Industry Canada Industrie Canada

DGSO-006-12
October 2012

Spectrum Management and Telecommunications

Consultation on Renewal Process for 2300 MHz and 3500 MHz Licences

Aussi disponible en français

Canada

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1. Intent

1. Through the release of this document, Industry Canada seeks to consult on the renewal process for licences for wireless communication services (WCS) and fixed wireless access (FWA). These services operate in the frequency bands 2305-2320 MHz and 2345-2360 MHz (2300 MHz band) and 3475-3650 MHz (3500 MHz band), respectively. Three auctions have been held to award licences in these bands: a simultaneous multiple-round ascending (SMRA) auction in 2004, a two-phase residual auction in 2004 and 2005, and a sealed-bid, second-price auction in 2009. Licences awarded under these three auctions begin to expire in March 2014 and are within the scope of this renewal process.

2. Industry Canada is seeking comments concerning the renewal of these licences.

2. Mandate

3. 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 resource use and for ensuring effective management of the radio frequency spectrum resource.

3. Legislation

4. 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. Background

4.1 Auctions of 2300 MHz and 3500 MHz Spectrum Licences

5. In September 2003, the Minister of Industry announced an auction of spectrum licences in the 2300 MHz and 3500 MHz bands. The 2300 MHz licences were defined as one paired block (15 MHz + 15 MHz), labelled Block W. The 3500 MHz licences were defined as three paired blocks (25 MHz + 25 MHz)—labelled Blocks D/H, E/J and F/K—and one unpaired block (25 MHz), labelled Block G (see Table 1). Both the 2300 MHz and the 3500 MHz bands were (and currently remain) licensed for use in Tier 4 service areas.

Table 1 – Spectrum Blocks

Spectrum Block	Auction Label	Lower Frequency (MHz)	Upper Frequency (MHz)
D/H	D	3475-3500	3575-3600
E/J	E	3500-3525	3600-3625
F/K	F	3525-3550	3625-3650
G	G	3550-3575	N/A
W	W	2305-2320	2345-2360

6. In February 2004, Industry Canada conducted an SMRA auction that awarded 392 of the 849 available licences to 22 successful bidders for a total of $11.2 million.

7. The 457 licences that remained unassigned after the February 2004 SMRA auction were made available through a two-phase residual auction process. The first phase of the auction, initiated in August 2004, resulted in the award of 144 spectrum licences, with bids totalling $876,000. The second phase of the auction, launched in January 2005, awarded 306 spectrum licences to 12 companies, with bids totalling $56.6 million.

8. In June 2009, a sealed-bid, second-price auction was held to award the 10 remaining licences (eight in the 3500 MHz band and two in the 2300 MHz band).[1] These licences were awarded to five bidders, whose bids totalled $123,970.

9. A total of 172 licences in the 2300 MHz band were awarded to 13 licensees for $18,451,686, making the weighted average[2] of this value $0.0110 per MHz per population.

10. A total of 677 licences in the 3500 MHz band were awarded to 33 licensees for $50,422,614. The weighted average of this value is $0.0063/MHz/pop.

4.2 Incumbents in the 2300 MHz and 3500 MHz Bands

11. As indicated in the *Policy and Licensing Procedures for the Auction of Spectrum Licences in the 2300 MHz and 3500 MHz Bands*, revised in July 2004 (hereinafter referred to as "the Policy"[3]), first-come, first-served (FCFS) incumbents remain in these auctioned spectrum bands in some geographic areas. Section 5 of the Policy ("Incumbents, Transition Policy and Technical Considerations") outlines the applicable transition requirements or coordination requirements, or both, of the incumbents and auction winners. Licensees that hold auctioned WCS or FWA spectrum must follow the provisions set out under sections 5.3.2 and 5.4.2 of the Policy when dealing with the FCFS

[1] Three licences were returned before the 2009 auction because a licensee exceeded the spectrum aggregation limit. Therefore, the total number of licences available for the 2009 auction changed from 7 to 10.

[2] A weighted average, in the context of the 2.3 and 3.5 GHz auction, takes into account the differences in population size of each tier.

[3] Available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf06013.html.

incumbents. Licensees are reminded that the Policy is still in place, and that they are responsible for initiating the transition process, if required. No changes to the Policy are proposed at this time.

4.3 Extension of Deployment Condition and New Deployment Requirements

12. Auctioned licences include a requirement for the implementation of spectrum usage,[4] whereby the licensees are required to demonstrate that the spectrum has been put to use at a level acceptable to Industry Canada.

13. Initially, the Policy stated the following: "The licensee must demonstrate to the Department that their spectrum is being put to use at a level acceptable to the Department within **five years** of receipt of licence(s). The establishment of coverage to 50% of the population within the licensed service area, or some other indicator of usage that is acceptable to the Department . . . will be required." **(Note added emphasis.)**

4.3.1 First Extension

14. A number of licensees requested an extension to the implementation requirement in 2009, citing both the lack of affordable and mature equipment as well as the state of technical rules governing the band in the United States as reasons for delayed deployment in the 2300 MHz band.

15. Although WiMAX (Worldwide Interoperability for Microwave Access) equipment was available for use in the 3500 MHz band, licensees advised Industry Canada that problems in compatibility between different versions of the standard resulted in their not having sufficient confidence to deploy.

16. In July 2009, Industry Canada issued a letter to licensees[5] that recognized the extenuating circumstances affecting deployment plans and granted all 2300 MHz and 3500 MHz licensees an extension to the deployment condition until the end of **year eight** of their licence term.

