Abridged

File No. 8661-C12-201303487

2013 06 04

To: Mr. John Traversy
Secretary General
Canadian Radio-television and
Telecommunications Commission
Ottawa, Ontario
K1A 0N2

Subject: **Telecom Notice of Consultation CRTC 2013-80, *Review of outstanding wholesale high-speed access service issues related to interface rates, optional upstream speed rates, and modem certification requirements* (TNC 2013-80) – Reply Comments**

Dear Mr. Traversy,

1. Bell Aliant Regional Communications, Limited Partnership (Bell Aliant) and Bell Canada (collectively, the Companies) are in receipt of comments dated 15 May 2013 filed by the Canadian Network Operators Consortium Inc. (CNOC), MTS Inc. and Allstream Inc. (collectively, MTS Allstream), Teresa Murphy, and Vaxination Informatique (Vaxination) regarding responses to requests for information that pertain to modem certification requirements. The following constitutes the Companies' final reply comments.

A. Requirement of CS-03 certification for terminal devices attached to ILEC networks

2. In TNC 2013-80, the Commission invited parties to file comments on modem certification addressing, in particular, the question of whether specific modem certification guidelines are required for the large telephone companies and whether those guidelines should be consistent with those set out for the cable carriers.

3. The Companies submitted that the Commission does not need to mandate additional modem certification requirements given that Industry Canada already manages a terminal device certification program which applies to the digital subscriber line (DSL) modems used by the large telephone companies. The Commission has found that this process is appropriate and consequently approved that certification requirements be incorporated in the ILECs' respective tariffs.

Bell Aliant Regional Communications, L.P.
Denis Henry
Floor 19
160 Elgin Street
Ottawa, Ontario K2P 2C4

Telephone: (613) 785-6361
Facsimile: (613) 560-0472
regulatory@bell.aliant.ca

Bell Canada
Philippe Gauvin
Floor 19
160 Elgin Street
Ottawa, Ontario K2P 2C4

Telephone: (613) 785-6286
Facsimile: (613) 560-0472
bell.regulatory@bell.ca

4. MTS Allstream and TELUS Communications Company (Telus) were asked[1] whether they require modems on their network to be CS-03 certified. In response, Telus noted that it expects ISPs and their manufacturers to adhere to CS-03 specifications while MTS Allstream answered that it requires modems to conform to CS-03 specification, as indicated in its tariff.

5. The Companies note that they, and Saskatchewan Telecommunications (SaskTel), have previously indicated that CS-03 certification is required for modems under their respective tariffs. Therefore, all five ILECs in this proceeding have confirmed that CS-03 certification is required for modems attached to their network.

6. CS-03 certification for modems attached to ILEC networks is important as it ensures that these terminal devices respect certain electrical parameters in order to avoid damaging the network. Compatibility is of particular importance in the case of high-speed access services provided using DSL technology because multiple DSL circuits cohabitating the same cable can produce negative impacts on one another.

7. Since there was no evidence submitted in this proceeding to support removing the requirement for modems to be CS-03 certified, the Companies submit that the CS-03 certification requirement of all modems should continue.

B. ISPs can source their own modems despite claims they are unable to do so

8. The Commission asked the Companies[2] whether there are any independent service providers currently sourcing VDSL2 modems directly from the manufacturer for use on the Companies' network.

9. In response, the Companies noted that Teresa Murphy had indicated in her comments that TekSavvy Solutions Inc. (TekSavvy) was now acquiring modems directly from Sagemcom. However, the Companies pointed out that since neither CNOC nor TekSavvy had acknowledged or refuted this statement, the Companies were uncertain whether any ISP is close to reaching an agreement with Sagemcom to purchase its own VDSL2 modems or if any ISP initiated any work with other modem manufacturers to certify their own VDSL2 modems.

10. The Companies also indicated that since there is an on-going proceeding on modems, this may have influenced ISPs' efforts to actively negotiate the purchase of VDSL2 modems with Sagemcom or to initiate modem certification work with other manufacturers. As a result, some ISPs may have chosen to await the outcome of this proceeding.

