



Broadcasting Public Notice CRTC 2003-61

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The regulatory framework for the distribution of digital television signals

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The regulatory framework for the distribution of digital television signals

In Call for comments on a proposed policy framework for the distribution of digital television services, Broadcasting Public Notice CRTC 2002-32, 12 June 2002, the Commission invited comment from interested parties on the policy, principles and related regulatory amendments that, during the transition period, should govern the distribution of over-the-air digital television services by broadcasting distribution undertakings (BDUs), as well as the distribution of other mandatory, optional and discretionary services that provide high definition (HD) programming.

This public notice details the conclusions that the Commission has reached regarding the regulatory framework that will govern the distribution of digital television services. In general, a BDU's regulatory obligations and authority to distribute digital signals will match those that currently apply to the distribution of the analog versions of these signals. In addition, the Commission will launch two follow-up proceedings. The first proceeding will establish a licensing framework governing the transition of pay and specialty services to HD. It will also establish a framework to govern the distribution of such services by BDUs. The second proceeding will examine the regulatory framework governing the carriage of HD services by direct-to-home satellite undertakings.

Background

1. *In Call for comments on a proposed policy to oversee the transition from analog to digital over-the-air television broadcasting, Public Notice CRTC 2001-62, 5 June 2001 (Public Notice 2001-62), the Commission sought comment on its proposals concerning the policy objectives and principles that would govern the transition from analog to over-the-air digital television broadcasting, and asked various questions as to what would constitute an appropriate regulatory framework for the carriage of these signals by broadcasting distribution undertakings (BDUs).*
2. *Based on the comments received in response to Public Notice 2001-62, the Commission issued A licensing policy to oversee the transition from analog to digital, over-the-air television broadcasting, Broadcasting Public Notice CRTC 2002-31, 12 June 2002 (Public Notice 2002-31). Public Notice 2002-31 established the policy framework for the licensing of new over-the-air digital television services based on a voluntary, market-driven model.*
3. *On the same day, the Commission issued a proposed policy framework in Call for comments on a proposed policy framework for the distribution of digital television services, Broadcasting Public Notice CRTC 2002-32 (Public Notice 2002-32; the proposed framework), based on the comments received in response to Public Notice 2001-62. The key principle of the proposed framework was that a BDU's regulatory obligations to distribute the primary signal of a licensed over-the-air digital television service should essentially mirror the carriage obligations that apply to the distribution of the analog version of the priority services identified in sections 17, 32 and 37 of the*

Broadcasting Distribution Regulations (the Regulations). The proposed framework also addressed such issues as the distribution requirements for multicast signals, signal duplication and placement, simultaneous signal substitution, and quality standards.

4. In addition to inviting comments on its proposed framework for the distribution of digital over-the-air services, the Commission invited interested parties to comment on the distribution of the upgraded versions of all other mandatory television services that must be carried by a BDU under the Regulations or by a condition of licence (mandatory services). The Commission also proposed to permit BDUs to distribute upgraded versions of authorized optional or discretionary television services, such as over-the-air, pay or specialty, or foreign television services (optional or discretionary services), without having to seek further authorization from the Commission. In addition, the Commission sought comment on how best to determine if or when the programming contained in the digital feed of a service has become sufficiently distinct from, or non-duplicative of, the programming contained in the analog version to conclude that it has become a separate and distinct service, for the purposes of distribution.
5. In Public Notice 2002-32, the Commission noted that, while its intention was that the policy framework would apply to all BDUs, the proposals had been drafted with only limited regard to the distinctions that exist between the distribution technologies used by cable television, multipoint distribution system (MDS) and direct-to-home (DTH) satellite distribution undertakings. Accordingly, the Commission sought comment on how its policy proposals should be adapted to take these different technologies and their particular capabilities into account. The Commission noted, in particular, the spectrum limitations of MDS undertakings and invited comment on how these challenges could best be addressed.
6. The over-the-air digital television system uses the Advanced Television Systems Committee A/53 transmission standard (the A/53 standard). The A/53 standard covers 18 digital television formats from low definition (LD) to high definition (HD) television. A format defines the aspect ratio of a picture, the number of lines, the frame rate and the type of scanning. Of the 18 formats, the three most commonly used are 480 interlaced (480i), 720 progressive (720p) and 1080 interlaced (1080i).
7. LD refers to programming transmitted in the 480i format, which is the digital equivalent of today's analog format. HD generally refers to programming transmitted in the 1080i format, although some would argue that programming in the 720p format should also be included. The Commission considers that the definition of HD is evolving and, for purposes of the present regulatory framework, HD will encompass both the 720p and 1080i formats.
8. The A/53 standard contemplates the simultaneous transmission of one or more television signals within a 6 MHz television channel. These could include one HD television signal or up to five LD television signals. Where the transmission involves more than one signal (a situation referred to as multicasting), the main or primary signal could be a digital over-the-air television service licensed in accordance with Public Notice 2002-31, or the

digital version of a pay or specialty service. The other signals would be referred to as secondary or subsidiary signals. In addition, a 6 MHz television channel also has capacity to transmit a certain amount of data.