4.3.2 Second Extension

17. In early 2012, Industry Canada received several requests from licensees in the 2300 MHz and 3500 MHz bands for a further extension to the implementation requirement and for clarification regarding an acceptable level of deployment.

18. In July 2011, Industry Canada had requested an update on the status of deployment from all licensees whose licences were awarded through the first and second auctions, noting that for some licensees, year eight of their licence term would end in March 2012. Reported deployment was still very low; as many as 98% of licences in the 2300 MHz band and 75% of licences in the 3500 MHz band were not deployed.

19. Licensees in the 2300 MHz band indicated that significant technological uncertainty remained because of circumstances in the United States.[6] For the 3500 MHz band, licensees that had not deployed

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4 Also known as the "deployment requirement."

5 Available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09557.html.

6 Refer to Section 5 for more details.

stated that although WiMAX equipment was available, most preferred to deploy Long-Term Evolution (LTE) technology and were waiting for it to become commercially available.

20. After reviewing the requests, Industry Canada decided to extend the deadline to the end of each licence's **10-year** term and sent letters to all licensees in the 2300 MHz band[7] and 3500 MHz band,[8] advising them of this decision. To increase business certainty, Industry Canada also clarified the required level of deployment. Specific deployment requirements for each Tier 4 licence area are now in place and will be used to assess the deployment condition of licence at the end of the licence term. These deployment requirements take into account the population size of the major urban centers within each tier, along with the population density. Tier 4 deployment requirements can be viewed on Industry Canada's website[9] and in Annex A. The revised deployment condition of licence, effective as of March 29, 2012, applies to existing spectrum licences in both bands that were obtained through a competitive licensing process.

4.3.3 Proposed Changes to the Current Deployment Requirement

21. Some licensees have been deploying fixed links not servicing an end user directly in the bands (e.g., point-to-point microwave). Although the Policy does not prohibit this use, when the WCS and FWA spectrum was first designated, it was expected to be used primarily for the provision of broadband wireless access (BWA). Thus, the deployment requirements are currently designed for access technology, where coverage to population is an appropriate metric to ensure that the spectrum is being put to use.

22. For point-to-point or point-to-multipoint (not servicing an end user directly) deployments, an alternative metric is required. For the 2300 MHz band, the U.S. Federal Communications Commission (FCC) has established point-to-point deployment requirements of 15 links per million population by year seven of the second 10-year licence term and 30 links per million population by year nine. Industry Canada has used a similar requirement of 8 links per million population[10] in the implementation of point-to-point links in the 24 GHz and 38 GHz bands, although the technical characteristics of spectrum above 20 GHz are significantly different from those in the 2300 MHz and 3500 MHz bands.

23. Applying such a requirement as an alternative to the existing deployment targets would enable licensees to meet the deployment conditions either by deploying wireless access services, as first envisioned in the spectrum utilization policies for the WCS and FWA bands, or by deploying other fixed services (e.g., point-to-point systems). This choice between two types of services recognizes the difficulties in securing equipment for wireless access in these bands.

24. Because this alternative deployment requirement is similar to the approach in the U.S. for point-to-point systems and it has already been used for other bands in Canada; it may therefore be suitable for use in this instance.

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7 Available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10351.html.

8 Available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10350.html.

9 View the new Tier 4 deployment requirements at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10287.html.

10 See Section 1.1 of DGRB-004-09, *Decision on the Renewal of 24 and 38 GHz Spectrum Licences and Consultation on Spectrum Licence Fees for 24, 28 and 38 GHz Bands*, available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09302.html#tocA1_1

25. Considering the similar frequency range and timelines, Industry Canada proposes to impose a deployment requirement of 15 links per million population per Tier 4 area for both the 2300 MHz and the 3500 MHz bands by the end of the term. This requirement for non-FWA fixed services is an alternative to the requirement for access technology (also known as percentage of population with coverage).

26. It is proposed that this condition will apply to the current licence term upon the release of the decision. The proposed wording of the condition of licence is as follows:

> **The licensee must demonstrate to Industry Canada that its spectrum is being put to use at a level acceptable to the Department by the end of the licence term. Licensees must demonstrate coverage at the level indicated on Industry Canada's Spectrum Management and Telecommunications website: *Tier 4 Deployment Requirements for 2300 and 3500 MHz Licences*, http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10287.html.**

(1) Industry Canada seeks comments of the proposed wording of the condition of licence related to deployment. Comments are also sought on the following proposals that:

A. deployments of fixed links not servicing an end user directly should be considered as an alternative method to meet WCS and FWA spectrum deployment licence conditions; and

B. when a requirement is considered for fixed links not servicing an end user directly, it should be set at 15 links per million population, per Tier 4 area at the end of the licence term.

When proposing an alternative deployment requirement for either WCS or FWA, provide a rationale for each band.

Note that the questions intended for respondents' comments will continue on page 14 of this consultation.

5. Spectrum in the 2300 MHz Band (WCS)

5.1 The 2300 MHz Band Internationally

27. Global deployment in the 2300 MHz band, although limited, has been gradually increasing. WiMAX equipment is currently deployed in a number of countries. It is expected that by 2014, several LTE networks with time-division duplexing (LTE TDD) using the 2300 MHz spectrum will be launched in the form of new deployments and WiMAX-to-LTE TDD migration — predominantly in China, India, Malaysia, Australia and South Korea. In particular, operators in India and China have been conducting field trials and demonstrations of LTE TDD technology through joint ventures with manufacturers and chipset vendors.

