plan.

One interesting change which has evolved since the 2009 SPD process has been the emergence and advancement of "TD-LTE" technology and systems. While TD-LTE is not the only available TDD technology, in certain situations, such as more-rural, less-dense applications (i.e., most of Saskatchewan), TDD-based systems may provide a reasonably efficient use of spectrum resources and a much more cost-effective deployment option. Related to the emergence of additional TDD equipment auctions, the value of the TDD blocks in the recent 2.6 GHz spectrum auction in Germany was equivalent to that of the FDD blocks.

While there are strong technical arguments for restricting TDD system deployment within the FDD portion of the BRS band plan, especially in urban areas, any future BRS operating rules should not impair the deployment of TDD-based systems in the full TDD block by TDD license holders. I.e., any future operating rules should not favor FDD operators over TDD operators, or, favor one TDD licensee over an adjacent TDD licensee.

During the incumbent service migration period, TDD services should be able to operate in the FDD portion of the band until displaced.

The proposed guard band blocks at 2570-2575 MHz and 2615-2620 MHz in the ITU "Option 2" band plan should be held in reserve and controlled by Industry Canada. Within the Option 2 band plan, these blocks are effectively unusable spectrum for the reasons indicated in the consultation document. As an incumbent, Yourlink would be concerned that Industry Canada may view the assignment of guard band spectrum as a portion of the total allocation of BRS spectrum to an incumbent. For incumbents, guard bands are unusable spectrum. Industry Canada should not attribute these otherwise-unusable blocks to either portion of the band plan, or effectively to either incumbent unless the guard band assignments are not counted as part of an incumbent allocation.

The adoption of the ITU band plan includes the specification of these guard bands. The primary purpose of a guard band is to provide isolation and protection for existing or prospective licensed terrestrial services, not for the deployment of unlicensed services. If the 2570-2575 MHz and 2615-2620 MHz guard bands are to actually function as guard bands, they should be designated as such and not otherwise re-purposed before even the first BRS services are deployed.

There may be a point in the more-distant future when the need for specific 5 MHz-wide guard bands might be reduced. Alternatively, there may be, in the future, geographic regions where BRS TDD-band and FDD-band deployments are not contemplated by license-holders. In such limited situations, the Department may wish to undertake a consultation process to assess the alternate utilization of a portion of these guard bands by low-power and/or unlicensed services.

B. The Need for Government Intervention in spectrum allocation within the BRS band

9.2 Regions where MCS and MDS incumbents hold portions of spectrum

Industry Canada seeks comments on whether government intervention is required where there are different MCS and MDS incumbents in the same geographic areas.

Saskatchewan represents a jurisdiction which falls into the situation described in section 9.2 of the DSGO document. Yourlink is in agreement with the concept of allocation of BRS spectrum to incumbents according to the approach represented by Figure 6 and described by “option 1” of section 9.2 of the document. The boundary between the subsequent MCS and MDS allocation should align with the 5 MHz channel grid of the BRS band plan and be placed at 2595 MHz rather than at 2596 MHz as indicated in Figure 6. This allocation approach will provide incumbents with the maximum flexibility in arranging spectrum swaps optimal to each party, as is suggested within the document. It would also provide the best flexibility in terms of the timing of swaps and for the migration and deployment of subsequent services by incumbents within the BRS band.

Yourlink would strongly suggest that government intervention is **NOT** required in order to achieve effective BRS Spectrum allocation in the regions where MCS and MDS incumbents hold portions of spectrum. In the Saskatchewan instance, the incumbents will, with a high level of certainty, be able to develop effective agreements for the allocation of spectrum.

While the incumbents feel strongly that government intervention is not required, there may exist a scenario in which Industry Canada becomes a party to the negotiation process whereby a portion of the incumbent-allocated TDD spectrum is made available to the department for auction purposes in exchange for a portion of the recovered FDD block.

C. Effective use of the Unpaired TDD block

9.3 Effective use of the unpaired (TDD) block

The Department seeks comments on the challenges faced by more than one operator in making efficient use of the TDD block. Should Industry Canada rely on market forces or should it develop specific technical rules to facilitate coexistence between two or more operators and alignment with the Option 2 Band Plan?

Assigning a guard band within the TDD block would have the impact of removing an additional 2.5 MHz from the spectrum available to each incumbent. It would also disrupt the channel plan in the TDD block potentially reducing the usable spectrum by a further 2.5 MHz. There may be a possibility to recover 2.5 MHz from each of the proposed 2570-2575 and 2615-2620 guard bands to restore the 20 MHz of TDD bandwidth, however, we would not expect such an approach to be supported by the Department.

In practice, especially in the context of a Saskatchewan service, there are several other factors.