11. The Companies note that, during the course of this proceeding, CNOC was provided ample opportunity to explain the nature of issues it, or its members, have encountered in acquiring their own modems. However, CNOC did not do so. CNOC simply asserts that, contrary to the Companies' belief, it has been actively working with two modem vendors to find modems that are compatible. CNOC stated in a footnote that it confirmed with TekSavvy that the latter is also not able to acquire the Sagemcom 2864 modem from any other source than the Companies. CNOC added that, to "the best of its knowledge", its other members also have not been able to acquire the Sagemcom 2864 modem from a source other than the Companies. No details were provided regarding the nature of the work with modem manufacturers or the issues that ISPs may have encountered. The Companies note that this could mean a number of things. For instance, it could mean that TekSavvy and other ISPs decided that the price

---

1 MTS Allstream(CRTC)29Apr13-1 TNC 2013-80 and TELUS(CRTC)29April13-1 TNC 2013-80.
2 The Companies(CRTC)29Apr13-6 TNC 2013-80.

charged by the Companies for the Sagemcom 2864 modem compares favourably to the price Sagemcom would be charging the ISP. Therefore, ISPs may have decided that it was more convenient to continue to purchase the modem from the Companies.

12. As for Vaxination, it suggested that the ability for ISPs to source Sagemcom 2864 modems would depend on whether Bell Canada has signed an exclusive deal for that specific model. In response, the Companies stated a number of times in this proceeding[3] that ISPs have the option to buy the modems directly from the same manufacturer at rates and with features they will have mutually agreed to. In that regard, the Companies also noted that nothing in their tariffs or their agreement with the modem manufacturer prevents this. To be clear, the Companies have no exclusivity agreement with Sagemcom.

13. CNOC and Teresa Murphy indicate in their comments[4] that since the Companies require a serial number as part of the ordering process, this proves that ISPs are prevented from sourcing their own modems. However, the Companies note that the requirement to enter the serial number when ordering is simply a question of process and will be adjusted as soon as an ISP indicates it is purchasing its own modems directly from Sagemcom or that another has been certified (via the Companies or a third party). The Companies noted that when ISPs source their own modems directly from a modem manufacturer, the Companies will not need to track serial numbers.[5]

14. Claims that ISPs cannot source their own VDSL2 modems for use on the Companies' network are unfounded. The Commission should ignore these claims as they are unsupported by factual evidence.

C. A price comparison with other VDSL2 modems on the market is not sound and, in any case, irrelevant

15. CNOC was asked[6] to identify three VDSL2 modems that compare functionally to the modem sourced by the Companies, the Sagemcom 2864. CNOC was also asked to provide the estimated wholesale price of each alternative and to indicate whether the price includes taxes and other costs.

16. CNOC provided little information on the public record and, as a result, the Companies do not know whether CNOC listed modems that are comparable to the Sagemcom 2864. However, since CNOC highlights that some retail users do not use the wireless and routing functionalities that the Sagemcom 2864 modem provides, the Companies anticipate that CNOC's listed modems may not include these functionalities. The Companies further note that CNOC's response does not appear to indicate whether the price of the modem in the table includes taxes and other costs as was requested in the Commission's question (though these elements were included in the information the Companies provided on the Sagemcom 2864 modem).[7] In its comments,[8] CNOC asserts that based on this comparison of costs, "the price charged by the Bell Companies for the Sagemcom 2864 is clearly excessive and needs to be reduced."

---

3 The Companies, 11 April 2013, paragraph 5 and The Companies(CRTC)29Apr13-6 TNC 2013-80.
4 CNOC and Teresa Murphy, 15 May 2013, paragraphs 8 and 18 respectively.
5 The Companies, 11 April 2013, paragraph 12.
6 CNOC(CRTC)29Apr13-1 TNC 2013-80.
7 Provided by the Companies in their response to The Companies(CRTC)29Apr13-4 TNC 2013-80.
8 CNOC, 15 May 2013, paragraph 9.

17. Given the modems CNOC provided as examples of VDSL2 modems likely do not have the same functionality as the Sagemcom 2864 modem and the prices quoted by CNOC may or may not include taxes and other costs, little can be derived from this comparison. Nevertheless, the Companies' costs associated with the Sagemcom 2864, which were provided in response to a question from the Commission[9] (and did not account for other costs incurred by the Companies such as processing the order from the ISP as well as billing and collecting the fees from the ISP), clearly show that the price the Companies charge ISPs for the modem ($110 plus tax, per modem) is reasonable given the costs incurred by the Companies.