9. As in the case of over-the-air digital television services, digital versions of pay or specialty services that contain any amount of programming in HD are referred to as “upgraded versions.” Like the over-the-air digital television services, the balance of the programming would be composed of material in the LD format.

Overview of the positions of the parties

10. Many parties expressed general agreement with the policy framework proposed by the Commission. According to a joint submission from the partners of Bell ExpressVu Limited Partnership and CTV Television Inc. (BEV/CTV), the proposed framework “carefully balances the interests of broadcasters, distributors and consumers in adopting a voluntary, market-driven transition model without mandated deadlines.”
11. The CAB and other parties representing the broadcasting industry considered that the cable carriage and simultaneous substitution rights that currently apply to their analog signals should also apply to their digital signals during the transition to over-the-air digital television. They argued that this level of carriage was essential if they were to meet the objectives of their business plans.
12. TELUS Communications Inc. (Telus) submitted that market forces should dictate the transition from analog to digital and that the Commission should adopt a framework that provides “maximum flexibility” to BDUs as they move toward full HD television distribution.
13. The Canadian Cable Television Association (CCTA) submitted that “the proposed framework clearly favours broadcasters, with no recognition of the costs assumed by distributors and no actual guarantees that broadcasters will deliver new or enhanced content to consumers in return for free over-the-air broadcast and BDU distribution capacity.” The CCTA submitted that the distribution requirements for digital services should be reduced given the substantial costs that will be incurred during the transition to digital. The CCTA further submitted that all cable systems with fewer than 6,000 subscribers should be exempted from priority carriage obligations.
14. Various parties raised specific issues concerning how the proposed framework would apply to MDS and DTH undertakings, as well as undertakings that use switched broadband.

Principles of distribution

15. After considering the comments received, the Commission considers that it is appropriate to adopt principles for the distribution of digital television services that will apply to all BDUs. The Commission recognizes, however, that there are specific issues that must be addressed in its policy to take into account the particular circumstances of different

distribution undertakings, such as those relating to size, capacity or the distribution technology that they use. Accordingly, in the sections that follow, the Commission first sets out the principles of distribution for digital television services that will generally apply to all BDUs, including specific issues relating to cable BDUs. In later sections, the Commission also addresses specific issues relating to DTH, undertakings using switched broadband, MDS and exempt undertakings.

Priority over-the-air Canadian digital television signals

16. The Commission's preliminary view set out in Public Notice 2002-32 was that, except as otherwise provided under a condition of licence, a BDU's regulatory obligations to distribute the primary digital signal of a licensed over-the-air television service should essentially match those that currently apply to the distribution of the analog version of the service.
17. In reaching this preliminary view, the Commission addressed issues relating to the duplication of services, the costs associated with building and operating digital facilities and the importance of mandatory requirements in promoting the transition to a digital environment. In this regard, the Commission noted that the business case facing digital broadcasters was already a difficult one and that, without mandatory cable carriage of digital television services and its impetus in promoting the sale of digital television receivers, the business challenges facing broadcasters would become more difficult.

Positions of the parties

18. The CAB advanced a number of arguments, many of which had been raised in response to Public Notice 2001-62, in favour of extending to over-the-air digital television services the same regulatory treatment as that now given analog services. The CAB noted, for example, that the language of the *Broadcasting Act* (the Act), like that of the Regulations, is technologically neutral. It further submitted that a broadcaster should be afforded every opportunity to re-coup the costs of building and operating digital facilities by having its digital television service reach all of the potential viewers in the market it is licensed to serve, including those who receive that signal through a BDU. According to the CAB, without priority carriage, the over-the-air digital television signals "will be invisible to approximately 75% of Canadian viewers that receive their broadcast signals from a BDU rather than directly from the originating stations using an antenna." In its view, priority carriage of over-the-air digital television signals is necessary to achieve a quick and successful transition from analog to digital transmission.
19. Parties representing the cable industry advanced a number of reasons why the mandatory carriage of over-the-air digital signals should be restricted in the early years of the digital transition. The Canadian Cable Systems Alliance Inc. (CCSA), an association representing smaller cable systems, submitted that "any regime of digital 'must carry' rules is bound to have a substantial and far-reaching effect on the distribution obligations and economic health of a large number of CCSA Member Companies."