First, besides frequency, there is a geographic dimension to the licenses. In a service area as large as Saskatchewan, given the likely geographic diversity of head-end sites using the TDD block, effective frequency coordination or synchronization among operators would serve to avoid problems in all but the most dense service regions. In major urban markets, specific agreements and protocols can be established between operators, which may include the adoption of guard bands. It would make sense for the operators first to pursue the establishment of local operational agreements/protocols prior to the imposition of specific technical rules by Industry Canada (i.e. guard bands) which may only be useful in a very small percentage of the overall service area and which would otherwise negatively impact available capacity and services.

Second, a service area like Saskatchewan has long borders (SK-AB, SK-MB, SK-USA) along which the same issues of coordination and potential operator interaction may exist. It is unlikely that the concept of the guard band internal to the TDD block would be proposed as a "solution" to inter-provincial service coordination. The coordination approach among operators within the service area and at the boundaries of the service area should be consistent.

As such, Yourlink believes that the Department should rely on "market forces" to develop approaches and operational agreements to facilitate effective coexistence between operators in the TDD block within the same, and adjacent, service areas.

D. Timing

9.5 Timing

Industry Canada is seeking comments on the timing aspects related to the physical migration of the existing network facilities to the new band plan, including the timing required for the completion of all transactions regarding spectrum exchanges.

There are a number of factors which affect the timing for service migration.

First, both Saskatchewan incumbents have long-standing services deployed in the respective MCS and MDS bands.

In Yourlink's case, it has extensive investments in both broadcast and broadband wireless data services within the MDS band offered from over 25 locations spread over the majority of the southern half of the province. In migrating away from its current MDS-based services, Yourlink and its customer base will experience major disruption. MDS-based wireless data service equipment will need to be completely replaced at both head-end and customer locations. It is estimated that in the order of 3500 truck-rolls will be required to migrate existing customers to a new broadband delivery technology, of which there ultimately may be several flavours. Broadcast services will also require investment in new head-end equipment. Existing customers for Yourlink broadcast services will also require new set-tops and modems. The aggregate

impact of service migration will represent a very substantial investment on the part of Yourlink. It is a fact that this physical service migration will not be feasible unless undertaken in a phased manner over a period of several years, area by area, and coordinated with the other incumbent and, possibly, a new license holder.

Second, although Industry Canada has indicated its intention to recover spectrum from the incumbents, likely leading to a subsequent spectrum auction, it has not provided any indication of the timeframe for any such BRS Spectrum auction. While we as incumbents are free to speculate about this timeframe, we understand that ultimately the incumbents will have to accommodate whatever timeframe the Department determines for the auction and re-deployment of the recovered BRS-band spectrum. Given that understanding, and recognizing the massive migration to be undertaken by incumbents in order to present a "greenfield" situation to a new operator, it may be reasonable for the Department to allow sufficient time for an orderly service migration prior to mandating the displacement of incumbents from the use of the current MCS/MDS spectrum blocks.

A possible approach may be the creation and implementation of a plan for the joint progressive migration of current incumbent services, again over a several-year period, leading to the complete displacement of the incumbents by a specific target date, for example - Mar. 31, 2014. This plan could be jointly managed by the incumbents with progress periodically reported on to the Department. Given the existence of a specific, reasonable displacement date, it would ultimately be in the commercial interests of the incumbents to migrate to their new service configurations as rapidly as possible. A migration period of in the order of a minimum of three years would accommodate the substantial service migration effort which must be undertaken by incumbents and allow an anticipated auction of the reclaimed spectrum by Industry Canada

Third, with respect to the issue of contemplated spectrum exchange transactions, this question would become an early milestone in the overall migration plan envisaged above. In preparing their respective migration plans, each incumbent will identify potential issues and options which may, for example, include area-based departures from a general spectrum allocation plan for as-yet-unidentified reasons. Sufficient time must be afforded to incumbents to prepare migration plans and to assess the spectrum-occupation requirements on a region-by-region basis for the duration of the service migration process.

Conclusion:

Yourlink Inc. would like to thank the Department for the opportunity to provide comments about the BRS band plan and the migration to BRS-based services.

Yourlink has herein provided input about the impact of the proposed MCS/MDS-to-BRS service changes to incumbents. The near-term implications for existing services and customers are not attractive. Existing operators are bearing the major impact of spectrum reallocations in order to establish a "greenfield" situation for an anticipated new license holder. Current incumbent and customer investments in MDS-band service delivery technologies will have only salvage value.

The possibility for service disruptions to existing, especially rural, broadband customers is quite high. In order to minimize disruptions, a service migration timeframe of at least three years will be required for incumbents prior to full displacement from current MDS spectrum.