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Spectrum Management and Telecommunications

Consultation on the Technical, Policy and Licensing Framework for Advanced Wireless Services in the Bands 1755-1780 MHz and 2155-2180 MHz (AWS-3)

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Introduction

1. Intent

1. Through the release of this document, Industry Canada is hereby initiating a consultation on a technical, policy and licensing framework for Advanced Wireless Services (AWS) in the bands 1755-1780 MHz and 2155-2180 MHz (hereinafter referred to as AWS-3). Comments are being sought on all aspects related to the licensing of this spectrum.

2. Mandate

2. The Minister of Industry, through the Department of Industry Act, the Radiocommunication Act and the Radiocommunication Regulations, with due regard to the objectives of the Telecommunications Act, is responsible for spectrum management in Canada. As such, the Minister is responsible for developing goals and national policies for spectrum resources use and for ensuring effective management of the radio frequency spectrum resource.

3. Legislation

3. The Minister of Industry is provided the general powers for spectrum management in Canada pursuant to section 5 of the Radiocommunication Act and sections 4 and 5 of the Department of Industry Act. The Governor in Council may make regulations with respect to spectrum management pursuant to section 6 of the Radiocommunication Act; these regulations have been prescribed under the Radiocommunication Regulations.

4. Policy Objectives

4. Industry Canada is committed to ensuring that Canadian consumers, businesses and public institutions continue to benefit from advanced wireless telecommunications services across the country. A robust wireless telecommunications industry drives the adoption and use of digital technologies and enhances the productivity of the Canadian economy and its international competitiveness. In pursuit of these objectives, the Department has promoted a competitive wireless telecommunications marketplace. Industry Canada considers that competition encourages innovation and investment, leading to lower prices, better services and more choice for consumers.

5. In developing a policy and licensing framework to make additional spectrum available, the Department has been guided by the policy objectives of the Telecommunications Act, the Spectrum Policy Framework for Canada (SPFC), which states that spectrum should be used in a way that maximizes the economic and social benefits for Canadians, and Industry Canada's policy objectives that are outlined in SMSE-002-12, Policy and Technical Framework: Mobile Broadband Services (MBS) — 700 MHz Band, Broadband Radio Service (BRS) — 2500 MHz Band, as follows:

- sustained competition in the wireless telecommunications services market so that consumers and businesses benefit from competitive pricing and choice in service offerings;
- robust investment and innovation by wireless telecommunications carriers so that Canadians benefit from world-class networks and the latest technologies; and
- availability of these benefits to Canadians across the country, including those in rural areas, in a timely fashion.

6. SMSE-002-12 also identified several trends that have emerged since 2008, which persist today. Canada has experienced continued growth in wireless subscribership and revenues, highlighting the increasing role of wireless services to Canadian telecommunications.¹ In addition, consumers have continued to increase their use of smart phones and tablets, driving demand for data services and increasing wireless network traffic.² Since taking steps to introduce new competitors to the wireless market in 2008, new entrants have undertaken the substantial investment required to deploy wireless networks in many markets across Canada and to provide wireless services to Canadians. Since new wireless competitors were introduced, competition has increased, bringing benefits to consumers. Average wireless prices are 22% lower than in 2008.³

7. Spectrum is a critical input for wireless carriers. Since the 2008 AWS auction, new entrants have expanded networks and increased subscribership. More spectrum would allow such providers to increase network capacity in order to meet the traffic demands of a growing subscribership, and support the provision of next-generation wireless services, such as long-term evolution (LTE). Meanwhile, larger national and regional service providers would also benefit from an opportunity to access additional spectrum, allowing them to increase capacity to better serve their substantial subscriber base. Industry Canada views the licensing of AWS-3 spectrum as an opportunity to release wireless spectrum to support investment and improve services for both newer and established carriers. In particular, it presents a key opportunity to support competition and the provision of competitive advanced commercial mobile services to Canadians.

5. Executive Summary

8. This consultation contains interconnected proposals for all the elements required to licence the 50 MHz of AWS-3 spectrum. The consultation is set out in four parts: band plan considerations; conditions of licence; auction process and rules; and other considerations.

¹ Section 5.5, CRTC's 2013 Communications Monitoring Report
<http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2013/cmr5.htm>

² Section 5.5.9, CRTC's 2013 Communications Monitoring Report
<http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2013/cmr5.htm>

³ Based on data from the *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions, 2014 Update* (<http://www.crtc.gc.ca/eng/publications/reports/rp140714.htm>).

9. To support Industry Canada's telecommunications policy objectives for sustained competition, investment, and availability, the key elements being proposed are:

- two paired blocks are to be made available for licencing on a Tier 2 basis, one 30 MHz block at the lower end of the band and one 20 MHz block at the upper end of the band, to enable the delivery of services to more users at faster speeds;
- this spectrum is to be made available via an auction process with 30 MHz of spectrum set aside for operating new entrants in order to facilitate sustained competition and 20 MHz of spectrum open for all bidders to make more commercial mobile spectrum available;
- licences are to have a 20-year licence term with deployment requirements at year 5 and year 10, to provide for more timely deployment and provision of services to Canadians and to deter speculation; and
- a sealed-bid, second-price auction process is to be held in March 2015 to make the spectrum available in a timely manner.

Part A – Band Plan Considerations

6. Background

6.1 AWS-3 Bands in Canada

10. In 2003, Industry Canada issued DGTP-007-03, *Consultation on the Spectrum for Advanced Wireless Services and Review of the Mobile Spectrum Cap Policy*, and the Department proposed that the bands 1710-1755 MHz and 2110-2155 MHz be designated for AWS (hereinafter referred to as AWS-1) for high mobility and fixed operations. Several respondents to this consultation suggested that the Department consider expanding the AWS bands to 1710-1770 MHz and 2110-2170 MHz in the longer term. They noted that such an expansion would add an extra 30 MHz (15 + 15 MHz) of wireless access spectrum and allow further harmonization worldwide. Furthermore, expansion of the band would enable manufacturers to provide handsets with a 60 + 60 MHz capability consistent with the usage of this band in Europe and Asia, thereby providing additional economies of scale.

11. In DGTP-002-07, *Consultation on a Framework to Auction Spectrum in the 2 GHz Range including Advanced Wireless Services* (hereinafter referred to as the 2007 AWS Consultation), the Department limited the designation for AWS to the bands 1710-1755 MHz and 2110-2155 MHz, in order to align the spectrum in North America, but indicated that the extension of these bands to 1710-1780 MHz and 2110-2180 MHz could be the subject of a future spectrum utilization policy. At that time, the Department indicated that it was not ready to designate or license the bands 1755-1780 MHz and 2155-2180 MHz until there was more certainty concerning potential service applications, band pairing and technology.

12. As discussed in the *Commercial Mobile Spectrum Outlook*, the wireless industry in both Canada and the United States has indicated over the years that a paired identification of the two bands 1755-1780 MHz and 2155-2180 MHz would be very valuable in the delivery of mobile broadband services to consumers. Given that these bands are part of the North American wireless ecosystem, the Department

indicated that it would wait for the usage of this spectrum to be clarified in the United States and stated that Canada would consider making this spectrum available for commercial mobile services as early as 2015.

13. Currently, the bands 1755-1780 MHz and 2155-2180 MHz are used for low-capacity fixed point-to-point microwave links, which are mostly legacy systems. In addition, the band 2150-2162 MHz has been used as a return band for multipoint communications system (MCS) and multipoint distribution system (MDS) to supplement spectrum in the 2500 MHz band.

14. In October 1999, Industry Canada issued SP 1-3 GHz, Amendments to the Microwave Spectrum Utilization Policies in the 1-3 GHz Frequency Range. Due to pending changes to accommodate new mobile services in the band 1710-1850 MHz following WRC-2000, the departmental spectrum utilization policy document discouraged any growth for fixed line-of-sight services in this band at that time, particularly for large-scale multi-hop networks or for systems deployed in urban areas and their vicinities.

15. In February 2007, as part of the 2007 AWS consultation, footnote C37 was added to the Canadian Table of Frequency Allocations (CTFA), indicating that the designation of the bands 1755-1850 MHz, 2020-2025 MHz and 2155-2180 MHz for AWS may be the subject of a future public consultation.

16. A moratorium on the further licensing of new fixed microwave stations in the bands 1990-2010 MHz and 2110-2200 MHz had previously been imposed in 1995 through SP 1-20 GHz — Revisions to Microwave Spectrum Utilization Policies in the Range of 1-20 GHz. A moratorium was placed on the licensing new fixed microwave stations in the band 1755-1780 MHz in June 2009, subsequent to the Department's 2008 consultation SMSE-008-08, Proposed Revisions to the Technical Requirements for Fixed Service in the Bands 1700–1710 MHz and 1780–1850 MHz.

17. As discussed in the 2007 AWS Consultation, licensees using the MCS/MDS return bands (2150-2162 MHz) were notified in 2004 that their licence would be subject to the transition policy applicable to the fixed service for the implementation of AWS. Since 2004, most MCS and MDS licences, with the exception of site-specific MCS licences in Manitoba, have transitioned to a new licence framework in preparation for the upcoming 2500 MHz auction. This led to the decision in the 2007 AWS Consultation that the transition provisions for the implementation of AWS will be applicable to all fixed services in the band 2110-2170 MHz, including MCS/MDS applications.

18. As a result of these moratoria, there are few licensees remaining in the AWS-3 bands.

6.2 AWS-3 Bands in the United States

19. In March 2014, in its AWS-3 Report and Order, FCC 14-31, Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands, the U.S. Federal Communications Commission (FCC) indicated that it will auction the bands 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz starting on November 13, 2014.

20. Currently, the band 1755-1850 MHz is extensively used by U.S. government departments and agencies, including the Department of Defense. Although most U.S. incumbent licensees will be relocated to other spectrum, some U.S. government systems will remain in the lower AWS-3 band indefinitely. The FCC Report and Order provided general rules for coexistence of new AWS-3 systems with U.S. federal incumbents and identified the types and locations of grandfathered systems that will remain in the band. However, it is the responsibility of the U.S. National Telecommunications and Information Administration (NTIA) to develop the relocation plan for moving the remaining incumbent U.S. licensees.

21. On May 13, 2014, the NTIA published a *Notice of Estimated Relocation or Sharing Costs and Timelines for the 1695-1710 MHz and 1755-1780 MHz Bands*. This NTIA notice gave broad time frames for displacement of incumbent U.S. government licensees from the band 1755-1780 MHz, ranging from immediate to 120 months following the close of the AWS-3 auction. On July 16, 2014, the NTIA published detailed Federal Agency Spectrum Transition Plans for both the 1695-1710 MHz and 1755-1780 MHz bands. *The Transition Plans and Transition Data for the 1755 – 1780 MHz Band* provide detailed information on frequency bands, locations, type of use and timeframes to vacate the band for each U.S. federal agency that is currently using this spectrum. Between the close of the auction and the transition date, the NTIA will evaluate requests by U.S. AWS-3 licensees to operate near these U.S. government systems on a case-by-case basis.⁴

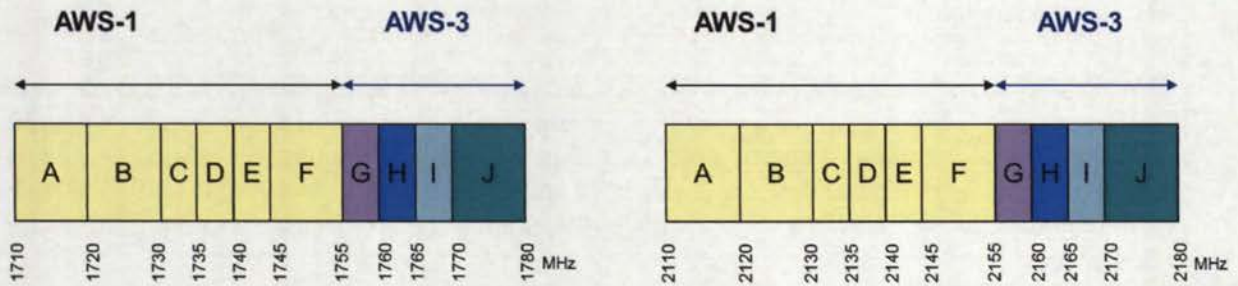
22. In its Report and Order, the FCC paired the bands 1755-1780 MHz (uplink) and 2155-2180 MHz (downlink), making them an extension of the AWS-1 band. The U.S. band plan consists of three 5 + 5 MHz blocks and one 10 + 10 MHz block. The FCC also mandated that devices be interoperable across both the AWS-1 and AWS-3 bands. Interoperability ensures that devices can work across both bands, thus supporting the development of a large ecosystem. The U.S. band plan is shown in Figure 1.