20. The CCTA reiterated its concerns with respect to the duplication of conventional services and its view that this would constitute inefficient use of capacity. The CCTA submitted that, because of the low penetration of digital receivers, over-the-air digital television would not warrant the level of widespread availability that is achieved through the carriage on the basic service of cable undertakings. The CCTA put forward the view that over-the-air digital television would likely remain a duplicate, rather than a replacement, technology for at least a decade. The CCTA added that small cable systems already face enormous challenges and must make significant investments to complete the transition to digital cable. In light of its concerns, the CCTA suggested that mandatory carriage of priority services apply only to large systems and be limited to local digital signals. The CCTA also submitted that HD programming requirements should be imposed on broadcasters in return for cable carriage.

The Commission's analysis and determination

21. As noted in Public Notice 2002-32, the Commission considers that requiring BDUs to distribute digital television services is wholly consistent with the objective of section 3(1)(t)(i) of the Act, which provides that BDUs “should give priority to Canadian programming services and, in particular, to the carriage of local stations.” The Commission also considers that the mandatory distribution of digital television services is consistent with section 3(1)(d)(iv) of the Act, which stipulates that the Canadian broadcasting system should “be readily adaptable to scientific and technological change.”
22. The Commission recognizes the substantial costs that must be incurred by Canadian over-the-air broadcasters to build and operate digital transmission facilities and considers that broadcasters must be afforded the opportunity to maximize their advertising revenues by having their over-the-air digital television services reach as many viewers as possible.
23. The Commission also recognizes the challenges faced by cable distributors in terms of their capacity to carry both analog and digital services, and the costs associated with upgrades of their distribution systems. The Commission considers, however, that as BDUs now account for three quarters of the television audience, with only one quarter receiving television service through the direct reception of over-the-air signals, cable distribution of over-the-air digital services is not only consistent with the Act, but is critical to the success of the digital transition.
24. The Commission notes that capacity upgrades will allow cable undertakings to provide other immediate revenue-generating services, such as a wider variety of programming services as well as Internet services.
25. The Commission also notes its conclusion in Public Notice 2002-31 that digital television will be treated as a replacement technology for analog, rather than as a new technology that would simply take its place alongside the existing analog system. The Commission reaffirms that conclusion below, and considers that capacity constraints will be eased in the longer term, when distributors are no longer required to carry both the analog and digital versions of the same signal.

26. As noted in Public Notice 2002-32, one of the purposes of introducing digital technology is to provide viewers with a superior technical format. The Commission considers that the greater the opportunity that consumers have to be exposed to the superior technical quality of digital, and particularly of HD services, the greater their incentive will be to purchase digital television receivers, which will in turn increase the demand for digital television services. The faster the consumer take-up, the shorter the time period during which broadcasters and distributors will have to provide services in both analog and digital formats. A shorter transition period will reduce the overall costs of the transition for both broadcasters and distributors.
27. The Commission notes the CCTA's suggestion that mandatory priority carriage obligations should be limited to the distribution of local signals by large systems. In this regard, the Commission notes that, although section 17(1)(e) of the Regulations requires cable companies to distribute all local television signals, they are not required to distribute regional or extra-regional stations if they are already distributing "a television station that is an affiliate or member of the same network." They are also not required, in virtue of section 17(3), to distribute programming services that are identical. Given the proximity of a number of broadcasting stations to each other, particularly in the Windsor to Québec corridor, the Commission considers that the CCTA's suggestion that mandated carriage be limited to local digital signals would, in many cases, be accommodated within the existing rules.
28. The Commission recognizes that the Regulations may not address the carriage of non-network stations from the same ownership groups that are broadcasting essentially duplicate programming. Accordingly, the Commission will be prepared to consider granting, on a case-by-case basis, conditions of licence relieving licensees of the mandatory carriage of priority signals that, except for their local programming, essentially provide duplicate programming.
29. With regard to smaller systems, the Commission notes that, while the transition to over-the-air digital television broadcasting has already begun in larger urban markets, it is not expected to begin in smaller markets for some time. The Commission considers that the costs of the equipment needed to upgrade cable systems are likely to have fallen by the time the smaller cable undertakings are required to upgrade their systems.
30. The Commission expects all BDUs to implement the necessary upgrades. Should capacity problems arise, the Commission would, in exceptional circumstances, be prepared to grant relief from the priority carriage requirements on a time-limited basis. The Commission would, for example, be prepared to provide temporary relief from the carriage of extra-regional priority signals to small cable undertakings that are not interconnected.
31. In light of the above, the Commission concludes that it is reasonable to require BDUs to distribute the primary digital signal of a licensed over-the-air television service in accordance with the priorities that currently apply to the distribution of the analog version of the services and, accordingly, adopts the following principles:

- Except as otherwise provided under a condition of licence, a distribution undertaking must carry the primary signal of Canadian over-the-air digital television signals identified in sections 17, 32 and 37 of the Regulations.
- The Commission expects all BDUs to implement the upgrades necessary in order to comply with the priority carriage requirements for over-the-air digital signals.
- In order to provide some flexibility and to make better use of limited distribution capacity, the Commission will consider granting exceptions, by condition of licence, to the carriage requirements related to priority signals that, except for their local programming, essentially provide duplicate programming.
- The Commission will, in exceptional circumstances, consider granting exceptions by condition of licence, on a time-limited basis, to the carriage requirements of priority signals in order to provide relief to cable undertakings facing capacity problems.
- The Commission expects over-the-air digital television broadcasters to provide affected BDUs with reasonable notice of the date they intend to go on air. This information may be provided on a confidential basis.

**Establishing priorities for the distribution of over-the-air digital television services -
Definitions of local, regional and extra-regional over-the-air digital television stations**

32. The current priority carriage criteria for cable distributors are established by reference to the official contours of analog television stations in relation to the service area boundaries of BDUs. In Public Notice 2002-32, the Commission proposed that the carriage priorities assigned to over-the-air digital signals be defined in a similar manner, by reference to digital television contours. The Commission accordingly proposed definitions of local, regional and extra-regional digital television stations that incorporated the technical criteria established in the Department of Industry's (the Department's) definition of digital service area (DSA) contour,¹ with a view to ensuring that the digital station receives the same carriage priority as its analog counterpart. These were as follows:

- A local digital television station, in relation to a BDU, is one whose digital service area contour encloses an area that includes a minimum of 95% of the households in the BDU's licensed service area.
- A regional digital television station is one whose digital service area contour encloses any part of the licensed service area of the distribution undertaking.

¹ Broadcasting Procedures and Rules (BPR), Part 7, Department of Industry

- An extra-regional digital television station is one whose digital service area contour does not include any part of the licensed service area of the distribution undertaking, but does include any point located 32 km or less from the local head end of the undertaking.

33. The Commission noted that, although there were technical criteria that could be applied to replicate the existing Grade B contours of each analog television station, there was no digital equivalent of the analog Grade A contour. The Commission therefore proposed a definition of a Grade A contour for a local digital television station. For this purpose, the Commission proposed that such a contour be defined as a minimum field strength of six decibels above the field strength obtained at the DSA contour defined by the Department.

Positions of the parties

34. The CAB expressed concern about the Commission's proposal to use DSA contours to define the service areas where mandatory carriage and substitution rules would apply. More specifically, in its comments on Public Notice 2002-32, the CAB objected to the Commission's first suggestion that a local digital television station be defined as a station whose DSA contour encloses an area that includes a minimum of 95% of the households in the BDU's licensed area. The CAB was concerned that, because of shifts in population, a particular digital station could qualify as local at one time but as regional at another. The CAB also argued that the Commission's alternate suggestion, that a definition of a Grade A contour for a digital station be based on a minimum field strength, would be arbitrary and artificial.
35. Télé Inter-Rives ltée, licensee of CIMT-TV Rivière-du-Loup, submitted that the proposed definitions would pose a problem for stations operating outside metropolitan centres and suggested that [translation] "the definition of the Grade A contour for a digital television station should represent 70% of the authorized contour."
36. The Canadian Broadcasting Corporation (CBC) noted that the public interest would best be served if all services available in analog format were also available in their digital format. The CBC noted that, in many instances, the area enclosed by the DSA contour is smaller than that enclosed by the analog Grade B contour. The CBC therefore suggested that the regional contour of a digital station be defined on the basis of the station's DSA contour, as extended outwards by a distance calculated to minimize the number of such instances.
37. BEV/CTV submitted that the carriage requirements should be based on the final DSA contour that would exist at the end of the transition period, rather than on the DSA contour that would exist during the transition period. They noted that digital television stations may be permitted to amend their technical parameters since it will no longer be necessary to protect analog assignments at the end of the transition period.

38. Quebecor Media Inc. (QMI), the parent company of Vidéotron ltée, expressed concern about the possible mismatch of carriage areas and authorized markets. It stated that applying the current regulatory priorities would make little sense since the evolution of service areas over the last 40 years has been largely determined by population growth and by the establishment of new housing developments. It noted that [translation] “regardless of the chosen method, what matters for Vidéotron is that a television licensee not be allowed to go beyond ... its market as clearly defined by the Commission.”