28. Although the amount of designated spectrum differs among countries, most band plans within the Asia-Pacific region consist of 90 to 100 MHz of contiguous spectrum. In Hong Kong, South Korea and Malaysia, 90 MHz (3 × 30 MHz) of contiguous spectrum was designated for mobile deployments. In India, a total of 40 MHz (2 × 20 MHz) of spectrum was allocated in each service area for Broadband Wireless Access (BWA). These band plans differ significantly from those in North America, where only 30 MHz (15 + 15 MHz) of non-contiguous spectrum is available.

29. In 1997 in the United States, the FCC auctioned and issued WCS licences for a 10-year term with a requirement to demonstrate "substantial service" by 2007. In 2006, the FCC granted a three-year extension (until July 21, 2010) on this requirement, in response to licensees' claims that both a lack of equipment availability and uncertainty regarding the technical rules for the operation of satellite digital audio radio service (S-DARS) terrestrial repeaters had negatively affected the use and development of the band. The FCC did not extend the licence term at that time, thereby requiring licensees to file renewal applications before the end of the term in 2007.

30. In May 2010, the FCC imposed a freeze on the submission of competing applications (and rejected those previously filed) and granted the renewal for a 10-year term (to 2017). To help ensure deployment within the band, the FCC included enhanced deployment requirements in the renewals for both mobile and fixed operations.

31. To facilitate mobile service deployment in the WCS band, the FCC adopted new rules[11] governing the operation of WCS and S-DARS, based on technical analyses and industry interference test results. However, the WCS Coalition filed a petition for reconsideration in September 2010, requesting that the FCC revisit and modify some of the new rules. The FCC has not yet addressed this petition.

32. In June 2012, AT&T and SiriusXM submitted to the FCC a joint proposal that reflects a compromise between WCS and S-DARS interests. This proposal is meant to enable the deployment of LTE systems in the WCS bands while protecting the S-DARS operations, which may lead to changes to the WCS band plan and spectrum usage policy[12] in the United States. These changes may influence the Canadian band plan and equipment ecosystem, as described in paragraphs 35 and 39.

[11] See FCC 10-82, Report And Order and Second Report And Order. In the Matter of: Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band (WT Docket No. 07-293); Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band (IB Docket No. 95-91, GEN Docket No. 90-357, RM-8610). http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-82A1.doc

[12] This joint proposal requests prohibition of mobile and portable operations in the C and D Blocks (i.e. bands 2315-2320 MHz and 2345-2350 MHz). It suggests that these blocks could be used for wireless backhaul, other fixed operations or innovative wireless applications, such as the ground-to-air service proposed by GoGo, Inc. in their ex parte filing of January 13, 2012.

5.2 Current 2300 MHz Spectrum Usage and Band Plan in Canada

33. In Canada, the 2300-2400 MHz band is allocated on a primary basis to the fixed, mobile and radiolocation services, and to the broadcasting-satellite service (sound) in the band 2310-2360 MHz.[13] The 2305-2320 MHz and 2345-2360 MHz portions were specifically identified and designated for WCS applications in fixed and mobile environments. The 2320-2345 MHz portion was designated for S-DARS and its complementary terrestrial broadcasting component.

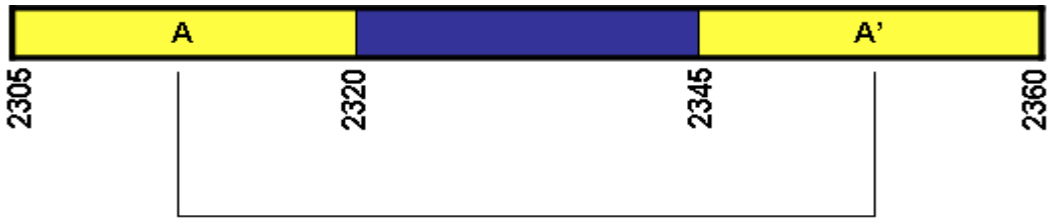

Figure 1 – 2300 MHz Wireless Communication Services (WCS), 30 MHz

34. To facilitate the expansion and enhancement of innovative wireless services such as high-speed Internet, from 2004 to 2009 Industry Canada awarded licences for 15 + 15 MHz blocks in the WCS band. Although the expected use of the spectrum is primarily for the provision of BWA, licensees are free to deploy the spectrum for other applications under the mobile and fixed services, as long as they comply with the technical rules.

35. If new radio applications emerge in the WCS band, Industry Canada may consider revising both the spectrum utilization policy and the band plan for portions of the band.

5.3 Equipment Availability in the 2300 MHz Band

36. Prior to June 2001, spectrum at 2300 MHz in Canada was used for point-to-point networks. These systems were grandfathered following a licensing moratorium placed on 2285-2360 MHz in 2000.[14] Subsequently, the band was repurposed for WCS, a wireless access technology.[15] At that time, it was anticipated that the 2300 MHz band would be used predominantly for the provision of local broadband access in fixed point-to-multipoint configurations, although licensees could deploy a full range of systems, including mobile services. However, the restrictive technical specifications placed on mobile devices, such as the out-of-band emission limits (similar to those used in the United States), may

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[13] International Telecommunication Union, Radio Regulations, Edition 2008, Volume 1: Articles. Footnote 5.393: *Additional allocation in Canada, the United States, India and Mexico*, the band 2 310-2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC-03), with the exception of '*resolves* 3' in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. (WRC-07).