23. Note that, in addition to the 1755-1780 MHz and 2155-2180 MHz bands, the FCC also considers the unpaired band 1695-1710 MHz as part of AWS-3 and will include this band in the FCC's November 2014 auction. However, this band is outside the scope of this consultation.⁵

⁴ See <http://www.ntia.doc.gov/category/aws-3-transition> and <http://www.ntia.doc.gov/category/500-mhz-initiative> for more information.

⁵ In Canada, the band 1695-1710 MHz is extensively used by government and non-governmental meteorological satellite operations (earth stations and weather balloons) and low-capacity point-to-point microwave systems. As underlined in the *Commercial Mobile Spectrum Outlook*, repurposing the 1695-1710 MHz sub-band would need to take into account compatibility with existing meteorological systems operating in the band. Also, there is not an obvious band with which to pair this spectrum in a manner that would be consistent with other bands used for commercial services. As a result, the Department will not consult on mobile use of the band 1695-1710 MHz at this point in time.

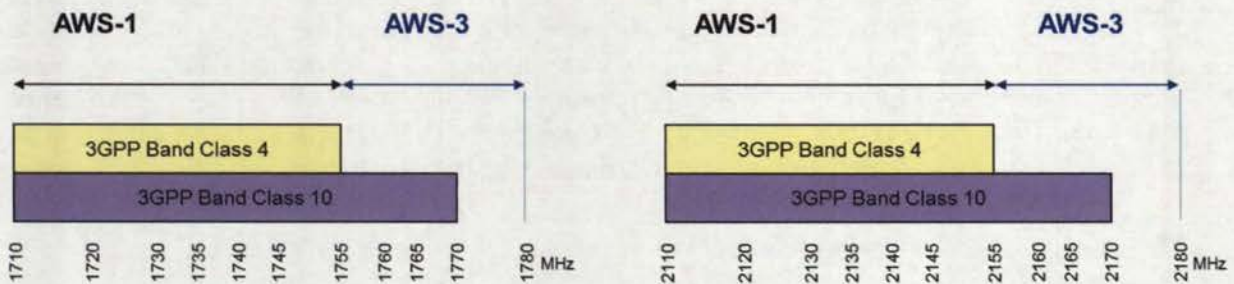
Figure 1: U.S. Band Plan



6.3 AWS-3 Bands Internationally

24. The band pairings of 1710-1755 MHz paired with 2110-2155 MHz and 1710-1770 MHz paired with 2110-2170 MHz are standardized in the Third Generation Partnership Project (3GPP)⁶ and in Recommendation ITU-R M.1036.⁷ However, there is no existing 3GPP band class or standard that spans the full AWS-3 band. The current 3GPP band classes are shown in Figure 2 below.

Figure 2: 3GPP Band Classes



25. Many countries in the Americas have licensed the AWS-1 spectrum and some have identified the bands 1755-1770 MHz and 2155-2170 MHz for mobile broadband communications; however, no countries other than the United States have initiated licensing processes for these bands. In March 2014, the Inter-American Telecommunications Commission's Permanent Consultative Committee 2 (CITEL PCC.II) approved Recommendation PCC.II/REC.43 (XXIII-14) on the use of both AWS-1 and AWS-3 bands for mobile broadband services in the Americas.

⁶ The Third Generation Partnership Project (3GPP) is an industry association that develops standards for interoperability of mobile devices.

⁷ Work is under way in the ITU-R to update Recommendation ITU-R M.1036, including a proposal by Canada to include the full AWS-3 band.

7. Band Plan and Tier Sizes

7.1 Band Plan

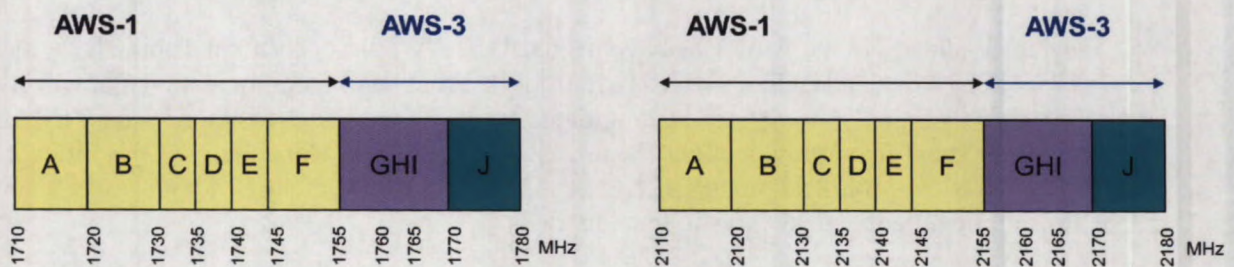
26. The AWS bands (AWS-1 and AWS-3) are expected to be key bands for the deployment of LTE technology for today’s wireless networks. LTE supports block sizes of 1.4, 3, 5, 10, 15 and 20 MHz, and allows for the combining of adjacent blocks within the same band up to 20 MHz. Therefore, it is expected that the 3GPP standard for the AWS-3 spectrum will support 10 MHz and 15 MHz block sizes. Large block sizes will allow service providers to accommodate more customers and offer faster average user speeds.

27. As shown in Figure 1, the U.S. band plan is comprised of a mix of 5 MHz and 10 MHz blocks and follows the same uplink/downlink pairing as the AWS-1 band.

28. Industry Canada proposes to use the same band plan (uplink at 1755-1780 MHz and downlink at 2155-2180 MHz) as currently used in the United States. Harmonizing the Canadian and U.S. band plans would support a wide selection of low-cost equipment due to the size of the U.S. market, facilitate cross-border roaming as a result of interoperable equipment, and simplify cross-border frequency coordination due to harmonized frequency arrangements.

29. However, Industry Canada is proposing that the three 5 MHz blocks, (G, H and I) be combined as one 15 + 15 MHz block, in addition to the 10 + 10 MHz block J, as shown in Figure 3. Having 15 + 15 MHz as a single block would allow licensees to benefit from the throughput, capacity and network efficiencies of a large block. Large blocks will also allow service providers to aggregate more efficiently the AWS-3 blocks with their other spectrum holdings across the AWS-1 and other bands. Combining the U.S. G, H and I blocks into one Canadian block GHI will optimize alignment with the U.S. band plan, simplifying coordination and minimizing the risk of an incompatible ecosystem.

Figure 3: Proposed Canadian Band Plan



A1 - Industry Canada is seeking comments on its proposed band plan shown in Figure 3.

7.2 Licence Areas

30. The *Service Areas for Competitive Licensing* document outlines the general service areas that are used by Industry Canada for the purposes of issuing spectrum licences. The defined geographic areas have been categorized under “service area tiers” that are based on Statistics Canada’s Census Divisions and Subdivisions.

31. As different wireless services and applications are best suited to different sizes of service areas, four tiers of service areas have been established. Tier 1 is a single national service area. Tier 2 consists of 14 large service areas covering all of Canada. There are eight Tier 2 service areas that have provincial/territorial boundaries, and six that are sub-provincial within Ontario and Quebec. Tier 3 contains 59 smaller regional service areas and Tier 4 comprises 172 localized service areas. The population associated with each service area is based on Statistics Canada census information.

32. Tiers 1 and 2 have typically been used for licensing mobile services, whereas Tier 3 and Tier 4 have typically been used for licensing fixed services. However, the 2008 AWS auction offered a mixture of Tier 2 and Tier 3 licences for different spectrum blocks in order to encourage regional companies to enter the wireless market. Licensing based on smaller tier sizes provides additional flexibility to bidders, which allows them to concentrate on the geographic markets of most interest, or to aggregate smaller service areas into larger regions that correspond to their business needs.

33. Licensing based on larger geographic areas results in less coordination being required between licensees and allows more effective use of radio spectrum.

34. Larger geographic service areas would also enable deployment of large-scale networks that can be more efficient due to economies of scale, which is critical to deployment of spectrum given that wireless mobile networks are capital-intensive.

35. For these reasons, the Department proposes to license the AWS-3 band on a Tier 2 basis (see Annex A).

A2 - Industry Canada is seeking comments on its proposal to use Tier 2 licence areas for both the 15 + 15 MHz and 10 + 10 MHz blocks.

8. Licensing Process and Pro-competitive Measures

36. Given that the AWS-3 spectrum is adjacent to, and has the same pairing as the AWS-1 spectrum, and that there will likely be a robust equipment ecosystem, which will be interoperable with the AWS-1 spectrum, Industry Canada anticipates that the AWS-3 spectrum will be highly desirable to all wireless service providers. As such, given that demand is likely to exceed supply for these licences, Industry Canada proposes to use an auction process to assign spectrum licences in the AWS-3 band. Auctions are a transparent, fair and efficient spectrum assignment mechanism.

37. As noted in the FSAC, there are various measures available in an auction to promote a competitive marketplace if required, notably set-asides and spectrum caps. These measures can address issues of market power and competition. The factors that Industry Canada may consider when deciding upon use of a competitive measure are set out in the FSAC.

38. A spectrum set-aside prohibits certain entities from bidding on specific blocks of spectrum. A set-aside was used in the 2008 AWS auction, whereby three blocks of spectrum were only available to some bidders.

39. New entrants would benefit from more spectrum, to support the provision of advanced wireless services, and to meet the traffic demands of growing subscribership. As noted in previous sections of this consultation some of the other characteristics of AWS-3 spectrum that make it particularly useful for the deployment of advanced mobile/broadband networks and services to meet growing consumer demands are:

- large, contiguous block sizes that are expected to allow for the provision of robust advanced wireless services; and
- an advanced ecosystem, including the 4G LTE standard that is expected to be compatible with the AWS-1 band.

40. Due to the quantity and technical characteristics of this spectrum, as outlined above, Industry Canada is of the view that this spectrum has the strong potential to be used by new entrants to improve their networks, which will allow them to continue to contribute to a competitive wireless sector.

41. In addition, it is likely that large wireless service providers (LWSP) have the means and ability to prevent new entrants from acquiring spectrum licences in an open auction.⁸ There is a risk that competition in the post auction marketplace could suffer without measures to facilitate new entrants' access to spectrum. Such risks have also been recognized by spectrum regulators in multiple international jurisdictions. In many cases, these regulators have elected to address this risk by adopting spectrum aggregation limits or other competitive auction measures.

42. Given the above market and technical considerations, and in light of the Department's policy objectives, Industry Canada proposes to adopt competitive measures in the form of a 30 MHz spectrum set-aside for the AWS-3 licensing process.⁹

43. When applying competitive measures in the past, Industry Canada has used specific definitions to distinguish between established providers and new entrant providers for the purposes of determining

⁸ The Competition Bureau has previously stated "incumbent service providers do have market power in the provision of retail mobile wireless services" in its *Submission by the Commissioner of Competition Before the Canadian Radio-television and Telecommunications Commission — Telecom Notice of Consultation CRTC 2013-685 — Wholesale mobile wireless roaming in Canada — Unjust discrimination/undue preference* (<http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03648.html>).