The Commission’s analysis and determination

39. The Commission notes that, historically, it has always used a station’s service contours to establish priority ranking. The Commission considers that contours have the significant advantage of tying cable carriage directly to the area in which a signal may be received, and provide an important incentive for broadcasters to provide full digital coverage of their licensed areas. The Commission considers that substituting the projected final DSA contours for the DSA contours existing during the transition to digital, as proposed by BEV/CTV, would eliminate the link between a station’s priority and its actual coverage. The Commission also questions the degree of certainty that would be achieved through projected final DSA contours, given that changes may be made to the Department’s channel allotment plan during the transition period.
40. The Commission does not consider that the CBC’s proposal for defining the regional contour of digital over-the-air stations would be practicable, as it would involve adjusting DSA contours on a case-by-case basis. The Commission notes that the Department has tried to duplicate the area encompassed by each station’s analog Grade B contour with its corresponding DSA contour and has succeeded to a large extent.
41. The Commission notes that there may be cases for exceptions to the distribution requirements where a licensed over-the-air digital television broadcaster cannot duplicate its analog coverage and faces the loss of cable carriage in a key market. The Commission notes that the Regulations allow exceptions to the carriage requirements, by condition of licence, and intends to retain this flexibility. If a broadcaster and a BDU cannot come to an agreement with respect to carriage in such cases, the broadcaster could raise the issue at the time of the BDU’s licence renewal.
42. The Commission acknowledges the CAB’s concern that changes in the population could see a station’s DSA contour enclose 95% of the households at one time, but cease to do so at another, causing its priority status to change over time. The Commission therefore considers that it is more appropriate to define a local digital television station on the basis of its Grade A contour. However, the Commission no longer considers that a field strength of six decibels above the field strength obtained at the DSA contour, as proposed in Public Notice 2002-32, to be a suitable benchmark. After further study, the Commission has determined that a benchmark value of seven decibels, rather than six decibels, would be more appropriate. In the Commission’s view, this small change will serve to ensure a signal of sufficient strength to serve 90% of the locations within the DSA contour, 90% of the time.

43. In light of the above, the Commission has determined that it is appropriate to use a station's DSA contour, as defined by the Department, to determine priorities for digital distribution. Accordingly, the definitions of local, regional and extra-regional stations will be amended in the Regulations to reflect the following principles:
- A local digital television station, in relation to a BDU, is one that has a local service contour that includes any part of the licensed area of the distribution undertaking. A local service contour means a service contour with a field strength of seven decibels above the field strength obtained at its DSA contour, as defined in the Department's BPR, Part 7.
 - A regional digital television station, in relation to a BDU, is one that has a DSA contour, as defined in the Department's BPR, Part 7, that includes any part of the licensed area of the distribution undertaking.
 - An extra-regional digital television station, in relation to a BDU, is one that has a DSA contour, as defined in the Department's BPR, Part 7, that does not include any part of the licensed area of the distribution undertaking, but does include any point located within a radius of 32 km from the local head end of the undertaking.

Position of over-the-air digital television signals in a BDU's channel line-up

44. In Public Notice 2002-32, the Commission expressed its preliminary view that the position of an over-the-air signal in a BDU's line-up would matter less in a digital than in an analog environment and, accordingly, proposed that distributors should be free to place over-the-air digital services in their channel line-ups, without regard to their priority status, as long as the services are included as part of the basic service, as defined in the Regulations, and are thus available to all subscribers. The Commission was also of the view that distributors and television broadcasters should cooperate in the creation of navigation and menu systems that give prominence to digital Canadian services.

Positions of the parties

45. While most parties generally agreed with this proposal, some recommended further regulatory measures. Specifically, the CAB suggested that digital Canadian services, starting with priority over-the-air digital television services, be given prominence on electronic program guides (EPGs). The CAB added: "To the extent that EPGs might be controlled by BDUs with interests in various programming services, they should be subject to regulations requiring that non-affiliated [over-the-air digital television] services be treated equitably and not be subjected to an undue preference or disadvantage."
46. The CBC submitted that all navigation and menu systems provided by BDUs should give prominence to Canadian services, with special prominence given to Canadian programming. The CBC also proposed a number of possible means by which this might be done, including suggestions for regulatory changes and the establishment of specific deadlines for distributors to implement navigation and menu systems.

47. The CCTA, on the other hand, submitted that “no further regulatory involvement is required on this matter.”

The Commission’s analysis and determination

48. The Commission agrees with the CAB and the CBC’s suggestion that all navigation and menu systems provided by BDUs should give prominence to Canadian services.
49. The Commission remains of the view that the current provision relating to undue preference or disadvantage set out in section 9 of the Regulations adequately addresses such matters.
50. Accordingly, the Commission adopts the following principles:
- Distributors are free to place digital priority signals anywhere in their channel line-ups, without regard to their priority status, as long as the services are included as part of the basic service and made available to all subscribers at no additional charge.
 - Distributors are expected to give prominence to digital Canadian services in their French- and English-language navigation and menu systems.