[14] SP-2285-2483.5 — Proposed Revisions to the Spectrum Utilization Policy (SP 1-20 GHz) for Services in the Band 2285-2483.5 MHz, March 2000.

[15] SP 2285 MHz - Revisions to the Spectrum Utilization Policy for Services in the Frequency Range 2285-2483.5 MHz, June 2001.

have reduced the equipment availability for mobile services in Canada. Consequently, there has been virtually no deployment of mobile services in the band.

37. In order to facilitate operations more effectively through the enactment of mobile broadband technologies in the band, Industry Canada is updating the technical rules for WCS. Harmonizing the current rules with the rules that were newly adopted by the FCC in 2010 is a possibility that is also being considered. This review of the rules, undertaken in collaboration with the Radio Advisory Board of Canada, aims to draft rules that enable deployment of mobile broadband systems in the WCS band while also ensuring coexistence with services in the adjacent bands.

38. A significant ecosystem for LTE devices is expected to emerge in the 2300 MHz band, given that global interest is growing—especially in Asia-Pacific countries—to deploy broadband systems in this band.

39. The amount of non-contiguous WCS spectrum available in Canada and the United States contrasts with the wider contiguous blocks of spectrum in other global band plans. In addition, the service environment in Canada and the United States is different from other global band plans. Efforts must be made to minimize the potential mutual interference between WCS and S-DARS. It remains to be seen whether global equipment will develop further and whether the newly adopted FCC rules, along with any potential revisions to these rules (see paragraph 32), will aid the development of the Canadian equipment ecosystem in the WCS band.

5.4 Status of WCS Licence Deployment in Canada

40. Licensees in the band that are in compliance with the conditions of licence for the current term have an expectation of renewal unless a fundamental reallocation of the band or overriding policy need occurs.[16] Deployment levels may increase as a result of both the revised deployment requirements as well as the extension of the deployment condition to the end of the licence term. However, given the lack of equipment, additional deployment over the next two years is expected to be minimal.

Table 2 – Deployment for licences in the 2300 MHz band as of July 2011[17]

Number of Licences	Met Requirement	Partial Deployment	No Deployment
172	1 (0.6%)	3 (1.7%)	168 (97.7%)

6. Spectrum in the 3500 MHz Band (FWA)

6.1 The 3500 MHz Band Internationally

41. Currently, the International Telecommunication Union (ITU) Table of Frequency Allocations specifies differences among the three ITU regions for the services allocated in the 3400-3800 MHz band.

[16] Refer to section 6.1 of the Policy, available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf06013.html.

[17] Refer to Annex A.

While the fixed service is allocated on a primary basis for the whole band, the mobile service allocations are not harmonized and are therefore subject to different technical requirements in different ITU regions.

42. Many countries around the world are re-examining their 3400-3800 MHz band plans, or parts thereof, to facilitate the introduction of mobile services. So far, this band has been used in many countries to deploy various fixed services and nomadic applications, which provide voice and data services in rural or remote regions as well as urban areas.

43. In Europe, the band 3400-3600 MHz is used primarily for FWA deployments, and this band has numerous country-specific frequency arrangements. To facilitate the introduction of mobile and fixed communications networks, the Electronic Communications Committee of the European Conference of Postal and Telecommunications Administrations has adopted two harmonized frequency-division duplexing (FDD) and TDD frequency arrangements for the band 3400-3600 MHz, and one TDD frequency arrangement for the band 3600-3800 MHz.[18]

44. In the United States, the radiolocation service operates in the band 3400-3650 MHz. The fixed and mobile services operate in the band 3650-3700 MHz, which is used for the deployment of terrestrial wireless broadband applications. As part of the National Broadband Plan,[19] the band 3550-3650 MHz is under review for a potential reallocation that would allow for the introduction of wireless broadband applications. This reallocation may be subject to large geographic limitations (known as exclusion zones) along the coasts and near specific military sites, owing to the presence of high-power government radar systems. At the time of this document's publication, the FCC had not made a decision on this band.

6.2 Current 3500 MHz Spectrum Usage and Band Plan in Canada

45. As identified in the *Canadian Table of Frequency Allocations,*[20] the following services have primary allocations or co-primary allocations, or both, in various sub-ranges of the band 3400-3800 MHz: radiolocation, mobile, fixed and fixed satellite. The mobile service only has a co-primary allocation in the band 3650-3700 MHz and is therefore outside the scope of this consultation. The band plans and technical requirements can be found in the Standard Radio System Plan (SRSP) 303.4, *Technical Requirements for Fixed Wireless Access Systems in the Band 3475-3650 MHz.*[21]

46. FWA systems are licensed under the fixed service. Licensees may deploy fixed, point-to-multipoint and point-to-point applications in support of FWA applications, including ancillary portable terminals.

47. Between 2004 and 2009, Industry Canada auctioned the FWA Blocks D, E, F and G in the band 3475-3650 MHz. The 175 MHz of spectrum was auctioned in three paired 25 + 25 MHz blocks (D and

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[18] See ECC Decision (11)06 at http://www.erodocdb.dk/docs/doc98/official/pdf/ECCDec1106.pdf.

[19] More information on the National Broadband Plan is available at http://www.broadband.gov.

[20] Available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf01678.html.

[21] Available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf02063.html.