⁹ Principles and considerations available under Section 4 of the *Framework for Spectrum Auctions in Canada* (<http://www.ic.gc.ca/eic/site/smt-gst.nsf/en/sf01626.html>).

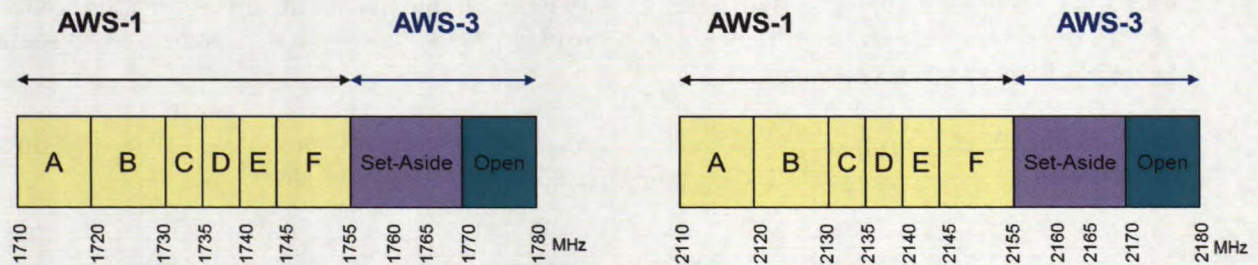
bidding eligibility. LWSP have been defined as “companies with 10% or more of national wireless subscriber market share, or 20% or more wireless subscriber market share in the province of the relevant licence area.”¹⁰ For the purposes of this consultation, new entrants are defined as service providers that are not LWSP. Industry Canada is proposing that bidding for the spectrum set-aside be limited to new entrants.

44. Industry Canada recognizes that the technical characteristics of the AWS-3 spectrum would allow all existing wireless service providers to enhance their service offerings to Canadians. Therefore, Industry Canada proposes that the 20 MHz block of spectrum be available for open bidding.

45. Industry Canada proposes that the blocks of spectrum for the auction be available as follows (see Figure 4):

- 15 +15 MHz of paired spectrum (Block GHI) will be set aside for eligible entities (see Section 8.1 for the eligibility criteria) in every Tier 2 licence area; and
- 10 + 10 MHz of paired spectrum (Block J) will be open to all bidders in every Tier 2 licence area.

Figure 4: Spectrum Available for Auction



A3 – Industry Canada is seeking comments on its proposals to use an auction mechanism and to implement a pro-competitive measure, namely:

- (a) to set aside 30 MHz in the AWS-3 band for new entrants by restricting the participation of LWSP in this block; and
- (b) to have open bidding (no pro-competitive measures) on the remaining 20 MHz block in the band.

¹⁰ The subscriber market share for Ontario will apply for the licence area 2-06, Eastern Ontario and Outaouais. For the Tier 2-14 licence area (Yukon, Northwest Territories and Nunavut), only the national market share criteria will apply. Definition from 700/2500 MHz Policy Framework Decision B3-2 (<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10121.html>). The reference data for the evaluations will rely on the most recently available CRTC Communications Monitoring Report.

8.1 Eligibility to Bid on Set-Aside Spectrum Licences in Each Tier

46. Industry Canada has pursued policies that have effectively reserved spectrum for new entrants over successive auction frameworks (AWS-1, 700 MHz and the upcoming 2500 MHz auction). Current new entrants that have launched services could especially benefit from additional spectrum, in order support the provision of the latest advanced wireless services and to meet the wireless traffic demands of their growing subscribership.

47. To further support the development of robust advanced wireless services, Industry Canada proposes that eligibility to bid on set-aside spectrum be limited to operating new entrants. Operating new entrants that are already offering wireless services benefit from an existing network and subscribers, and will be able to add set-aside spectrum to improve their mobile networks.

48. The proposed approach supports the orderly development and efficient operation of radiocommunication in Canada by establishing a licensing mechanism that allows for the development of more efficient and improved wireless services. Licensing AWS-3 spectrum to an operating new entrant that possesses a wireless network is more likely to result in the provision of robust advanced wireless services; allowing for more effective and sustained competition in the post-auction marketplace.

49. The proposed approach is also more likely to result in deployment and wireless services being offered over the spectrum in a timely manner, providing Canadians with the economic and social benefits of this spectrum sooner.

50. In addition to proposing a set-aside measure, Industry Canada proposes that bidding on set-aside spectrum licences in each Tier 2 region be restricted to new entrant bidders¹¹ that:

- **are actively providing commercial mobile wireless services¹² to the general public and operating a wireless network¹³ in the Tier 2 service area, with the minimum population coverage levels shown in Table 1, effective as of the date of application to participate in the AWS-3 auction.**

¹¹ Term “new entrant” as defined in Section 8.

¹² Using licensed commercial mobile broadband spectrum, which currently includes spectrum in the Cellular, PCS, AWS, BRS, MBS and WCS bands.

¹³ Refers to terrestrial wireless networks. Coverage areas for the purposes of verifying coverage are those areas where devices being offered to support service can successfully connect to the bidder’s existing network.

Table 1 – Minimum Population Coverage Levels to be Eligible to Bid on the Set-Aside Spectrum

Tier 2	Service Area Name	Minimum Population Coverage
2-01	Newfoundland & Labrador	15%
2-02	Nova Scotia & Prince Edward Island	15%
2-03	New Brunswick	20%
2-04	Eastern Quebec	25%
2-05	Southern Quebec	25%
2-06	Eastern Ontario & Outaouais	25%
2-07	Northern Quebec	15%
2-08	Southern Ontario	25%
2-09	Northern Ontario	25%
2-10	Manitoba	25%
2-11	Saskatchewan	20%
2-12	Alberta	25%
2-13	British Columbia	25%
2-14	Yukon, Northwest Territories & Nunavut	10%

51. The above values are proposed on the basis that they represent 50% of the AWS Licensing 10-year deployment targets in each Tier 2 Region. (See *Licensing Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range Appendix C*).

52. *Assessing minimum coverage:* Industry Canada would assess the deployment level of that service against the required coverage level for the tier. Therefore, potential bidders would be required to provide site data and detailed maps of their coverage areas.

53. In addition to reviewing the site data and coverage maps, Industry Canada may verify coverage, through testing, to confirm that wireless services can be accessed throughout the coverage area indicated by the applicant. Industry Canada could also request further documents or other information to verify this or any other information during the application process.

54. *Assessing the active provision of commercial wireless services:* Industry Canada would determine whether commercial wireless services are actively being provided to the general public in the coverage area. Potential bidders would demonstrate this by providing relevant documentation to Industry Canada. Such documentation would include, but not be limited to, details outlining:

- the services being offered in the licence area;
- the retail/distribution network;
- the devices that are offered to customers to provide the service; and
- how subscribers access services and the subscribership in the service area.

A4 – Industry Canada is seeking comments on the proposed eligibility criteria to bid on set-aside spectrum licences.

Part B – Licensing Framework

9. Conditions of Licence

55. Industry Canada is seeking comments on the following proposed conditions of licence and the conditions of licence outlined in Annex B that would apply to licences issued through the proposed auction process for spectrum in the AWS-3 band. The proposed conditions of licence in Annex B are based on existing policies and procedures.

56. It should be noted that licences are subject to the relevant provisions in the *Radiocommunication Act* and the *Radiocommunication Regulations*. For example, the Minister of Industry continues to have the power to amend the terms and conditions of spectrum licences pursuant to paragraph 5(1)(b) of the *Radiocommunication Act*. The Minister may do so for a variety of reasons, including furtherance of the policy objectives related to the band. Such action would normally only be undertaken after consultation.

9.1 Licence Term

57. The *Framework for Spectrum Auctions in Canada*, published in March 2011, states that Industry Canada has adopted a flexible approach in determining licence terms (up to 20 years) based on the specific spectrum being offered and subject to a public consultation preceding the specific auction or renewal process.

58. This decision was based on the recognition that licence terms in excess of 10 years would create greater incentive for financial institutions to invest in the telecommunications industry and for the industry itself to further invest in the development of network infrastructure, technologies and innovation.

59. The AWS-3 band has the potential to facilitate the offering of high-capacity mobile broadband services to Canadians. Given that the use of this band for mobile services is globally harmonized, there is little risk that there will be any usage changes to this spectrum in the foreseeable future. It is also unlikely that any developments in technology would result in a change to another use that is incompatible with mobile services.

60. In light of the above, Industry Canada is proposing that auctioned spectrum licences in the AWS-3 band have a licence term of 20 years. The proposed condition of licence is as follows:

The term of this licence is 20 years. At the end of this term, the licensee will have a high expectation that a new licence will be issued for a subsequent term through a renewal process unless a breach of licence condition has occurred, a fundamental reallocation of spectrum to a new service is required, or an overriding policy need arises.

The process for issuing licences after this term and any issues relating to renewal, including the terms and conditions of the new licence, will be determined by the Minister of Industry following a public consultation.

B1 – Industry Canada is seeking comments on its proposal to issue spectrum licences in the AWS-3 band with a 20-year licence term and the proposed wording of the condition of licence above.

9.2 Licence Transferability and Divisibility

61. Commercial mobile spectrum is an important resource to be managed for the economic and social benefit of Canadians. In general, spectrum licences may be transferred in whole or in part (either in geographic area or in bandwidth) subject to the approval of the Minister. All commercial mobile spectrum licence transfer requests are subject to review under the Transfer Framework¹⁴ as provided for in the proposed condition of licence below.

62. As the AWS-3 band is commercial mobile spectrum, the Transfer Framework will apply to these licences. As noted in the policy objectives described above, Industry Canada views the licensing of AWS-3 spectrum as a key opportunity to support competition and to enable new entrants to improve their wireless networks.

63. Industry Canada is proposing the following wording for the condition of licence on transferability and divisibility:

This licence is transferable in whole or in part (divisibility), in both bandwidth and geographic dimensions, subject to Industry Canada's approval. A Subordinate Licence may also be issued in regard to this licence. Industry Canada's approval is required for each proposed Subordinate Licence.

The licensee must make the Transfer Request in writing to Industry Canada. The Transfer Request will be treated as set out in Client Procedures Circular CPC-2-1-23, Licensing Procedure for Spectrum Licences for Terrestrial Services, as amended from time to time.

The licensee must apply in writing to Industry Canada for approval prior to implementing any Deemed Transfer, which will be treated as set out in CPC-2-1-23. The implementation of a Deemed Transfer without the prior approval of Industry Canada will be considered a breach of this condition of licence.

Should the licensee enter into any Agreement that provides for a Prospective Transfer with another holder of a Licence for commercial mobile spectrum (including any Affiliate, agent

¹⁴ Transfers of commercial mobile spectrum are subject to review in accordance with CPC-2-1-23, Licensing Procedures for Spectrum Licences for Terrestrial Services, and takes into consideration decisions released in the Framework Relating to Transfers, Divisions and Subordinate Licensing of Spectrum Licences for Commercial Mobile Spectrum.

or representative of the other licence holder), it must apply in writing to Industry Canada for review of the Prospective Transfer within 15 days of entering into the Agreement, which will be treated as set out in CPC-2-1-23. Should Industry Canada issue a decision indicating that the Prospective Transfer is not approved; it will be a breach of this condition of licence for a licensee to remain in an Agreement that provides for the Prospective Transfer for a period of more than 90 days from the date of the decision.

In all cases, the licensee must follow the procedures as outlined in CPC-2-1-23.