Duplication of analog and digital versions of mandatory Canadian services

51. In Public Notice 2002-32, the Commission noted that digital television will be treated as replacement technology for analog television. It also stated, however, that given that digital television receivers and digital set-top boxes currently had only a very limited penetration in the homes of Canadian cable subscribers, it expected that the distribution of both the analog and digital versions of mandatory Canadian services would be required for some time. For the longer term, the Commission proposed that a BDU should not be required to distribute the analog version of a mandatory television service once all, or substantially all, of its subscribers are equipped with a digital receiver or have a set-top box capable of converting the digital version of the service to analog. The Commission noted that it would be necessary to set a practical and measurable threshold and invited comment on what a suitable threshold might be.

Positions of the parties

52. The CCTA submitted that, given the projected length of the digital transition period, and the uncertainty about what regulatory rules will apply in 10 to 20 years, any discussion about what should constitute a threshold at this time would likely be academic. However, it suggested that it might “be useful to set a target of 75% penetration as the threshold, but retain the option for broadcasters to request to continue duplicate carriage under a negotiated fee for carriage arrangement.” Télé Inter-Rives ltée, for its part, proposed a figure of 85%.

53. The CAB recommended that the Commission maintain the status quo and not address the matter at this time, given the length of the digital transition period, the numerous policy issues that must first be addressed, and the problems posed by the fact that while the presence in the home of one digital television set would meet the test, the test would partially disenfranchise those subscribers who also have analog television sets served by other cable outlets in their homes.

The Commission's analysis and determination

54. The Commission is of the view that its regulatory approach should encourage broadcasters to provide over-the-air digital service and distributors to upgrade their undertakings. The Commission considers that not requiring duplication of the analog and digital services once the penetration of digital television receivers and set-top boxes has reached a certain agreed threshold would help achieve these objectives. In particular, it would motivate distributors to roll out set-top boxes. The Commission considers that there is no benefit to be derived from the carriage of duplicate services once substantially all subscribers can receive digital services and reaffirms its view that digital television will be treated as replacement technology for analog television. The Commission further notes that, with the additional capacity gained through the removal of analog services, distributors will have the ability to offer a wider variety of HD services. The Commission therefore maintains its earlier view that analog carriage should be phased out once all, or substantially all, of a BDU's subscribers have digital receivers or set-top boxes that can convert digital signals to analog.
55. In light of the concerns raised by the parties in this proceeding, the Commission concludes that, rather than setting a threshold level that would automatically trigger removal of analog services, it would be more reasonable to set a threshold at which it would be prepared to consider applications to discontinue the carriage of analog signals. The Commission has determined that a threshold of 85% penetration would be appropriate for such purposes.
56. Accordingly, the Commission concludes that:
- A BDU may submit an application requesting the Commission's approval to cease the carriage of analog signals once 85% of the BDU's subscribers have the ability to receive digital services by means of digital television receivers or set-top boxes. The Commission will determine, at that time, the terms and conditions under which the analog services may be removed from the system.

Carriage of optional and discretionary, Canadian and non-Canadian, digital television services

57. In Public Notice 2002-32, the Commission proposed that a BDU's authority to distribute an optional and/or discretionary television service, whether it is an over-the-air service, a pay or specialty television service, or a service that appears on the *Lists of eligible satellite services*, as amended from time to time, would be interpreted as including authority to distribute the primary signal of the digital version of that service, as furnished by its provider. The Commission also proposed that this authority would be subject to the

access provisions of section 18 of the Regulations and the *Distribution and Linkage Requirements for Class 1 and Class 2 Licensees*, as amended from time to time or, for DTH undertakings, subject to the *Linkage Requirements for Direct-to-home (DTH) Satellite Distribution Undertakings*, as amended from time to time (the distribution and linkage requirements). It would also be subject to the requirement that the primary signal be an upgrade of the analog signal.

58. The Commission also proposed that any condition of licence that applies to the authority to distribute an optional and/or a discretionary analog service would also apply to the corresponding digital version of the service.
59. The Commission invited comment on how best to determine whether and when the programming contained in the digital version of a service has become sufficiently different from the programming contained in the analog version to conclude that it has become a separate and distinct service.

Positions of the parties

60. The CCTA supported the Commission's policy proposal, adding that, if the policy were adopted, HD television would enter Canadian homes more quickly, and Canadian broadcasters would have more reason to produce and offer HD television.
61. Other parties expressed support for the Commission's proposal but made further suggestions. BEV/CTV, for instance, discussed the need to protect Canadian broadcasters while providing distributors with flexibility. The CBC indicated that it did not oppose the policy, but argued that the policy must be implemented with appropriate cautionary measures. Parties focussed on three issues: service duplication, carriage and program rights. Parties also raised a number of other issues in relation to the carriage of the upgraded versions of pay and specialty services, including questions as to what might be considered the HD version of such services, what distribution capacity is available for them, whether carriage rates should be set or negotiated, and what access rights, if any, should be granted and under what conditions.