H; E and J; F and K) and one stand-alone 25 MHz block (G). These licences were issued on a Tier 4 basis.

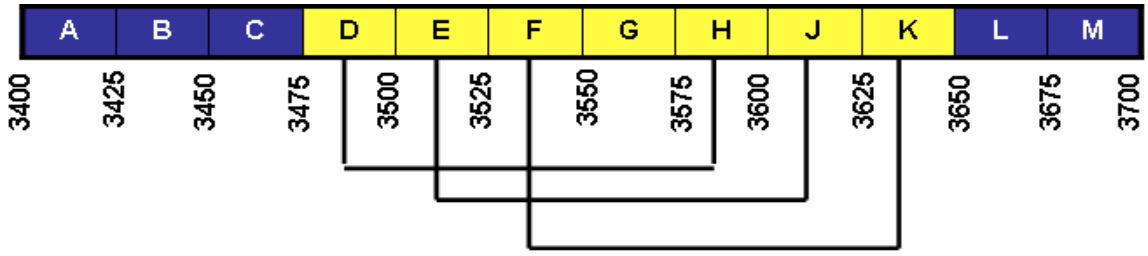

Figure 2 – 3500 MHz Fixed Wireless Access (FWA)

6.3 Equipment Availability in the 3500 MHz Band

48. Although WiMAX-certified base stations for the 3500 MHz band have been available since 2006, the majority of customer premise units (e.g., USB modems, laptops and tablets) began to be certified in 2009. To date, deployments in the 3500 MHz band are fixed and portable, and various versions of WiMAX are used in most of them.

49. At the moment, there is no commercially available 3rd Generation Partnership Project (3GPP) LTE equipment for this band.[22] However, many countries are evaluating their band plans for the 3500 MHz band with a view to allow mobile service in the band. Therefore, an LTE equipment ecosystem is expected to evolve over the next few years as these new band plans are developed internationally and as operators begin deploying in this band. LTE standards support both FDD and TDD modes, and dual-mode LTE FDD/TDD chipsets are expected to become available, thereby allowing operators to offer handsets that can operate in existing FDD networks and in newer TDD networks.

50. Given the likelihood that mobile equipment will soon be readily available for the 3500 MHz band, Industry Canada will need to consider the policies and technical rules that are currently in place for this band.

6.4 Impact of Potential Changes to the Band

51. In light of the international developments discussed above, Industry Canada expects significant changes over the next few years to international allocations for the mobile service and frequency arrangements in the 3500 MHz band. The Department will consider changes to the band plan and will modify current allocations in the *Canadian Table of Frequency Allocations* to harmonize with those of other countries, as appropriate. The Department reserves the right to decide whether to implement a new band plan, as well as the right to take any action necessary to ensure that a new band plan can be implemented.

[22] 3GPP has defined three band classes for the 3500 MHz band: 22 (FDD from 3410-3490 MHz/3510-3590 MHz), 42 (TDD from 3400-3600 MHz) and 43 (TDD from 3600-3800 MHz).

52. Licensees in the 3500 MHz band are hereby given advance notification that changes to the existing allocation and band plan may be considered in the next two to three years. Changes may include review of, and possibly revision to, the spectrum utilization policy, the band plan and the authorized frequencies. A consultation process will precede any such changes.

6.5 Status of FWA Licence Deployment in Canada

53. Licensees in the band that are in compliance with the conditions of licence have an expectation of renewal unless a fundamental reallocation of the band or overriding policy need occurs. The second extension and the new deployment requirements are expected to provide additional opportunities for the licensees to comply with the conditions of licence.

Table 3 – Deployment for licences in the 3500 MHz band as of July 2011[23]

Number of Licences	Met Requirement	Partial Deployment	No Deployment
758	128 (16.9%)	68 (9.0%)	562 (74.1%)

7. Renewal Options and Considerations

54. Currently, most licences in the 2300 MHz and 3500 MHz bands are nearing the end of the term. As stated in the conditions of licence,[24] licensees have an expectation of renewal 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.

55. The following two options are presented with the purpose of soliciting comments. Note that different renewal options may be chosen for each band.

7.1 Option 1: Extend Initial Licence Term

56. The first proposed option is to issue an extension for all licences. This extension would also apply to the revised deployment requirement.

57. This option, which would provide licensees in the 2300 MHz band additional time to meet the revised deployment requirement, recognizes the current lack of available equipment in that band.

58. This option would also provide licensees in the 3500 MHz band additional time to meet the deployment requirements and acknowledges the potential international changes in the band plan. Equipment (e.g., WiMAX) has been available in this band; however, some licensees have not yet deployed because they prefer to wait for LTE equipment, which is expected to be available in the near future.

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[23] Refer to Annex A.

[24] See conditions of licence at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08464.html.

59. Within Option 1, Industry Canada proposes a choice between two possible variations for the extension. The first variation would extend the current terms by **three years** for all licensees. The second variation would extend all licence terms to the same fixed date, i.e., December 2017. This variation acknowledges the staggered licence expiry dates (between March 2014 and September 2016), which were a result of the elapsed time between the first and second auction. Both of these variations on the extension would provide increased certainty pertaining to band changes and equipment availability. The current conditions of licence[25] would remain in effect, with the exception of the deployment requirement (see Section 4.3.3), pending the decisions resulting from this consultation. The deadline for deployment would be extended for the same period (i.e., three years) if the current proposal is adopted.