All capitalized terms have the meaning ascribed to them in CPC-2-1-23.

B2 – Industry Canada is seeking comments on the proposed condition of licence related to transferability and divisibility and the proposed wording above.

9.3 Deployment Requirements

64. The objective of a deployment requirement is to ensure that the AWS-3 spectrum is deployed in a timely manner. As well, such a condition will serve to deter the acquisition of spectrum licences by speculators and those whose intent is to prevent access to the spectrum by their competitors.

65. Similar conditions of licence have been applied to previously auctioned spectrum licences. In the 2008 AWS auction, levels of deployment were set for each licence area based on the population of the major urban centres for that particular licence area for Tier 2 and Tier 3 service areas. These levels were also set out for the general deployment requirements for the 700 MHz and 2500 MHz auctions.

66. It is proposed that the deployment levels established for the AWS-1 band be used as a basis for the deployment requirements for the AWS-3 licences. It is further proposed that these levels be required within 5 years and 10 years of the licence issuance. A 5-year deployment requirement will encourage use of the spectrum in key markets in a timely manner, whereas a 10-year deployment requirement will encourage deployment into additional communities.

67. Accordingly, the Department is proposing a 5-year deployment requirement based on the Tier 2 service area using the population coverage levels shown in Table 2. These population coverage levels are the same as the AWS-1 Tier 2 service area levels. This will encourage use of the spectrum in a timely manner.

68. The Department is also proposing a 10-year deployment requirement based on Tier 3 service area population shown in Table 3. These population coverage levels are the same as the AWS-1 Tier 3 service area levels. This will encourage deployment with Tier 2 service areas to cover additional communities.

69. Where a licence is transferred during the initial 10 years, the requirement for the new licensee to deploy will continue to be based on the initial licence issuance date.

70. Industry Canada proposes the following wording for this condition of licence:

Licensees will be required to demonstrate to the Minister of Industry that this spectrum has been put to use as specified in Table 2 within 5 years of the initial issuance of the licence, and as specified in Table 3 within 10 years of the initial issuance of the licence. When the spectrum is put to use, it shall be used to provide services predominately to Canadians within the service area.

Where a licence is transferred during the initial 10 years, the requirement for the new licensee to deploy to will continue to be based on the initial licence issuance date.

71. The following table lists the minimum 5-year deployment requirements for Tier 2 service areas.

Table 2 – Proposed 5-Year Deployment Requirements for Tier 2 Service Areas

Tier 2	Service Area Name	Population	Minimum Population Coverage
2-01	Newfoundland & Labrador	514,641	30%
2-02	Nova Scotia & Prince Edward Island	1,061,846	30%
2-03	New Brunswick	749,942	40%
2-04	Eastern Quebec	1,668,394	50%
2-05	Southern Quebec	5,683,036	50%
2-06	Eastern Ontario & Outaouais	2,347,808	50%
2-07	Northern Quebec	190,605	30%
2-08	Southern Ontario	10,090,766	50%
2-09	Northern Ontario	774,775	50%
2-10	Manitoba	1,206,968	50%
2-11	Saskatchewan	1,029,812	40%
2-12	Alberta	3,650,167	50%
2-13	British Columbia	4,399,939	50%
2-14	Yukon, Northwest Territories & Nunavut	107,215	20%

72. The following table lists the minimum 10-year deployment requirements for Tier 3 service areas contained in the AWS-3 Tier 2 service areas.

Table 3 – Proposed 10-Year Deployment Requirements for Tier 3 Service Areas Within Each Tier 2

Tier 2	Tier 3	Service Area Name	Population	Minimum Population Coverage
2-01 Newfoundland & Labrador	3-01	Newfoundland & Labrador	514,641	30%
2-02 Nova Scotia & Prince Edward Island	3-02	Prince Edward Island	140,204	30%
	3-03	Mainland Nova Scotia	786,567	40%
	3-04	Cape Breton	135,057	30%
2-03 New Brunswick	3-05	Southern New Brunswick	172,374	50%
	3-06	Western New Brunswick	217,152	30%
	3-07	Eastern New Brunswick	360,416	30%
2-04 Eastern Quebec	3-08	Bas du fleuve/Gaspésie	295,519	15%
	3-09	Québec	1,004,614	50%
	3-10	Chicoutimi-Jonquière	368,261	40%
2-05 Southern Quebec	3-11	Eastern Townships	543,762	30%
	3-12	Trois-Rivières	810,609	30%
	3-13	Montréal	4,204,654	50%
	3-14	Upper Outaouais	124,011	10%
2-06 Eastern Ontario & Outaouais	3-15	Ottawa/Outaouais	1,441,718	50%
	3-16	Pembroke	114,135	15%
	3-18	Cornwall	67,207	50%
	3-19	Brockville	84,068	40%
	3-20	Kingston	175,801	50%
	3-21	Belleville	196,021	40%
	3-22	Cobourg	62,610	30%
	3-23	Peterborough	206,250	50%
2-07 Northern Quebec	3-17	Abitibi	190,605	30%
2-08 Southern Ontario	3-24	Huntsville	78,790	30%
	3-25	Toronto	6,645,088	50%
	3-26	Barrie	673,898	30%
	3-27	Guelph/Kitchener	696,136	50%
	3-28	Listowel/Goderich/Stratford	134,384	15%
	3-29	Niagara-St. Catharines	368,119	50%
	3-30	London/Woodstock/St. Thomas	832,870	50%
	3-31	Chatham	100,951	50%
	3-32	Windsor/Leamington	389,729	50%
	3-33	Strathroy	170,801	50%

2-09 Northern Ontario	3-34	North Bay	126,711	40%
	3-35	Sault Ste. Marie	132,309	50%
	3-36	Sudbury	177,004	50%
	3-37	Kirkland Lake	114,942	30%
	3-38	Thunder Bay	223,809	40%
2-10 Manitoba	3-39	Winnipeg	1,032,187	50%
	3-40	Brandon	174,781	20%
2-11 Saskatchewan	3-41	Regina	366,413	40%
	3-42	Moose Jaw	100,292	25%
	3-43	Saskatoon	563,107	40%
2-12 Alberta	3-44	Edmonton	1,465,386	50%
	3-45	Medicine Hat/Brooks	190,930	30%
	3-46	Lethbridge	177,303	40%
	3-47	Calgary	1,390,206	50%
	3-48	Red Deer	240,343	25%
	3-49	Grande Prairie	185,998	25%
2-13 British Columbia	3-50	Kootenays	134,351	15%
	3-51	Okanagan/Columbia	415,214	40%
	3-52	Vancouver	2,684,495	50%
	3-53	Victoria	431,520	50%
	3-54	Nanaimo	186,369	40%
	3-55	Courtenay	114,658	50%
	3-56	Thompson/Cariboo	179,949	40%
	3-57	Prince George	187,802	40%
2-14 Yukon, Northwest Territories & Nunavut	3-58	Dawson Creek	65,553	30%
	3-59	Yukon, Northwest Territories & Nunavut	106,945	20%

B3 – Industry Canada is seeking comments on the proposed deployment condition of licence as stated above.

Part C – Auction Process and Rules

73. This section provides the proposed auction process and rules based on the proposals discussed in parts A and B.

10. Auction Format and Timing

10.1 Sealed-Bid Auction

74. The auction format should be simple, fair and transparent for bidders and lead to an efficient assignment of spectrum. In the selection of an auction format and related rules, consideration is given to the characteristics of the spectrum being auctioned, for example, the quantity and size of the blocks, as well as the similarities and complementarities that may exist among the blocks.

75. Industry Canada used the simultaneous multiple round ascending (SMRA) auction format in its first auction in 1999 and in four of its six subsequent spectrum auctions.¹⁵ The SMRA auction format has been used in spectrum auctions in many countries for more than 15 years. Countries that have used this format in recent spectrum auctions include Italy, Germany, Mexico, Spain, the United States, as well as the Special Administrative Region of Hong Kong.

76. In the recent 700 MHz auction and the upcoming 2500 MHz auction, Industry Canada chose the combinatory clock auction (CCA) format, which is a variation of the SMRA format in that all licences are auctioned at the same time over multiple rounds. Similar to the SMRA format, the CCA format provides a simple bidding process for participants, including a price discovery stage; however, instead of bidding on individual licences, bidders express their demand for a package of licences at the prevailing prices.

77. Both the SMRA and CCA formats have been used in auctions where there are multiple blocks, multiple licence areas available and stakeholders' need to consider different combinations of each when bidding.

78. Industry Canada has also used sealed-bid auctions¹⁶ to make spectrum available when there are few blocks available in a limited number of geographic areas.

79. A sealed-bid auction requires applicants to submit their bid to the Department in a sealed envelope prior to the receipt deadline for bids in order to apply for each licence. Following the receipt deadline for bids, departmental officials will open the bids, rank them and provisionally award a licence or licences to the highest bidder(s).

80. If the highest bidder for a particular licence is found eligible to be the licensee, that bidder would be awarded the licence.

¹⁵ Industry Canada used the SMRA format for the 24 and 38 GHz auction in 1999, the Personal Communications Services (PCS) auction in 2001, the 2300/3500 MHz auction in 2004, the two-phased residual auction for 2300/3500 MHz in 2004 (Phase 1) and 2005 (Phase 2), and the Advanced Wireless Services (AWS) auction in 2008.

¹⁶ Industry Canada used a sealed-bid, second-price auction design for two auctions held in 2009 (air-ground and the residual spectrum licences in the 2300/3500 MHz bands).

81. In the event of a tie, tied bidders will be requested to enter a second sealed bid in an attempt to break the tie. Should there be a third tie, bidders will be requested to enter a third sealed bid in an attempt to break the tie, and so on until there is no tie.

82. When proposing an auction format, Industry Canada must consider the benefits of an auction format versus the complexity of and time required to run the auction. The proposed band plan and limited number of blocks means that there are no generic blocks available, so there is little benefit to running a CCA for this spectrum. Although both CCA and SMRA formats provide stakeholders with the benefit of price discovery through the multiple rounds, these formats are more complex and time consuming for stakeholders. Given the proposal in Part A to make two blocks of unequal sizes available on a Tier 2 basis, Industry Canada is proposing to use a sealed-bid auction format for the AWS-3 auction. The use of a sealed-bid format allows the auction to take place in the spring of 2015 and the results to be known prior to the 2500 MHz auction.

83. To make this spectrum available in a timely manner and given the proposal for the simplified auction format, Industry Canada is proposing that the AWS-3 auction take place in March 2015, with the deadline for receipt of applications on January 30, 2015.

C1 – Industry Canada is seeking comments on the proposal to use the sealed-bid auction format for the AWS-3 auction.

10.2 Pricing Rules

84. Two common pricing rule options to calculate the prices to be paid by winning bidders are a first-price rule and a second-price rule. A first-price rule requires winning bidders to pay the full amount of their winning bid. Conversely, a second-price rule requires each winning bidder to pay an amount that is sufficient to ensure that no other bidder, or group of bidders, was prepared to pay more than the winning bidder for the licence(s) in question. With a second-price rule, the highest bidder is awarded the licence, but is required to pay an amount equal to the second highest bid on the licence or should there only be one bidder for a particular licence, the open bid amount.

85. Under a first-price rule, the bidder has a strong incentive to bid less than its true value, which can lead to inefficient outcomes. A second-price rule promotes a more efficient outcome by increasing the incentive for bidders to bid their true value. Bidders, knowing that they will only be required to pay the minimum amount necessary to win their package, will have the incentive to bid truthfully during the entire auction. As such, Industry Canada is proposing that the second-price rule be used for the AWS-3 auction.

C2 – Industry Canada is seeking comments on its proposal to use a second-price rule for the AWS-3 auction.