Service duplication

62. BEV/CTV and the CBC suggested that a Canadian service that provides more than 14 hours per week of unduplicated programming on the digital service should be considered a distinct service and therefore require separate authorization. They indicated that this approach was consistent with the 14 hours per week of non-duplicated programming that the Commission, in Public Notice 2002-31, has permitted over-the-air services to offer under transitional licences.
63. Many parties were of the view that Canadian and non-Canadian digital services should have different thresholds with regard to the number of unduplicated hours permitted before a digital service is considered to be separate and distinct from the analog version. The CBC suggested that U.S. digital services with more than seven hours of unduplicated programming per week should require new authorization. The CAB expressed concern

that a BDU's digital spectrum might be "quickly depleted by the carriage of digital duplicates of analog foreign services." This, in the CAB's view, would impede the ability of that BDU to distribute Canadian digital television signals. For this reason, the CAB suggested that the Commission require that the digital version of a non-Canadian service be a complete duplicate of the analog version as a condition of the digital version being carried.

Carriage

64. Many parties addressed carriage issues, noting, in particular, that Canadian digital services should have priority over other digital services. In a joint submission, Astral Broadcasting Group Inc. and Alliance Atlantis Broadcasting Inc. proposed that the Commission establish an "order of priority" for the carriage of digital services. Similarly, Pelmorex Communications Inc. (Pelmorex) suggested that the Commission should only allow a BDU to distribute optional non-Canadian digital programming services once the BDU is distributing mandatory Canadian programming services in both analog and digital formats. The CAB stated that Canadian digital services should have priority over non-Canadian digital services when carriage capacity is limited and that priority Canadian digital signals should have priority over all digital services.

Program rights

65. Finally, a number of parties expressed concern that Canadian broadcasters might be forced to acquire foreign programming in lower quality digital or analog format if rights holders chose to withhold HD television rights from them.

The Commission's analysis and determination

66. The Commission notes that a number of the issues raised in relation to the carriage of upgraded versions of pay and specialty services were not specifically canvassed in Public Notice 2002-32. In view of the number and importance of these issues, the Commission will launch a separate proceeding to establish the licensing and distribution frameworks for Canadian pay and specialty services as they move toward the broadcast of programming in HD format. The Commission also considers that it would be appropriate to determine a level for the amount of unduplicated programming that would be permissible without a pay or specialty service being considered a distinct service for the purposes of distribution and requiring a new licence.
67. In the interim, the Commission will permit the licensee of a Canadian pay or specialty service to make available for distribution an upgraded version of the service, provided that not less than 95% of the video and audio components of the upgraded and analog versions of the service are the same, exclusive of the commercial messages and of any part of the service carried on a subsidiary signal. The Commission will authorize such an upgraded version by means of an amendment to the licence of the corresponding analog service. The authorization will be granted for a term of three years. Distributors will be permitted to add the upgraded versions of Canadian pay and specialty television services

whose analog versions they are required, authorized or permitted to distribute. The terms and conditions, including rates, will be negotiated between the parties concerned. Licensees may apply for new licences to replace the short-term authorizations once the licensing and distribution frameworks are established.

68. As regards the threshold of unduplicated programming that would be allowed for a non-Canadian digital service without further authorization, the Commission considers as too restrictive the CAB's proposal that the carriage of such a service require separate authorization by the Commission if the programming is not identical to that distributed on the analog service. It notes that, under the CAB's proposal, a single unduplicated program would result in removal of the digital station unless it had been separately authorized. In the interim, distributors will be permitted to distribute the upgraded version of an authorized non-Canadian service, provided that not less than 95% of the video and audio components of the upgraded and analog versions of the service are the same, exclusive of the commercial messages and of any part of the service carried on a subsidiary signal. This threshold will be reviewed in the forthcoming proceeding that will establish a framework governing the transition of pay and specialty services to HD.
69. The Commission agrees with those parties who considered that priority should be given to the distribution of Canadian services over non-Canadian services. The Commission is satisfied that its existing priority carriage rules address most of the stated concerns, as do its access requirements for specialty services set out in section 18 of the Regulations. The Commission considers it appropriate, however, to amend the Regulations to specify that, if a non-Canadian analog service was added to a distributor's channel line-up before 6 May 1996, either the upgraded version or the analog version of that service, at the distributor's option, will receive grandfathered carriage. The other version will be considered a post-1996 service and, the channel on which it is distributed will be considered an available channel for the purpose of the Regulations. This will ensure that adequate capacity is available for the carriage of Canadian services.
70. The Commission will also amend section 6(2) of the Regulations. This section currently stipulates that "... a licensee shall ensure, in respect of each of analog and digital technology, that a majority of the video and audio channels received by a subscriber are devoted to the distribution of Canadian programming services ...". The Commission will amend this section to make it clear, in respect of digital technology, that the upgraded versions of Canadian and non-Canadian services are counted as distinct services when determining if the majority of video services received by a subscriber are Canadian.
71. Some parties were concerned that rights holders would refuse to provide Canadian broadcasters with non-Canadian programming in HD. While it is not clear at this time how practices with respect to the granting of digital rights will evolve, the Commission notes the parties' concerns and, should the withholding of HD rights become an issue, the Commission would consider an application to remove the authority to distribute the non-Canadian service in question.