60. Licensees would have to demonstrate compliance with the revised deployment requirements by the end of the proposed extended licence term.

61. For this option, fees would not be applicable, both because the initial term of the auctioned licences would be changed from 10 years to 13 years, and because the auction bid payment would still stand in lieu of licence fees.

7.2 Option 2: Issue Licences for New Term

62. Under the second proposed option, a new licence would be issued for a new term. This would be done through the renewal process, assuming that the licensee is in compliance with the conditions of licence—including the revised deployment requirements[26]—at the end of the initial term.

63. If this option is chosen, Industry Canada proposes that the new term will be for **10 years** and advises licensees that the licence terms and conditions, including authorized frequencies, may change during that term. As stated in section 6.4, changes may include review of, and possibly revision to, the spectrum utilization policy, the band plan and the authorized frequencies.

64. For instances in which licensees can demonstrate that they have deployed infrastructure but coverage to the population or the number of links in the tier in question is less than the requirement, licensees could be permitted to apply for a new licence for the portion of the service area that has coverage. At the discretion of the Department, upon receipt of the application to modify the existing licences, new subdivided licences could be issued if coverage to the population meets or exceeds the deployment requirement within the reduced service area. The resulting unassigned subdivided licences would be returned to Industry Canada to be made available at a later date. Any reductions to service areas (in order to meet the deployment requirement) would be made at the discretion of the Department.

65. For instances in which licensees can submit plans demonstrating that they can achieve compliance in the near future, Industry Canada may consider issuing a one-year licence on a case-by-case basis.

66. For instances in which deployment is nil, licensees would not be eligible for a new licence under the renewal process.

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[25] Ibid.

[26] Refer to Annex A.

67. If licensees meet their deployment requirement, no additional deployment requirement will apply to a new licence issued under the renewal process.

68. This option enforces the conditions of licence in place at the time of initial issuance (two extensions notwithstanding), and provides increased certainty, transparency and predictability for licensees. It also balances stakeholder interests by providing an opportunity for licensees to deploy, and it allows Industry Canada to reassign unused licences.

69. A licensing process would be established for all licences, other than those assigned through the renewal process.

70. In terms of the spectrum licence fees, the *Framework for Spectrum Auctions in Canada* (herein referred to as the Auction Framework) states: "For licences issued through a renewal process, licence fees that reflect some measure of market value will apply."[27] Should new licences be issued under Option 2, a separate consultation will be launched to propose annual licence fees that would come into effect once established.

8. Proposed Changes to the Licence Term Condition of Licence

71. The licence term condition was updated in the Auction Framework (revised in March 2011)[28] in order to clarify that licensees have a **high** expectation of renewal. The rationale for this update can be found in section 3.3.2 of *Decisions on the Revisions to the Framework for Spectrum Auctions in Canada and Other Related Issues.*[29] The proposed wording of the updated condition of licence is as follows:

> This licence will expire on the date indicated above, with a **high expectation** to renew licences for subsequent terms unless a breach of licence condition occurs; a fundamental reallocation of spectrum to a new service is required, or, an overriding policy need arises. **(Note added emphasis.)**
>
> The process for issuing licences after this term and any issues relating to renewal will be determined by the Minister of Industry following a public consultation.

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27 See *Framework for Spectrum Auctions in Canada,* Issue 3, March 2011, http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/dgso-001-11-framework-e.pdf/$FILE/dgso-001-11-framework-e.pdf.

28 Ibid.

29 See *Decisions on the Revisions to the Framework for Spectrum Auctions in Canada and Other Related Issues* at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10001.html.

Industry Canada invites comments on the options for renewal in the 2300 MHz and 3500 MHz bands. Refer to the following questions (as well as Question 1, found on page 5 of this consultation) when submitting comments.

(2) For the 2300 MHz band, which of the two options is preferred?

(3) For the 3500 MHz band, which of the two options is preferred?

In responding to the following questions, provide supporting rationale for each band separately.

(4) For Option 1 (detailed in section 7.1 of this consultation):

A. Should licence terms be extended?
    a. If so, should they be extended by the same length for all licensees?
        i. Is **three years** an appropriate extension?
    b. Or, should the licence terms be extended to a fixed date for all licensees?
        i. Would December 2017 be an appropriate extension date?
B. Should the deployment requirement also be extended to the end of the proposed term?
C. In considering an extension of the licence term, do you expect equipment in the 2300 MHz band to become available soon enough to achieve the deployment requirements by December 2017?
D. In considering an extension of the licence term, do you expect LTE equipment in the 3500 MHz band to become available soon enough to achieve the deployment requirements by December 2017?
E. Are there any additional considerations that should be taken into account by Industry Canada?

(5) For Option 2 (detailed in section 7.2 of this consultation):

A. Given the potential upcoming changes, is **10 years** an appropriate term for new licences issued through the renewal process?
B. Should deployment requirements apply to new licences under the renewal process? If so, what should the deployment requirements be?
C. Are there any additional matters that should be considered by Industry Canada when issuing a new licence for a new term?

(6) Are there any other options for the licence renewal process that Industry Canada should consider?

(7) Industry Canada invites comments on the proposed wording of the condition of licence related to the licence term (detailed in section 8 of this consultation).

9. Next Steps

72. Industry Canada will review the comments received and publish its decision.

10. Submitting Comments

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

74. Written submissions should be addressed to Manager, Emerging Networks, DGSO, Industry Canada, 300 Slater Street, Ottawa, Ontario, K1A 0C8.