11. Bidder Participation

11.1 Affiliated and Associated Entities

86. In order to maintain auction integrity, as in past auctions, Industry Canada proposes that there be rules relating to the participation of affiliated and associated entities in order to ensure that each bidder is an independent bidder. As was the case in the 700 MHz auction and as in the rules for the upcoming 2500 MHz auction, it is proposed that affiliated entities not be allowed to participate separately in the auction. It is also proposed that associated entities only be allowed to participate separately if following a review of their application, Industry Canada is satisfied that their participation would not have an adverse impact on auction integrity. As in previous auctions, applicants will be required to disclose information about their company(ies), including affiliations and associations.

87. **Definition of Affiliated Entities:** It is proposed that the definition of affiliated entities remain essentially as it was for previous auctions, as follows:

An entity will be deemed to be affiliated with a bidder if it controls the bidder, is controlled by the bidder, or is controlled by any other entity that controls the bidder. "Control" means the ongoing power or ability, whether exercised or not, to determine or decide the strategic decision-making activities of an entity, or to manage or run its day-to-day operations.

88. **Presumption of Affiliate Status:** If a person owns, directly or indirectly, at least 20% of the entity's voting shares (or where the entity is not a corporation, at least 20% of the beneficial ownership in such entity), Industry Canada will generally presume that the person can exercise a degree of control over the entity to establish a relation of affiliation. The ability to exercise control may also be demonstrated by other evidence. Under this rule, Industry Canada may, at any time, ask a prospective bidder for information in order to satisfy any question of affiliation.

89. Applicants may provide information to Industry Canada to rebut the presumption of affiliate status. Applicants must notify the Department in writing if they are rebutting the presumption and must file material that will enable Industry Canada to review the question and make that determination. It is the responsibility of the applicant to file the appropriate material. Such material may include copies of the relevant corporate documentation relating to both entities; a description of their relationship; copies of any agreements and arrangements between the entities and affidavits or declarations, signed by officers from the two entities, dealing with the control as outlined in the definition of "affiliate" above.

90. Upon receipt of this material, Industry Canada will either make a ruling based on the materials submitted or ask the applicant for further information (and provide a timeline within which to do so).

91. Should the entities fail to provide the relevant information in a timely fashion in order to allow Industry Canada to complete its determination, the Department may make a ruling on eligibility, based on the above, that the entities in question are affiliated.

92. **Eligibility:** It is proposed that only one member of an affiliate relationship be permitted to become a qualified bidder in the auction or the affiliated entities may apply to participate jointly as a

single bidder. Affiliated entities must decide prior to the application deadline which entity will apply to participate in the auction. All affiliations must be disclosed at the time of the application.

93. **Proposed Definition of Associated Entities:** As a basis for participating in the AWS-3 auction, Industry Canada proposes that associated entities be defined as follows:

Any entities that enter into any partnerships, joint ventures, agreements to merge, consortia or any arrangements, agreements or understandings of any kind, either explicit or implicit, relating to the acquisition or use of any spectrum in the AWS-3 band will be treated as Associated Entities. Typical roaming and tower sharing agreements would not cause entities to be deemed associated.

94. As in past auctions, the proposed rules would allow carriers to form a bidding consortium and to participate in the auction as a single bidder if they wish to coordinate their bids through a single bidder. In such a case, the eligibility rules would apply jointly in each licence area. In the cases where the entities participating jointly include an LWSP, the LWSP eligibility to bid on set-aside spectrum would apply to all of the entities.

95. In support of the stated policy objectives of competition and investment, and in light of the high demand for capacity by customers (driven by the use of smart phones and tablets), the high cost of network deployment, particularly in rural areas, as well as the spectrum and network efficiencies that can be achieved through such arrangements, Industry Canada recognizes the need to provide increased flexibility in the treatment of a certain subset of associated entities, as long as this would not have an adverse impact on the integrity of the auction.

96. Depending on the nature of the association, it may not preclude the ability of the entities to participate separately in the auction. It should be noted that under the proposed definition, entities are only deemed to be associated with respect to arrangements that relate to the acquisition or use of spectrum in the AWS-3 band. For example, significant joint equipment purchase agreements and joint backhaul networks would not be captured under the definition unless they relate to the AWS-3 spectrum.

97. **Eligibility to participate separately in the auction:** The Department proposes that associated entities may apply to participate separately in the AWS-3 auction. Industry Canada is of the view that allowing associated entities that are competitors in the market to bid separately would not have an adverse impact on the integrity of the auction provided that auction participants comply with the information disclosure and anti-collusion rules as proposed below (Section 11.2 – Auction Integrity and Transparency and Section 11.3 – Prohibition of Collusion).

98. To obtain approval to participate separately in the auction, entities will be required to demonstrate to Industry Canada's satisfaction that they intend to separately and actively provide services in the applicable licence area. Associated entities wishing to participate in the auction separately would be required to submit their application at least two weeks in advance of the final application deadline. This requirement would provide Industry Canada with the additional time necessary to assess the nature of the association between the entities. Should the request be denied, only one of the associated entities will be eligible to apply to participate in the auction.

99. Bidders are reminded that the provisions of the *Competition Act* apply independently of, and in addition to, the proposed policy.

100. Please note that all entities participating in the auction will be subject to the same prohibition of collusion rules, as stated below in Section 11.2.

C4 – Industry Canada is seeking comments on the proposed Affiliated and Associated Entities rules that would apply to bidders in the AWS-3 auction.

11.2 Auction Integrity and Transparency

101. In order to ensure auction integrity and transparency, all entities wishing to participate in the auction process will be required to disclose in writing, as part of their application, the names of affiliated and associated entities. It is proposed that a narrative also be submitted, describing all key elements and the nature of the affiliation or association in relation to the acquisition of the spectrum licences being auctioned and the post-auction relationships of the said entities. It is proposed that this narrative include arrangements with another potential bidder that relate in any way to the future use of the AWS-3 spectrum directly or indirectly.

102. Some examples of arrangements that would require disclosure include, but are not limited to, agreements to establish a joint network using spectrum licences acquired by each of the entities and agreements with respect to a joint backhaul network. It is also proposed that agreements, such as significant joint equipment purchases, be disclosed. Typical roaming and tower sharing agreements and other agreements, such as the purchase of backhaul capacity, would not cause entities to be deemed associated entities and hence need not be disclosed.

103. The submitted narrative would be made available to other bidders and to the public on Industry Canada's website prior to the auction in order to ensure transparency of the licensing process.

11.3 Prohibition of Collusion

104. As in previous auctions, in order to ensure the integrity of the bidding process, all applicants will be prohibited from cooperating, collaborating, discussing or negotiating agreements with other bidders regarding the licences being auctioned or the post-auction market structure. Any such discussions occurring at any time prior to the public announcement of provisional licence winners by Industry Canada are prohibited.

105. In order to maintain the integrity of the auction, bidders are prohibited from signalling either publicly or privately, their bidding intentions or post-auction market structure related to spectrum in the AWS-3 band, while the auction is ongoing. This would include comments or any communication with or via the media. An example would be making a public announcement regarding which licences the company intends to bid on or its rollout intentions

106. Given that Industry Canada is proposing to allow the participation of some associated entities as separate bidders in this auction process, the proposed prohibition of collusion rules are as follows:

All applicants, including affiliated and associated entities, are prohibited from cooperating, collaborating, discussing or negotiating agreements with competitors, relating to the

licences being auctioned or relating to the post-auction market structure, including frequency selection, bidding strategy and post-auction market strategy, until after the public announcement of provisional licence winners by Industry Canada.

Prospective bidders will note that the auction application forms contain a declaration that the applicant will be required to sign certifying that the applicant has not entered into and will not enter into any agreements or arrangements of any kind with any competitor regarding the amount to be bid, bidding strategies or the particular licence(s) on which the applicant or competitors will or will not bid. For the purposes of this certification, “competitor” means any entity, other than the applicant or its affiliates, which could potentially be a bidder in this auction based on its qualifications, abilities or experience.

Prospective bidders should note that the definition of “affiliate” for the purposes of this licensing process (defined by reference to “control in fact”) differs from “affiliate” for the purposes of the *Competition Act*. The provisions of the *Competition Act* apply independently of, and in addition to, the policies contained in this Framework.

107. It is proposed that the rules regarding communications between entities during the auction process be the same as those described in the *Licensing Framework for Broadband Radio Service (BRS) – 2500 MHz Band*.

C5 – Industry Canada is seeking comments on the proposed rules prohibiting collusion that would apply to bidders in the AWS-3 auction.

12. Opening Bids

108. Opening bids are the prices for the spectrum licences at the start of the auction, and the minimum amount that will be accepted for each licence. The proposed opening bid prices are for spectrum blocks of 10 + 10 MHz (open block) and 15 + 15 MHz (set-aside block). The proposed opening bid prices can be found in Table 4 below.

109. The opening bid prices for the 700 MHz, 2008 AWS and upcoming 2500 MHz auctions were taken into consideration when developing the proposed opening bid prices for the AWS-3 auction. Given the current uncertainty with respect to the timing of an available equipment ecosystem, the cross-border interference issues and the propagation characteristics of this spectrum band, the proposed opening bid prices for the AWS-3 spectrum auction are comparable to the opening bid prices for the upcoming 2500 MHz auction.

110. The total amount of the proposed opening bids for all spectrum blocks is \$162,450,000.

Table 4 – Proposed Opening Bids by Service Area

Service Area #	Service Area Name	Population	\$/MHz/pop	Open Block Opening bid (\$)	Set-aside Block Opening bid (\$)
2-01	Newfoundland and Labrador	514,641	0.06	\$ 600,000	\$ 900,000
2-02	Nova Scotia and P.E.I.	1,061,846	0.06	1,300,000	1,900,000
2-03	New Brunswick	749,942	0.06	900,000	1,300,000
2-04	Eastern Quebec	1,668,394	0.08	2,700,000	4,000,000
2-05	Southern Quebec	5,683,036	0.12	13,600,000	20,500,000
2-06	Eastern Ontario & Outaouais	2,347,808	0.08	3,800,000	5,600,000
2-07	Northern Quebec	190,605	0.05	200,000	300,000
2-08	Southern Ontario	10,090,766	0.11	22,200,000	33,300,000
2-09	Northern Ontario	774,775	0.05	800,000	1,200,000
2-10	Manitoba	1,206,968	0.09	2,200,000	3,300,000
2-11	Saskatchewan	1,029,812	0.06	1,200,000	1,900,000
2-12	Alberta	3,650,167	0.09	6,600,000	9,900,000
2-13	British Columbia	4,399,939	0.1	8,800,000	13,200,000
2-14	Yukon, NWT and Nunavut	107,215	0.05	100,000	150,000
Total per block				\$ 65,000,000	\$ 97,450,000
Total all blocks				\$ 162,450,000	

C6 – Industry Canada is seeking comments on the proposed opening bids as presented in Table 4.

13. Auction Process

111. Based on the proposals in the previous sections, the following section outlines the proposed general process for submitting an application to participate in the AWS-3 auction, as well as the proposed general requirements and rules that apply prior to, during and post-auction.

13.1 Application to Participate

112. To participate in the auction, all applicants must submit the completed application forms, along with the financial deposit, details of the applicant's beneficial ownership, information on any affiliations and associations as discussed in Section 11 of this document, and other documentation as required, by the date specified. Industry Canada will publish the list of applicants on its website soon thereafter.