18. In any event, the Sagemcom 2864 modem is the modem that the Companies provide to both their retail and wholesale end-users, and thus there is no undue preference between the Companies' retail high-speed offer and what is made available to the ISPs on a wholesale basis. In addition, the Sagemcom 2864 modem's features provides value to the end-users that make use of the wireless and routing functionalities.

19. Finally, if ISPs believe that cheaper modems with less functionality would be desirable for their customers, ISPs always have the option to work directly with Sagemcom to purchase modems with fewer functionalities. Alternately, ISPs can also source other modems from other manufacturers.

D. Technician visits can be avoided in the majority of cases

20. CNOC stated[10] that Bell's problem resolution protocol, which CNOC indicated was described in the Companies' "Wholesale GAS & HSA Service Standards" document, did not specifically isolate known modem-related support issues in order to limit unnecessary technician dispatches.

21. CNOC provided an example to support its claim. CNOC stated that where an incompatible modem is attached to the network and a 6 dB noise margin is observed in conjunction with the Alcatel Lucent Stinger DSL Access Multiplexer (DSLAM), this is often evidence of a compatibility problem due to the narrow modem type support offered by this DSLAM. CNOC claimed that the same 6 dB noise margin could also be a sign of noise on the line or some other type of problem when in conjunction with another type of DSLAM.

22. In their comments,[11] the Companies indicated that a result of 6 dB noise margin is not a sign that there is a problem on the line and therefore, CNOC's example was not only unclear, it simply did not support its claim that unnecessary technician visits are caused as a result of the modem. The Companies also provided a comprehensive description of their problem resolution process and noted that they proceed in the same manner if a trouble is identified by a wholesale or retail end-user. ISPs have access to web-based tools that enable them to determine the line statistics in real time, including synchronization bit rate of the line and the noise margin level. If this was not sufficient, the Companies can proceed to test the line remotely. If it is still not possible to determine the source of the problem, then a technician would be dispatched.

23. The Commission's question is whether, under the current problem resolution process, ISPs have to pay for unnecessary technician dispatches. The Companies note that the problem resolution process minimizes the number of technician dispatches and is consistent with the approach taken for retail end-users. The Companies also note that none of the parties raised the topic of technician dispatches in their comments which would tend to indicate that the issue

---

9 Provided by the Companies in their response to The Companies(CRTC)29Apr13-4 TNC 2013-80.
10 CNOC(CRTC)29Apr13-2 TNC 2013-80.
11 The Companies, 15 May 2013, paragraphs 7 to 13.

is not a pressing concern. In any event, CNOC did not provide any evidence to support its claims that ISPs are paying for unnecessary technician visits that could have been avoided. As a result, the Commission should dismiss these arguments.

E. The Companies have no plans to replace Alcatel Lucent Stinger DSLAMs since these DSLAMs meet industry standards and the Companies' needs

Compatibility issues are limited to services provided using VDSL2 over Alcatel Lucent Stinger DSLAMs

24. Parties are in agreement in this proceeding that any asymmetric digital subscriber line (ADSL) and ADSL2+ modem available on the market can be used by ISPs to provide wholesale high-speed access services to their end-users. As a result, parties were also in agreement that additional mandatory certification requirements including second-level interoperability testing for ILECs, beyond Industry Canada's CS-03 certification, are unnecessary for ADSL and ADSL2+ modems. In the case of very high-speed DSL2 (VDSL2), however, the Companies recognized certain compatibility difficulties due to the presence of Alcatel Lucent Stinger DSLAMs in their network which is manufacturer discontinued but remains prevalent in the Companies' network.

It would not be practical to replace Alcatel Lucent Stinger DSLAMs from the Companies' network as these DSLAMs are still prevalent

25. The Commission asked[12] the Companies how many VDSL2-capable DSLAMs in the Companies' network are Alcatel Lucent Stingers versus other VDSL2-capable DSLAMs. As indicated in the Companies' response, the majority of existing Alcatel Lucent Stinger DSLAM base was installed between 2006 and 2009, which represents 80% of the total units that are still in service. A smaller number of Stinger DSLAMs was installed between 2010 and the end of 2012 to address in part municipal consent constraints but also to provide IPTV services as this service was not supported at the time on the newer DSLAMs. A small inventory of less than 100 units is kept for emergency replacements.