75. All submissions should cite the *Canada Gazette,* Part I, the publication date, the title and the notice reference number (DGSO-006-12). Parties should submit their comments no later than December 17, 2012, to ensure consideration. 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.

76. Industry Canada will also provide interested parties with the opportunity to reply to comments from other parties. Reply comments will be accepted until January 30, 2013.

77. 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.

11. Obtaining Copies

78. All of the spectrum-related documents referred to in this consultation are available on Industry Canada's Spectrum Management and Telecommunications website at http://www.ic.gc.ca/spectrum.

79. For further information concerning the process outlined in this document or any other related matters, contact:

Manager, Emerging Networks
Spectrum Management Operations Branch
Industry Canada
300 Slater Street, 15th floor
Ottawa, Ontario K1A 0C8
Telephone: 613-998-9707
Fax: 613-991-3514
E-mail: spectrum.operations@ic.gc.ca

Annex A – Tier 4 Deployment Requirements for 2300 and 3500 MHz Licences

The minimum population coverage deployment requirement takes into consideration the population size of the major urban centers within each tier, as well as the population density of each tier. All Tier 4 areas with a population density of 50 people/km^2 or greater have a coverage requirement of 50% of the population of the tier.

For point-to-point deployment, the proposed requirement is 15 links per million population, with the minimum requirement set at one link.

Each licensee must demonstrate to Industry Canada that by the end of the licence term, its spectrum is being used at a level acceptable to the Department. Licensees must demonstrate coverage to the level indicated, or to the number of links in this Annex.

Tier 4	Service Area Name	Population	Minimum Population Coverage	Minimum Proposed Number of Links
4-001	St. John's	223,381	50%	3
4-002	Placentia	19,464	20%	1
4-003	Gander/Grand Falls/Windsor	159,526	10%	2
4-004	Corner Brook/Stephenville	82,694	30%	1
4-005	Labrador	28,217	30%	1
4-006	Charlottetown	86,793	30%	1
4-007	Summerside	48,501	30%	1
4-008	Yarmouth	62,591	40%	1
4-009	Bridgewater/Kentville	140,124	40%	2
4-010	Halifax	389,094	50%	6
4-011	Truro	56,095	40%	1
4-012	Amherst	36,091	40%	1
4-013	Antigonish/New Glasgow	76,898	40%	1
4-014	Sydney	147,044	30%	2
4-015	Saint John	140,331	50%	2
4-016	St. Stephen	27,012	15%	1
4-017	Fredericton	152,323	30%	2
4-018	Moncton	151,240	30%	2
4-019	Miramichi/Bathurst	169,181	30%	3
4-020	Grand Falls	28,528	20%	1
4-021	Edmundston	28,374	30%	1
4-022	Campbellton	32,006	20%	1
4-023	Matane	118,114	15%	2
4-024	Mont-Joli	41,770	15%	1
4-025	Rimouski	52,049	15%	1
4-026	Rivière-du-Loup	86,340	15%	1
4-027	La Malbaie	29,403	50%	1
4-028	Chicoutimi-Jonquière	217,187	40%	3

Tier 4	Service Area Name	Population	Minimum Population Coverage	Minimum Proposed Number of Links
4-029	Montmagny	59,520	20%	1
4-030	Québec	780,745	50%	12
4-031	Sainte-Marie	48,205	20%	1
4-032	Saint-Georges	67,337	30%	1
4-033	Lac-Mégantic	24,923	30%	1
4-034	Thetford Mines	42,871	30%	1
4-035	Plessisville	21,894	25%	1
4-036	La Tuque	16,300	30%	1
4-037	Trois-Rivières	252,368	30%	4
4-038	Louiseville	22,226	30%	1
4-039	Asbestos	30,204	20%	1
4-040	Victoriaville	49,457	50%	1
4-041	Coaticook	13,362	30%	1
4-042	Sherbrooke	216,182	30%	3
4-043	Windsor	16,443	30%	1
4-044	Drummondville	96,533	50%	1
4-045	Cowansville	27,044	30%	1
4-046	Farnham	27,861	25%	1
4-047	Granby	86,541	50%	1
4-048	St-Hyacinthe	83,957	50%	1
4-049	Sorel	55,994	50%	1
4-050	Joliette	135,893	30%	2
4-051	Montréal	3,756,709	50%	56
4-052	Sainte-Agathe-des-Monts	61,197	10%	1
4-053	Hawkesbury	62,398	30%	1
4-054	Mont-Laurier/Maniwaki	45,928	10%	1
4-055	Ottawa	1,202,839	50%	18
4-056	Pembroke	77,757	15%	1
4-057	Arnprior/Renfrew	30,397	15%	1
4-058	Rouyn-Noranda	40,512	30%	1
4-059	Notre-Dame-du-Nord	17,427	15%	1
4-060	La Sarre	20,272	30%	1
4-061	Amos	24,982	30%	1
4-062	Val-d'Or	43,487	30%	1
4-063	Roberval/Saint-Félicien	61,573	40%	1
4-064	Baie-Comeau	48,423	40%	1
4-065	Port-Cartier/Sept-Îles	47,407	40%	1
4-066	Chibougamau	40,400	20%	1
4-067	Cornwall	65,921	50%	1
4-068	Brockville	69,968	30%	1
4-069	Gananoque	12,901	40%	1