13.2 Submissions

113. In the interest of providing Industry Canada and other bidders with adequate information on the identity of all bidders, applicants are required to fully disclose the beneficial ownership for every entity that owns, directly or indirectly, 10% or more of the applicant's voting shares, non-voting shares, partnership interests, or any other beneficial interests, as the case may be. Associated entities wishing to participate separately in the AWS-3 auction are required to disclose the names of their associated entities within their application, and to provide narratives describing all key elements and the nature of

the association in relation to the acquisition of the spectrum licences being auctioned and the post-auction relationships of the said entities. A list of applicants, their beneficial ownership information and the narrative on any associated entity relationships will be made available on Industry Canada's Spectrum Management and Telecommunications website, prior to the auction, so that all bidders have knowledge of the identity of the other bidders. Applicants are not permitted to change their beneficial ownership within 10 days preceding the start of the auction.

114. Entities are encouraged to approach Industry Canada at least two weeks prior to the application date if seeking guidance or a predetermination as to whether their arrangement or proposed arrangement would be considered to give rise to a finding of association.

115. Where an applicant intends to bid on the set-aside licences, the applicant will be required to submit documentation demonstrating that it meets the eligibility criteria proposed in Section 8.1.

13.3 Pre-Auction Financial Deposit

116. In order to enhance the integrity of the auction, the Department will require that all bidders submit a pre-auction financial deposit with their application to participate in the auction.

117. Each participating bidder will be required to submit a financial deposit equal to the opening bid of the licence(s) on which it intends to bid. These amounts will be kept confidential.

118. Financial deposit(s) will be returned to any applicant not found to be a qualified bidder, any applicant that provides written notification to the Department of its withdrawal from the process prior to the auction's commencement, and any bidder that fails to win a licence during the auction.

13.4 Process to Submit Applications and Financial Deposit

119. The application forms, the associated documents (as per the instructions on the application forms) and the total pre-auction financial deposit are to be physically delivered to the Manager, Auction Operations, by the date specified. Industry Canada, under exceptional circumstances, may decide to accept additional documentation after the deadline, but prior to publication of the list of applicants, on request of the proposed applicant. Applications that are received without a deposit will be rejected.

120. Upon receipt of the application and the associated documentation, Industry Canada will send a notification to the applicant, advising that the application materials have been received and confirming the amount of the deposit that has been submitted. This notice will in no way mean that the application materials or the deposit have been approved.

121. The financial deposit must be in the form of a certified cheque, bank draft, money order, wire transfer, or an irrevocable standby letter of credit, payable to the Receiver General for Canada, drawn on a financial institution that is a member of the Canadian Payments Association. The elements required in a letter of credit, as well as a sample letter of credit acceptable to Industry Canada, will be provided as part of the application forms. Multiple letters of credit (or other forms of payment) from one or more financial institutions will be permitted within reason. Industry Canada will treat the financial deposit for an applicant as being the sum of the amounts of each accepted letter of credit. Each letter of credit must comply with the conditions laid out herein concerning letters of credit. No letter of credit shall have any

conditions requiring Industry Canada to draw on the letters in any particular order of priority, or requiring any letter to be drawn upon completely before drawing upon any other letter. In the event that a qualified bidder does not become a provisional licence winner, the financial deposits that were submitted in the form of a letter of credit will be returned. Refunds to deposits submitted in the form of a certified cheque, bank draft, money order or wire transfer will likely take longer (perhaps several weeks longer) than a refund submitted by way of a letter of credit, as a cheque from the Receiver General for Canada will need to be processed.

122. If, prior to the application deadline, an applicant wishes for any reason to amend any of the forms that it has submitted and/or its financial deposit, it may submit one or more amended forms and/or financial deposit with an accompanying letter explaining that the enclosed form(s) and/or financial deposit are to replace the one(s) previously submitted. Any such amendments are to be physically delivered to the Manager, Auction Operations, by the receipt deadline for applications to participate in the auction.

123. Upon receipt of an amended form(s) and/or financial deposit, Industry Canada will send a notification to the applicant that the amended form(s) and/or deposit have been received. The notification will state the amount of the new deposit that has been submitted. Where the financial deposit is in the form of an irrevocable standby letter of credit, the initial irrevocable standby letter of credit will also be returned to the applicant where applicable. Where the financial deposit is in a form other than an irrevocable standby letter of credit, any partial reimbursement of the financial deposit may take several weeks.

124. A list of all applicants will be made public via Industry Canada's Spectrum Management and Telecommunications website. The publication of this list in no way means that these applicants have been approved as qualified bidders.

13.5 Bidder Qualification

125. Industry Canada will review the application forms (and any associated documents) and the accompanying financial deposit after the closing date for the submission of applications. In this initial review, the Department will identify any errors in the application forms or financial deposit. It will also determine whether any additional information related to any affiliate or associated entity of the applicant and to the applicant's deployment levels, is required. Applications that are received without a deposit by the application deadline will be rejected.

126. Following the initial review period, Industry Canada will provide applicants with an opportunity to correct any errors or inconsistencies in their application or financial deposit, and will request any additional information related to affiliated or associated entities if required. A copy of the original applications may be returned to the applicant with a brief statement outlining any discrepancies and/or omissions, or requesting additional information. The applicant will be invited, in writing, to resubmit the corrected form and/or the additional information and to physically deliver this to the Manager, Auction Operations, by the date specified in the written statement.

127. Applicants that do not comply with this request will have their application to participate in the auction rejected. Applications that are rejected, including those for which an opportunity has been

provided to correct errors or inconsistencies identified by Industry Canada but are still found to be deficient, may be returned to the applicant, outlining the deficiencies, along with the applicant's deposit.

128. Those applicants that have submitted acceptable application materials, including the accompanying financial deposit, will receive a confirmation letter confirming that they are considered a qualified bidder. If requested, applicants will be advised as to whether they are eligible to bid on the set-aside spectrum.

129. A list of all qualified bidders, along with information related to their beneficial ownership, affiliates and associated entities, will be made public via Industry Canada's website.

13.6 Withdrawal of Application Forms

130. Applicants wishing to withdraw their application materials and have their financial deposits returned may do so, without prejudice, by sending a written request to the Manager, Auction Operations, on or before the business day preceding the opening of the auction.

13.7 Change of Information

131. Only the Auction Authorized Representative of the bidding company may notify the Manager, Auction Operations, of any material changes in the information submitted in the application documents. Written notification must be sent by the Auction Authorized Representative within five business days of such changes.

132. The Auction Authorized Representative is the individual that is nominated by the applicant to receive all documentation pertaining to the licensing process for spectrum licences of the AWS-3 band.

13.8 Submission of Auction Bids

133. A completed auction bid form, which includes the bid amount for each licence, must be placed in a separate, sealed, opaque envelope, with only the bidder's name, complete mailing address, email address, and the name of this licensing process clearly identified on the front of the envelope, and physically delivered to the Manager, Auction Operations, by the receipt deadline for sealed bids. The amount of each bid must reflect the amount that the bidder is willing to pay for the associated licence(s). No bids will be accepted after 12:00 p.m., noon, EDT, on the receipt deadline for sealed bids. Following the auction, the Department will publish, on its website, a list of all bids received.

13.9 Determination of Provisional Licence Winners

134. The sealed envelopes will be opened and examined by departmental officials following the receipt deadline for sealed bids. To be considered valid, a bid must be equal to or greater than the opening bid price; the previously submitted deposit must be equal to or greater than the amount of the opening bid price of the licence being bid upon; the bid form must be completed correctly and legibly; and the bid must be submitted by a qualified bidder. Note that, in all instances where there is no second bid, the opening bid prices noted in Section 12 will be considered the second highest bid (see Annex C for bidding examples).

135. Where a bid is placed on a licence on which the bidder is not eligible to bid, that bid will be ignored.

136. Bids will be made per licence; the winning bid will be the highest for each licence, and valid bids will be used to determine the provisional winning bid(s), using the rule that winners pay the bid of the second highest bidder(s).

137. In the event of a tie, bidders involved in the tie will be requested to enter a second sealed bid in an attempt to break the tie. If required, the Department will provide to those bidders the details of the procedure to submit further bids to break the tie. Should there be a third tie, bidders will be requested to enter a third sealed bid in an attempt to break the tie, and so on until there is no tie.

138. Following the determination of the provisional licence winners, the Department will publish, on its website, a list of all bids received, the name of the provisional licence winner(s) and the licence(s), if any, that did not receive bids. The Department will also notify the provisional winning bidder(s) and inform them of payment requirements.

139. The auction will be considered closed upon publication of the provisional winning bidder(s).

13.10 Bidder Payment

140. Within 10 business days following the publication of provisional licence winners, each provisional licence winner will be required to submit the outstanding balance of its winning bids. Failure by the winning bidder to make these final payments in a timely fashion or failure to come into compliance with the eligibility requirements of the *Radiocommunication Regulations* will result in the licence not being issued and the bidder will be subject to the applicable forfeiture penalty (see Section 13.11, Forfeiture Penalties).

141. All payments must be made by certified cheque, bank draft, or wire transfer, payable to the Receiver General for Canada, drawn on a financial institution that is a member of the Canadian Payments Association.

142. It is important to note that these bid payments for the initial 20-year term are in lieu of any fees fixed for the radio authorization under the *Radiocommunication Act* or any other Act.

13.11 Forfeiture Penalties

143. Following the conclusion of the auction, winning bidders that have submitted the highest bid on a licence but fail to comply with the specified payment schedule as outlined in Section 13.9, or fail to come into compliance with the eligibility requirements of the *Radiocommunication Regulations* will forfeit their bids and will no longer be deemed to be a provisional licence holder.

144. In such an event, the provisional licence will be offered to the next highest bidder, which will be able to acquire it at the bid price of the third highest bidder or, if there is no third highest bidder, at the opening bid price for the licence in question.

145. The forfeiture penalty will be the difference between the price that the first bidder would have paid and the ultimate selling price of the licence, and must be paid by the first bidder. Should this licence not sell, the ultimate selling price will be deemed to be zero.

146. In the event of licence forfeiture, the bidder's irrevocable standby letter of credit will be drawn upon for the full amount of the interim proxy forfeiture penalty. If the interim proxy forfeiture penalty is greater than the full amount of the bidder's irrevocable standby letter of credit, combined with any partial payment, or if the letter of credit has been returned or has expired, then the difference will be owing and payable to the Receiver General for Canada.

147. A bidder that forfeits on a licence (or any of that bidder's affiliated and associated entities) may not be eligible to bid on any subsequent licensing process for this band.

13.12 Issuance of Licences

148. Industry Canada will issue spectrum licences to provisional winners upon completion of payment of the sum of their bids and the sum of their penalties, if any.

C7 - Industry Canada is seeking comments on the proposed auction process for the AWS-3 auction.

14. Post-Auction Licensing Process for Unassigned Licences

149. Industry Canada will consider making unassigned licences available for licensing through an alternative process, which could include a subsequent auction at a later date following the close of the initial auction. The timing and form of such a process will depend on the demand for the available licences. Industry Canada will conduct a public consultation should it consider it necessary.

15. Licence Renewal Process

150. It is proposed that, following the end of the initial licence term, the licensee will have a high expectation that a new licence will be issued for a subsequent term through a renewal process unless a breach of licence condition has occurred, a fundamental reallocation of spectrum to a new service is required, or an overriding policy need arises.

151. Even where there is an expectation of renewal, the Minister of Industry may fix and amend the terms and conditions of spectrum licences for new licences after a renewal that differ from the terms and conditions of the licences as issued through this process (and as amended through the initial term). As noted in the FSAC, licence fees that reflect some measure of market value will apply to licences issued through a renewal process. Accordingly, the renewal process will serve to determine whether new licences will be issued, the terms and conditions that will apply to the new licences and the applicable licence fees.