26. Vaxination argues[13] that Bell should have known by the end of 2006, when Lucent ceased to exist as it was absorbed into Alcatel, that Lucent Stinger DSLAMs would be discontinued. Vaxination also questions why Bell continued to deploy those units until 2012, five years after the product line was discontinued.

27. The Companies note that, contrary to Vaxination's claim, the Alcatel Lucent Stinger DSLAM was not discontinued in 2007. The Companies decided to do a "last-buy" of these DSLAMs from Alcatel Lucent at the end of 2010 when the DSLAM was still being manufactured. The last buy of # DSLAMs was intended to cover the projects that the Companies had already initiated and for emergency replacements. In proportion, the last buy represents less than five percent of the units still in service. Nonetheless, it is not for Vaxination to dictate how and when the Companies choose to deploy their network.

Filed in confidence with the CRTC.

---

12 The Companies(CRTC)29Apr13-5 TNC 2013-80.
13 Vaxination, 15 May 2013, paragraph 12.

28. In the same request for response, the Commission asked the Companies to estimate the average remaining life of Alcatel Lucent Stinger DSLAMs still in service. The Companies replied that they were not able to provide the requested information within the allocated timeframe but that the life estimate for DSLAMs is on average seven years. However, the Companies indicated their concern with the Commission's question. In particular, the question appears to suggest that a possible solution to the VDSL2 compatibility issues with the specific Alcatel Lucent DSLAM may be to replace the equipment with other VDSL2-capable equipment or, alternatively, to provide ISPs with prior knowledge of which DSLAM equipment end-users would be assigned to so that various VDSL2 modems could be used.

29. The Companies' statement that the average life estimate of DSLAMs is seven years appears to have confused a number of parties. In particular, CNOC states[14] that it should be feasible for the Companies to replace most of the Stinger DSLAMs in their network given that the average life is seven years and most units were installed between 2006 and 2009. Teresa Murphy argues[15] that Bell's failure to replace units every seven years in accordance with the Commission's estimated average lifespan means that the Companies will be recovering costs that they did not incur, profiting from keeping in the network longer than they need to, while disadvantaging wholesale ISPs. Vaxination also claims[16] that if the Companies have no plans to replace the Stinger DSLAMs, then the Commission should adjust the costing to remove the portion of the costs allocated to pay for the replacement of the equipment every seven years.

30. The Companies also noted that end-users are not assigned to specific technologies or equipment but are assigned by service profile and may end up on either type of DSLAM equipment. The end-users may even be transferred, over time, to different equipment. It is important to consider also that the number of VDSL2-capable Alcatel Lucent Stinger DSLAMs is still more significant that the number of other VDSL2-capable DSLAMs in the network[17] and that there are Alcatel Lucent Stinger DSLAMs located in the majority of the VDSL2-capable central offices. Consequently, it is not possible, operationally or financially, for the Companies to ensure end-users get assigned to a specific technology for the duration of the service.

31. Furthermore, the Companies mentioned that there are no foreseeable plans to replace the Alcatel Lucent Stinger DSLAMs as they continue to work appropriately and meet industry standards. To replace these DSLAMs would be extremely costly and inefficient. In the Companies' view, Vaxination's inference that the Companies be ordered to replace these DSLAMs is beyond the Commission's authority. The Companies currently use the Alcatel Lucent Stinger DSLAMs to effectively support high-speed services for both their retail and wholesale end-users. As these DSLAMs equally enable retail and wholesale services, there is thus no discrimination, much less any undue preference. Vaxination's inference of their mandated replacement, in order to accommodate new modems, would be an unreasonable interference with the Companies' choice of technology and could fall outside of the Commission's jurisdiction and certainly would be a violation of the Policy Direction.

32. The Companies note that a seven year life estimate for DSLAMs does not mean that every unit should be replaced exactly seven years after it has been put in service. Life estimate is an average and the retirements are assumed to occur following a certain pattern (based on an associated survivor curve) by which approximately 50% of the DSLAMs will have been retired before reaching seven years in service and approximately 50% of the DSLAMs will be retired beyond seven years of service. The Companies also note that, in accordance with the Phase II costing methodology, the estimated costs are based on the replacement technology

14 CNOC, 15 May 2013, paragraph 2.
15 Teresa Murphy, 15 May 2013, paragraph 13.
16 Vaxination, 15 May 2013, paragraphs 17 and 18.
17 The Companies(CRTC)29Apr13-5 TNC 2013-80.