Tier 4	Service Area Name	Population	Minimum Population Coverage	Minimum Proposed Number of Links
4-070	Kingston	162,711	50%	2
4-071	Napanee	39,509	40%	1
4-072	Belleville	145,085	40%	2
4-073	Cobourg	59,699	30%	1
4-074	Peterborough	151,081	50%	2
4-075	Lindsay	41,911	30%	1
4-076	Minden	17,819	30%	1
4-077	Toronto	5,635,828	50%	85
4-078	Alliston	99,207	30%	1
4-079	Guelph/Kitchener	580,963	50%	9
4-080	Fergus	26,072	50%	1
4-081	Kincardine	173,663	15%	3
4-082	Listowel/Goderich	84,491	15%	1
4-083	Fort Erie	28,451	50%	1
4-084	Niagara-St. Catharines	326,520	50%	5
4-085	Haldimand/Dunnville	35,936	50%	1
4-086	London/Woodstock/St. Thomas	607,564	50%	9
4-087	Brantford	122,156	50%	2
4-088	Stratford	49,496	50%	1
4-089	Chatham	74,209	50%	1
4-090	Windsor/Leamington	376,213	50%	6
4-091	Wallaceburg	32,820	30%	1
4-092	Sarnia	124,825	50%	2
4-093	Strathroy	41,914	50%	1
4-094	Barrie	274,354	50%	4
4-095	Midland	44,114	50%	1
4-096	Gravenhurst/Bracebridge	54,503	30%	1
4-097	North Bay	102,831	40%	2
4-098	Parry Sound	19,422	30%	1
4-099	Elliot Lake	31,261	35%	1
4-100	Sudbury	172,605	50%	3
4-101	Kirkland Lake	34,740	25%	1
4-102	Timmins	43,906	30%	1
4-103	Kapuskasing	41,662	25%	1
4-104	Kenora/Sioux Lookout	61,920	40%	1
4-105	Iron Bridge	22,567	25%	1
4-106	Sault Ste. Marie	81,654	50%	1
4-107	Marathon	29,468	30%	1
4-108	Thunder Bay	121,372	50%	2
4-109	Fort Frances	22,072	35%	1
4-110	Steinbach	45,879	30%	1

Tier 4	Service Area Name	Population	Minimum Population Coverage	Minimum Proposed Number of Links
4-111	Winnipeg	722,206	50%	11
4-112	Lac du Bonnet	53,537	15%	1
4-113	Morden/Winkler	38,697	30%	1
4-114	Brandon	92,736	20%	1
4-115	Portage la Prairie	20,073	50%	1
4-116	Dauphin	79,729	10%	1
4-117	Creighton/Flin Flon	21,360	25%	1
4-118	Thompson	44,066	30%	1
4-119	Estevan	44,562	20%	1
4-120	Weyburn	21,658	40%	1
4-121	Moose Jaw	56,844	25%	1
4-122	Swift Current	47,453	25%	1
4-123	Yorkton	66,760	20%	1
4-124	Regina	216,558	40%	3
4-125	Saskatoon	237,314	40%	4
4-126	Watrous	29,426	15%	1
4-127	Battleford	91,099	15%	1
4-128	Prince Albert	130,757	25%	2
4-129	Lloydminster	30,719	50%	1
4-130	Northern Saskatchewan	33,286	15%	1
4-131	Medicine Hat/Brooks	89,056	30%	1
4-132	Lethbridge	156,171	40%	2
4-133	Stettler/Oyen/Wainwright	52,089	20%	1
4-134	High River	58,713	40%	1
4-135	Strathmore	38,332	40%	1
4-136	Calgary	994,628	50%	15
4-137	Red Deer	151,548	25%	2
4-138	Wetaskiwin/Ponoka	46,931	25%	1
4-139	Camrose	34,573	30%	1
4-140	Vegreville	14,407	35%	1
4-141	Edmonton	943,011	50%	14
4-142	Edson/Hinton	45,052	30%	1
4-143	Bonnyville	73,729	25%	1
4-144	Whitecourt	27,135	50%	1
4-145	Barrhead	22,025	50%	1
4-146	Fort McMurray	43,046	50%	1
4-147	Peace River	82,673	20%	1
4-148	Grande Prairie	75,598	25%	1
4-149	East Kootenay	56,284	15%	1
4-150	West Kootenay	76,630	15%	1
4-151	Kelowna	299,947	35%	4

Tier 4	Service Area Name	Population	Minimum Population Coverage	Minimum Proposed Number of Links
4-152	Vancouver	2,201,446	50%	33
4-153	Hope	21,930	25%	1
4-154	Victoria	389,247	50%	6
4-155	Nanaimo	165,741	40%	2
4-156	Courtenay	106,015	40%	2
4-157	Powell River	26,889	45%	1
4-158	Squamish/Whistler	59,781	35%	1
4-159	Merritt	15,362	40%	1
4-160	Kamloops	92,024	40%	1
4-161	Ashcroft	16,503	15%	1
4-162	Salmon Arm	46,184	45%	1
4-163	Golden	7,154	40%	1
4-164	Williams Lake	41,149	25%	1
4-165	Quesnel/Red Bluff	24,613	40%	1
4-166	Skeena	63,902	40%	1
4-167	Prince George	95,334	40%	1
4-168	Smithers	40,770	20%	1
4-169	Dawson Creek	60,717	30%	1
4-170	Yukon	28,674	20%	1
4-171	Nunavut	26,745	20%	1
4-172	Northwest Territories	37,288	20%	1