152. Generally, approximately two years prior to the end of the licence term, Industry Canada will review whether there is a need for a fundamental reallocation of the spectrum to a new service, or whether an overriding policy need has arisen. A review of the licensee's continued compliance with the conditions of licence will also begin. Industry Canada will launch a public consultation to discuss whether or not, in light of the above-noted issues, new licences should be issued for a subsequent term. The consultation paper will also propose, and invite comments on, licence conditions and fees that would apply during the subsequent licence term.

153. It is proposed that the renewal process include a public consultation process that would commence approximately two years prior to the end of the licence term.

C8 – Industry Canada is seeking comments on the proposed renewal process for spectrum licences in the AWS-3 band.

Part D – Other Considerations

16. Revisions to the Canadian Table of Frequency Allocations

154. Frequency allocations are an important first step in developing spectrum utilization policies that foster the implementation of new radiocommunication services. Modifications to the CTFA are intended to reflect the public interest in introducing new wireless services that benefit Canadians and respond to marketplace demands. As a result, the Department is proposing several modifications to the CTFA to allow for the implementation of new mobile services in the AWS-3 band, including commercial mobile radio services.

155. Currently, the CTFA includes a primary allocation to the fixed service and a secondary allocation to the mobile service in the band 1755-1780 MHz. The mobile service includes domestic footnote C5, which limits the mobile use to the Government of Canada.

156. The CTFA also includes domestic footnote C37 to indicate the possible designation of the bands 1755-1780 MHz, 2020-2025 MHz and 2155-2180 MHz to AWS, subject to future consultation.

157. The Department proposes to make the following changes to the CTFA for the AWS-3 band:

- split the band 1755-1850 MHz into two bands 1755-1780 MHz and 1780-1850 MHz;
- upgrade the mobile allocation in the band 1755-1780 MHz to primary;
- remove footnote C5 from the band 1755-1780 MHz; and
- modify footnote C37 (CAN-06) to remove the bands 1755-1780 MHz and 2155-2180 MHz.

MHz

1 710 – 1 755	FIXED MOBILE 5.384A 5.149 5.341 5.385 5.386
1 755 – <u>1 780</u> –850	FIXED <u>MOBILE</u> 5.384A C5 5.386 C37
<u>1 780 – 1 850</u>	FIXED Mobile 5.384A C5 5.386 C37
1 850 - 2 000	FIXED MOBILE 5.384A 5.388A 5.388 5.389B C35
2 000 - 2 020	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389C 5.389E C36
2 020 - 2 025	FIXED MOBILE 5.388 MOD C37
2 025 - 2 110	EARTH EXPLORATION-SATELLITE (Earth-to-space)(space-to-space) FIXED SPACE OPERATION (Earth-to-space) (space-to-space) SPACE RESEARCH (Earth-to-space) (space-to-space) Mobile 5.391 C5 5.392
2 110 - 2 120	FIXED MOBILE 5.388A SPACE RESEARCH (deep space) (Earth-to-space) 5.388
2 120 - 2 180	FIXED MOBILE 5.388A 5.388 C37

C5 For the exclusive use of the Government of Canada.

MOD C37 The designation of the bands 1 755-1 780 MHz, 2 020-2 025 MHz and 2 155-2 180 MHz for Advanced Wireless Services may be the subject of a future public consultation.

D1 – Industry Canada is seeking comments on the proposed changes to the *Canadian Table of Frequency Allocations* for the AWS-3 band.

17. Incumbent Transition Plan

158. As discussed in Section 6.1, the band 1755-1780 MHz is licensed to some legacy fixed point-to-point microwave links and the band 2155-2180 MHz is licensed to some fixed MCS/MDS systems. Both bands are subject to moratoriums on new fixed licensing and in the case of the band 2155-2170 MHz, a transition policy for fixed systems has been in place since 2007.

159. Similar to the transition plans for the PCS and AWS-1 bands, Industry Canada is proposing that these incumbent fixed licensees be afforded a reasonable notification period before displacement following the AWS-3 licensing process. The Department proposes that the transition policy be based on the displacement of incumbents on a “where necessary” basis. The continued operation of existing microwave systems would be permitted if it does not prevent the timely deployment of planned AWS-3 systems.

160. Industry Canada proposes a process whereby fixed licensees that are preventing the deployment of AWS-3 systems are subject to displacement after receiving notification from the Department. Industry Canada would send such notifications in cases where an AWS-3 licensee demonstrates that the incumbent is preventing deployment. Note that this proposal would not prevent the parties in question from reaching arrangements between themselves whereby both operations can be accommodated.

161. After the close of the auction and licensing, the AWS-3 operator would be responsible for (a) identifying the specific fixed station frequency assignments that may prevent deployment of AWS-3 systems, (b) informing Industry Canada of the areas, the spectrum required and the time frames and (c) requesting Industry Canada to provide a displacement notice to the incumbent licensee. Industry Canada would assess the request and provide a displacement notice to the incumbent licensee, providing a minimum notification period as follows:

- i. one year for AWS-3 implementation in urban areas having a population of 30,000 or more, and those along major highway corridors;
- ii. two years for AWS-3 implementation in other markets; or
- iii. another time frame that is mutually acceptable between the new licensee and the incumbent.

D2 – Industry Canada is seeking comments on the proposed transition plan for the existing licensees in the bands 1755-1780 MHz and 2155-2180 MHz.

18. International Coordination

162. Licensees operating along the Canada-United States border, including Canadian and U.S. licensees in the AWS-3 band, are subject to cross-border spectrum sharing arrangements and treaties. In particular, under the terms of Treaty Series 1962 No. 15 — *Coordination and Use of Radio Frequencies — Exchange of Notes between Canada and the United States of America*, each country has a legal obligation to protect the other country's previously coordinated stations from potential interference from – and accept any interference that these stations may cause to – new users of this spectrum.

163. The Treaty includes incumbent U.S. government licensees in the band 1755-1850 MHz, many of which operate in the vicinity of the Canada-United States border (see Section 6.2). Although most of these operations will be transitioned to other spectrum over the next few years, some systems will remain in the AWS-3 band indefinitely. As these U.S. government incumbents have been coordinated with Canada, the Department will require Canadian AWS-3 licensees to protect these stations from interference and to accept any interference that they may cause as long as they continue to operate in this band.

164. More detailed information on U.S. incumbent use of the 1755-1780 MHz band and the transition plan for these systems can be found on the NTIA's website.¹⁷

165. Specific coordination rules and procedures for the sharing of the bands 1755-1780 MHz and 2155-2180 MHz between Canadian and U.S. licensees will be among the subjects of the ongoing negotiations between Industry Canada, and the FCC and the NTIA. The Department anticipates that the resulting coordination procedures will include transitional measures for protection of U.S. government incumbents, as well as licensee-to-licensee coordination between AWS-3 licensees in either country, similar to how coordination in the AWS-1 band is already carried out.¹⁸

166. Through their conditions of licence, AWS-3 licensees will be required to abide by certain technical requirements and to coordinate with U.S. licensees in accordance with the conditions of any international arrangements or agreements into which Canada enters.

¹⁷ See <http://www.ntia.doc.gov/category/500-mhz-initiative> and <http://www.ntia.doc.gov/category/aws-3-transition>.

¹⁸ See Arrangement I, <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08961.html>.

19. Other Technical Considerations

167. The Department proposes to harmonize its technical rules with those of the United States to the extent feasible. Doing so will ensure that Canadians have access to equipment that can be used throughout Canada and the United States. This will allow for economies of scale, which may lead to lower cost equipment for Canadian consumers, facilitate cross-border coordination and support the efficient use of the radio spectrum. This approach is also consistent with enabling guideline h) of the SPFC, which states that “spectrum policy and management should support the efficient functioning of markets by...harmonizing spectrum use with international allocations and standards, except where Canadian interests warrant a different determination.”

168. Detailed technical requirements will be identified in an applicable Standard Radio System Plan (SRSP) and Radio Standards Specification (RSS). Both will be developed in consultation with stakeholders, including the Radio Advisory Board of Canada. A summary of the proposed technical rules can be found in Annex D.

D3 – Industry Canada is seeking comments on its proposal to harmonize its technical rules for AWS-3, to the extent feasible, with the U.S. technical rules.

D4 – Industry Canada is seeking comments on the proposed technical rules in Annex D.

Additional Information

20. Next Steps

169. Industry Canada intends to review the comments received and publish its decision outlining a technical, policy and licensing framework in advance of the proposed auction timeline of March 2015.

21. Submitting Comments

170. Respondents are requested to provide their comments in electronic format (Microsoft Word or Adobe PDF) to the following email address: spectrum.auctions@ic.gc.ca.

171. In addition, respondents are asked to specify question numbers for ease of referencing and to provide supporting rationale for each response.

172. Written submissions should be addressed to the Senior Director, Spectrum Licensing and Auction Operations, Industry Canada, 235 Queen Street, Ottawa, Ontario K1A 0H5. All submissions should cite the *Canada Gazette*, Part I, the publication date, the title and the notice reference number (SLPB-004-14). Parties should submit their comments no later than September 4, 2014, to ensure consideration. Soon after the close of the comment period, all comments received will be posted on Industry Canada’s Spectrum Management and Telecommunications website at <http://www.ic.gc.ca/spectrum>.

173. Industry Canada will also provide interested parties with the opportunity to reply to comments from other parties. Reply comments will be accepted until October 2, 2014.

174. All comments and reply comments will be published, so those making submissions are asked not to provide confidential or private information in their submissions.

175. After the initial comment period, Industry Canada may, at its discretion, request additional information if needed to clarify significant positions or new proposals. Should additional information be requested, the reply comment deadline may be extended.

22. Obtaining Copies

176. All spectrum-related documents referred to in this paper are available on Industry Canada's Spectrum Management and Telecommunications website at <http://www.ic.gc.ca/spectrum>.

177. For further information concerning the process outlined in this consultation or related matters, contact:

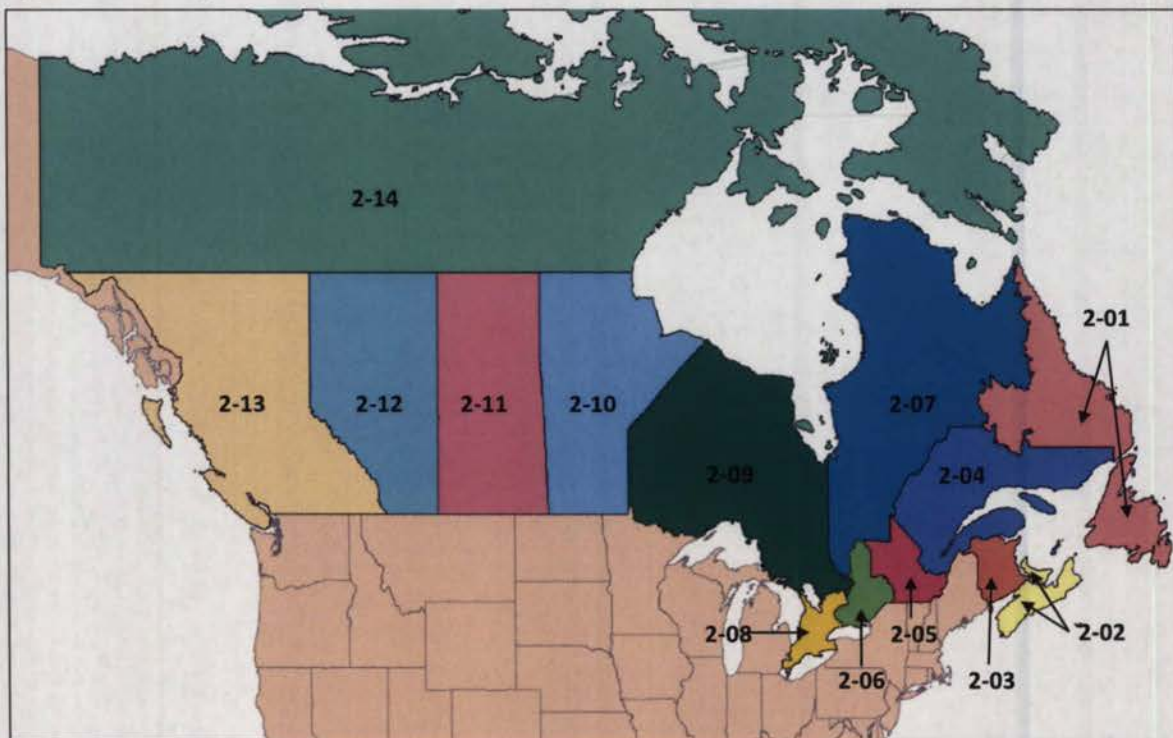
Industry Canada
c/o Senior Director, Spectrum Licensing and Auction Operations
235 Queen Street
Ottawa, Ontario K1A 0H5
Telephone: 613-990-4411
Fax: 613-957-4067
Email: spectrum.auctions@ic.gc.ca