(i.e. based on the newest growth technology). Thus, the Companies' costing for wholesale high-speed services is based on the Alcatel Lucent 7330 DSLAMs and not the Lucent Stinger DSLAMs.

Alcatel Lucent Stinger DSLAMs meet industry VDSL2 standards

33. Vaxination and Teresa Murphy claim[18] that since off-the shelf modems cannot be used, it is proof that the Alcatel Lucent Stinger DSLAMs do not meet VDSL2 industry standards. CNOC suggests that the compatibility issues are a technical problem that needs to be "fixed." MTS Allstream, recognizing it has no first-hand experience with the compatibility issues identified by CNOC, suggests that there may be a limitation to use modems that have the same chip set as the DSLAM.

34. The Companies note that the compatibility issues simply reflect the deployment evolution of the Companies' high-speed network. The Alcatel Lucent Stinger DSLAMs were deployed at a time when VDSL2 standards had just been introduced and few vendors were in the market with Fibre-to-the-Node VDSL2 products. As a result of VDSL2 standards' continuous evolution and due to the fact that standards themselves allow for some degree of interpretation, the modems in the market today have chipsets with technical enhancements that do not always perfectly align with the Ikanos chipsets in the Alcatel Lucent Stinger DSLAM. While interoperability between the Alcatel Lucent Stinger DSLAMs and modems with certain chipsets is not necessarily automatic, it is achievable, as the Companies successful delivery of retail and wholesale high-speed services with the Sagemcom 2864 modem with an Ikanos VX180 chipset attests. The Alcatel Lucent Stinger DSLAM meets industry VDSL2 standards.

ISPs have multiple options for VDSL2 modems

35. As mentioned,[19] although the Companies chose to initially work with only a single manufacturer to standardize a VDSL2 modem for use on their network, a number of favourable responses from modem manufacturers were received when the Companies sent a Request for Proposal for VDSL2 modems to manufacturers. In this regard, the Companies have continued to work with Ikanos and with Broadcom, one of the world's largest chipset vendor, to test interoperability of two additional chipsets (the VX185 from Ikanos and the BC63168 from Broadcom) with the Companies' VDSL2-capable DSLAMs, including the Alcatel Lucent Stinger. These chipsets are more widely used today by modem manufacturers and therefore it may be easier for the ISPs to find compatible modems, especially with a Broadcom chipset. At this stage, the interoperability tests results are very promising and the Companies are actively working to resolve the few issues that remain. Once the interoperability is complete, even modems currently deployed in the market with these chipsets would generally be upgradable with a firmware download.

36. Therefore, the ISPs have the option to: i) buy the Sagemcom from the Companies (including the shipping, management of modems under warranty and firmware downloads); ii) buy the Sagemcom modem directly from Sagemcom (with rates and features they will have mutually agreed upon); and iii) use the Companies' network specifications and work with alternate modem manufacturers to certify other modems. The Companies expect that their specifications will soon be updated to increase the number of compatible chipsets from one to three.

---

18 Teresa Murphy and Vaxination, 15 May 2013, paragraphs 5 and 19 respectively.
19 The Companies(CRTC)29Apr13-6 TNC 2013-80.

VDSL2 second-level testing is not mandatory but provides benefits to ISPs and should therefore be only mandated under limited conditions

37. There is no requirement for the Companies to certify the modems as long as the modems used by ISPs are CS-03 certified and meet the industry's VDSL2 standards. A modem whose compatibility has been certified by the Companies has, however, the advantage of having been determined to function properly on the Companies' network, minimizing the risk of having to perform service assurance for incompatible modems.[20]

38. If the modems used by ISPs, whose compatibility was not confirmed by the Companies, were to cause an overly burdensome increase in the number of problems or service assurance reports, the Companies would need to take steps to remedy these issues, but at this point, the Companies see no need to take such actions.