Annex A – Tier 2 Service Areas

Table A1 – Tier 2 Service Areas and Population

Tier 2	Service Area Name	Population
2-01	Newfoundland & Labrador	514,641
2-02	Nova Scotia & Prince Edward Island	1,061,846
2-03	New Brunswick	749,942
2-04	Eastern Quebec	1,668,394
2-05	Southern Quebec	5,683,036
2-06	Eastern Ontario & Outaouais	2,347,808
2-07	Northern Quebec	190,605
2-08	Southern Ontario	10,090,766
2-09	Northern Ontario	774,775
2-10	Manitoba	1,206,968
2-11	Saskatchewan	1,029,812
2-12	Alberta	3,650,167
2-13	British Columbia	4,399,939
2-14	Yukon, Northwest Territories & Nunavut	107,215

Figure A1 – Map of Tier 2 Service Areas in Canada



Annex B – Proposed Conditions of Licence

178. In addition to the proposed conditions of licence in Section 9, it is proposed that the following apply to AWS-3 licences.

179. **Eligibility:** The licensee must comply on an ongoing basis with the applicable eligibility criteria in subsection 9(1) of the *Radiocommunication Regulations*. The licensee must notify the Minister of Industry of any change that would have a material effect on its eligibility. Such notification must be made in advance for any proposed transactions within its knowledge.

180. **Radio Station Installations:** The licensee must comply with Client Procedures Circular CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems*, as amended from time to time.

181. **Provision of Technical Information:** The licensee must provide, and maintain, up-to-date technical information on a particular station or network in accordance with the definitions, criteria, frequency and timelines specified in Client Procedures Circular CPC-2-1-23, *Licensing Procedure for Spectrum Licences for Terrestrial Services*, as amended from time to time.

182. **Compliance with Legislation, Regulation and Other Obligations:** The licensee is subject to, and must comply with, the *Radiocommunication Act* and the *Radiocommunication Regulations*, as amended from time to time. The licensee must use the assigned spectrum in accordance with the *Canadian Table of Frequency Allocations* and the spectrum policies applicable to this band, as amended from time to time. The licence is issued on condition that all representations made in relation to obtaining this licence are all true and complete in every respect.

183. **Technical Considerations, and International and Domestic Coordination:** The licensee must comply on an ongoing basis with the technical aspects of the appropriate Radio Standards Specifications (RSS) and Standard Radio System Plans (SRSP), as amended from time to time. Where applicable, the licensee must use its best efforts to enter into mutually acceptable agreements with other parties for facilitating the reasonable and timely development of their respective systems, and to coordinate with other licensed users in Canada and internationally.

184. The licensee must comply with the obligations arising from current and future frequency coordination agreements established between Canada and other countries and shall be required to provide information or take actions to implement these obligations as indicated in the applicable SRSP. Although frequency assignments are not subject to site licensing, the licensee may be required through the appropriate SRSP to furnish all necessary technical data for each relevant site.

185. **Lawful Interception:** The licensee operating as a telecommunication common carrier using the spectrum for voice telephony systems must, from the inception of service, provide for and maintain lawful interception capabilities as authorized by law. The requirements for lawful interception capabilities are provided in the *Solicitor General's Enforcement Standards for Lawful Interception of Telecommunications* (Rev. Nov. 95). These standards may be amended from time to time.

186. The licensee may request the Minister of Industry to forbear from enforcing certain assistance capability requirements for a limited period of time. The Minister, following consultation with Public Safety Canada, may exercise the power to forbear from enforcing a requirement or requirements where,

in the opinion of the Minister, the requirement is not reasonably achievable. Requests for forbearance must include specific details and dates indicating when compliance to the requirement can be expected.

187. **Research and Development:** The licensee must invest, as a minimum, 2 percent of its adjusted gross revenues resulting from the use of this licence, averaged over the term of the licence, in eligible research and development (R&D) activities related to telecommunications. Eligible R&D activities are those which meet the definition of scientific research and experimental development adopted in the *Income Tax Act*, as amended from time to time. Adjusted gross revenues are defined as total service revenues, less inter-carrier payments, bad debts, third party commissions, and provincial goods and services taxes collected. The licensee is exempt from R&D expenditure requirements if it, together with all affiliated licensees that are subject to the R&D condition of licence, has less than \$1 billion in annual gross operating revenues from the provision of wireless services in Canada, averaged over the term of the licence. For this condition of licence, an affiliate is defined as a person who controls the carrier, or who is controlled by the carrier or by any person who controls the carrier, as per subsection 35(3) of the *Telecommunications Act*.

188. **Mandatory Antenna Tower and Site Sharing:** The licensee must comply with the mandatory antenna tower and site sharing requirements set out in Client Procedures Circular CPC-2-0-17, *Conditions of Licence for Mandatory Roaming and Antenna Tower and Site Sharing and to Prohibit Exclusive Site Arrangements*, as amended from time to time.

189. **Mandatory Roaming:** The licensee must comply with the roaming requirements set out in Client Procedures Circular CPC-2-0-17, *Conditions of Licence for Mandatory Roaming and Antenna Tower and Site Sharing and to Prohibit Exclusive Site Arrangements*, as amended from time to time.

190. **Annual Report:** The licensee must submit an annual report for each year of the licence term, which includes the following information:

- a statement indicating continued compliance with all conditions of licence;
- an update on the implementation and spectrum usage within the area covered by the licence;
- existing audited financial statements with an accompanying auditor's report;
- a statement indicating the annual gross operating revenues from the provision of wireless services in Canada and, where applicable, the annual adjusted gross revenues resulting from the use of this licence, as defined in these conditions of licence;
- a report of the R&D expenditures as set out in these conditions of licence (Industry Canada may request an audited statement of R&D expenditures with an accompanying auditor's report at its discretion);
- supporting financial statements where a licensee is claiming an exemption based on, together with all affiliated licensees that are subject to the R&D condition of licence, it having less than \$1 billion in annual gross operating revenues from the provision of wireless services in Canada, averaged over the term of the licence;

- a copy of any existing corporate annual report for the licensee's fiscal year with respect to the authorization; and
- other information related to the licence as specified in any notice updating the reporting requirements as issued by Industry Canada.

191. All reports and statements are to be certified by an officer of the company and submitted, in writing, within 120 days of the licensee's fiscal year-end. Confidential information provided will be treated in accordance with subsection 20(1) of the *Access to Information Act*.

192. Reports are to be submitted to Industry Canada at the following address:

Industry Canada
Spectrum Management Operations Branch
Manager, Emerging Networks
235 Queen Street (JETN, 15th floor)
Ottawa, Ontario
K1A 0H5

193. Where a licensee holds multiple licences, spectrum implementation reports should be broken down by service area. This information, including the extent of implementation and spectrum usage, is important for analyzing each licensee's individual performance against its conditions of licence. In addition, it allows Industry Canada to monitor the effectiveness of these conditions in meeting the policy objectives regarding the band and the Department's intent that the spectrum be deployed in a timely manner for the benefit of Canadians.

194. **Amendments:** The Minister of Industry retains the discretion to amend these terms and conditions of licence at any time.

Annex C – Bidding Examples

195. The following examples illustrate different bidding scenarios and the provisional winning bid for each.

Example 1:

Tier	Block Size	Opening Bid (\$)	Bidder 1's Bid (\$)	Bidder 2's Bid (\$)	Bidder 3's Bid (\$)
2-05	30 MHz	20,500,000	22,000,000	20,600,000	24,500,000

196. Let us assume that there are three bidders interested in a licence for the set-aside block (30 MHz) in Tier 2-05. Bidder 1 places a bid of \$22,000,000, Bidder 2 places a bid of \$20,600,000 and Bidder 3 places a bid of \$24,500,000. Bidder 3 would be declared the provisional winner and would be required to pay the second highest bid value of \$22,000,000.

Example 2:

Tier	Block Size	Opening Bid (\$)	Bidder 1's Bid (\$)	Bidder 2's Bid (\$)	Bidder 3's Bid (\$)
2-03	20 MHz	900,000	917,000	1,000,000	1,000,000

197. Let us assume that there are three bidders interested in a licence for the open block (20 MHz) in Tier 2-03. Bidder 1 places a bid of \$917,000, Bidder 2 places a bid of \$1,000,000 and Bidder 3 places a bid of \$1,000,000. Bidders 2 and 3 have tied with a bid of \$1,000,000 and are asked to re-bid.

Example 3:

Tier	Block Size	Opening Bid (\$)	Bidder 1's Bid (\$)
2-12	30 MHz	9,900,000	10,700,000

198. Let us assume that there is only one bidder interested in the licence for the set-aside block in Tier 2-12. Bidder 1 places a bid of \$10,700,000. Bidder 1 would be declared the provisional winner. Since there no other bids on the licence, Bidder 1 would pay the opening bid price of \$9,900,000.

Annex D – Proposed Technical Rules

199. Industry Canada proposes to adopt an out-of-band (OOB) emission limit of $43 + 10 \log_{10}(P)$ dB at the band edges, 1755 MHz, 1780 MHz, 2155 MHz and 2180 MHz.
200. Industry Canada proposes that fixed and base stations may operate up to a maximum 1640 watts/MHz equivalent isotropically radiated power (e.i.r.p.) (i.e. no more than 1640 watts in any 1 MHz band segment). Fixed and base stations located outside of large or medium population centres¹⁹ may increase e.i.r.p. to a maximum of 3280 watts/MHz (i.e. no more than 3280 watts in any 1 MHz band segment).
201. Industry Canada proposes to limit the power of fixed, mobile and portable (hand-held) stations to maximum e.i.r.p. of 1 watt. Mobile and portable stations shall limit their power to the minimum necessary for successful communications.
202. To protect stations operating in adjacent service areas from co-channel interference, Industry Canada proposes that base stations not be permitted to generate a power flux density that exceeds -106 dBW/m² in any 1 MHz outside the operator's service area unless agreed otherwise by the affected operator.
203. As discussed in Section 18, licensees will be required to abide by the conditions of any international arrangements or agreements into which Canada enters.

¹⁹ Population centres are defined in Statistics Canada Census Dictionary. A large urban population centre is defined as an area with a population of 100,000 or more and a population density of 400 persons or more per square kilometre. A medium population centre is defined as an area with a population between 30,000 and 99,999, and a population density of 400 persons or more per square kilometre.

Statistics Canada 2011 Census Dictionary, *Statistics Canada Catalogue no. 98-301-XWE*, February 8
(<http://www12.statcan.gc.ca/census-recensement/2011/ref/dict/geo049a-eng.cfm>).

MapInfo files describing boundaries of these centres are available at <http://spectrumgeo.ic.gc.ca/txt/download-eng.html>.