39. With respect to VDSL2 protocol, the Companies have indicated that they are willing to perform compatibility tests for new modems proposed by ISPs provided that:[21] i) the candidate modem is already CS-03 certified; ii) the candidate modem is proposed by an ISP, the actual wholesale customer; iii) the candidate modem is reasonably expected to be compatible with the Companies' network; iv) testing is limited to verifying compatibility of the VDSL2 modem with the Companies' network; and that v) the Companies be able to recover their full costs.

40. CNOC indicates that testing should occur at the ILEC's expense and, specifically, each ISP should be allowed one free modem certification per year on an ILEC's network. In the Companies' view, there is no justification for the Companies to be mandated to provide free modem testing. If ISPs did not have to pay when they request second-level testing, the Companies would be forced to recover their costs elsewhere and likely would have to reopen their wholesale high-speed access costs studies which the Commission only recently approved after a very lengthy proceeding. Therefore, this avenue is clearly not a desired outcome for anyone. On the practical side, the Companies would have difficulties in meeting these conditions for modem testing. At the moment, testing for other companies is bi-laterally negotiated to ensure that human resources and that an automated modem test line-up are available. An increased number of testing requests from the Companies' customers (a base of well over 100 ISPs) under mandatory conditions would most certainly force the Companies to hire additional laboratory resources and a need to set up additional automated modem test line-ups because the current ones are usually tied up for testing existing modems. Although the Companies do not expect all ISPs would need modem testing, the option to obtain free testing may incent ISPs to coordinate their requests so that none of the ISPs ever have to pay the Companies for testing. Therefore, the Companies submit that free testing is not appropriate and should not be mandated.

F. Conclusion

41. Parties are in agreement that additional mandatory certification requirements including second-level interoperability testing for ILECs, beyond Industry Canada's CS-03 certification, are unnecessary for ADSL and ADSL2+ modems. However, the Companies recognized certain compatibility difficulties due to the presence of Alcatel Lucent Stinger DSLAMs that are manufacturer discontinued but remain prevalent in the Companies' network. There are no plans to replace these DSLAMs as to do so would be extremely costly and inefficient.

---

[20] Modems from different manufacturers with the same chipset can produce different results.

[21] The conditions are fully described in The Companies(CRTC)29Apr13-7 TNC 2013-80.

42. ISPs have criticized the functionalities of the VDSL2 modem made available by the Companies and made unsupported claims that the modem was causing unnecessary technician dispatches. The Companies explained that the modem functionalities and the problem resolution process (which is designed to reduce the number of technician dispatches) are the same for retail and wholesale. Thus there is no discrimination or undue preference between the Companies' retail high-speed offer and what is made available to the ISPs on a wholesale basis.

43. No factual evidence was provided by ISPs to support their claims that they could only source VDSL2 modems from the Companies. Therefore, the Companies maintain that ISPs have the option to: i) buy the Sagemcom from the Companies at a price that was shown to be reasonable (including the shipping, management of modems under warranty and firmware downloads); ii) buy the Sagemcom modem directly from Sagemcom (with rates and features they will have mutually agreed upon); and iii) use the Companies' network specifications and work with alternate modem manufacturers to certify other modems.

44. The Companies have indicated that they are willing to perform compatibility tests for new VDSL2 modems proposed by ISPs, though not required, provided that:[22] i) the candidate modem is already CS-03 certified; ii) the candidate modem is proposed by an ISP, the actual wholesale customer; iii) the candidate modem is reasonably expected to be compatible with the Companies' network; iv) testing is limited to verifying compatibility of the VDSL2 modem with the Companies' network; and that v) the Companies be able to recover their full costs.

45. Please direct all inquiries or correspondence regarding this submission to Philippe Gauvin at (613) 785-6286 or e-mail to bell.regulatory@bell.ca.

Yours truly,

[Original signed by D. Henry]

Denis E. Henry
Bell Aliant
Vice-President – Regulatory, Government Affairs and Public Law

[Original signed by P. Gauvin]

Philippe Gauvin
Bell Canada
Senior Counsel - Regulatory Law & Policy

c.c.: Parties to TNC 2013-80
Chris Seidl, CRTC
Lynne Fancy, CRTC
Doug Thurston, CRTC

DP/vh

*** End of Document ***

[22] The conditions are fully described in The Companies(CRTC)29Apr13-7 TNC 2013-80.