72. Accordingly, the Commission adopts the following principles:

- Subject to the access requirements, the authority to distribute a discretionary or optional service, whether it be over-the-air, pay or specialty, and Canadian or non-Canadian, will also include the upgraded version of that service.
- The Regulations will be amended to clarify that, if a non-Canadian analog service was added to a distributor's channel line-up before 6 May 1996, either the upgraded version or the analog version of that service, at the distributor's option, will receive grandfathered carriage. The other version will be considered a post-1996 service.
- Distributors will be permitted to distribute the upgraded version of an authorized service, provided that not less than 95% of the video and audio components of the upgraded and analog versions of the service are the same, exclusive of the commercial messages and of any part of the service carried on a subsidiary signal.
- The Commission will authorize the upgraded version of a Canadian pay or specialty service by means of an amendment to the licence of the corresponding analog service.
- Any condition that applies to the authority to distribute optional or discretionary analog services will also apply to the corresponding upgraded version of the service.
- For the purposes of the predominance rule, the upgraded version of a Canadian or a non-Canadian service will be counted as a service that is separate from the analog version.

Carriage of multicast services

73. In Public Notice 2002-32, the Commission proposed that determinations concerning whether and under what terms a licensed multicast service might be authorized for distribution by a BDU would be reached by the Commission, on a case-by-case basis, at the time it considers the licence application for the multicast service. The Commission also stated that it would be disposed to authorize the distribution of new and innovative multicast services in preference to those that merely duplicate other services. The Commission added that a BDU would be required to obtain prior authority if it wished to distribute a multicast service that was transmitted as part of the digital signal of a non-Canadian service. The Commission expressed its view that the distribution of programming in HD format should take precedence over the distribution of multicast services.

Positions of the parties

74. The CAB submitted that, should the distribution of new and innovative licensed digital multicast services be at the option of a BDU and not a requirement, the BDU would control access to Canadian multicast services. Broadcasters would then have difficulty developing viable business plans for the implementation of new multicast services. For this reason, the CAB argued that “the Commission should provide carriage guarantees for any licensed digital multicast service that it determines to be new and innovative.”
75. In contrast, Pelmorex submitted that the carriage rules for licensed multicast services should be similar to those that apply to Category 2 digital specialty services. Under such rules, the BDU would determine how multicast services are distributed.
76. The CCTA recommended that priority access not be given to multicast services and that applications for mandatory carriage be considered only under “exceptional circumstances.”
77. The CBC and BEV/CTV agreed with the Commission’s proposal. However, the CBC submitted that a multicast service that was an enhancement of the main service should not require additional licensing and should have the same carriage priority as the main service. These enhancements could include, for example, live news coverage that offers several “windows” on the screen, each presenting a different camera angle. Viewers could select a window (or camera angle) and expand it to fill the entire screen.

The Commission’s analysis and determination

78. The Commission recognizes that the case-by-case approach outlined in Public Notice 2002-32 would leave a number of regulatory questions open until specific decisions are taken. However, the Commission considers that a number of suggestions put forward by parties would be difficult to implement at this time, when digital television is still in its early stages and the direction of the development of multicast services remains uncertain. The Commission notes that multicast services cannot be carried on the same channel as an HD service and that the future development of multicast services will be significantly affected by developments in HD programming.
79. Moreover, the Commission expects that, in the absence of specific proposals for multicast services, any regulatory framework would likely raise further questions. The Commission notes, for example, that the CAB’s suggestion that carriage guarantees be provided for “new and innovative” services raises the question of what makes a service new and innovative. It is also possible that certain elements of a service might be sufficiently new and innovative to warrant licensing, but insufficient to warrant priority carriage.

80. In regard to the CBC's suggestions concerning the carriage of services that are enhancements of the main service, the Commission notes that these issues are being considered as part of a proceeding dealing with interactive programming.²
81. In light of the above, the Commission has decided that it will adopt a case-by-case approach for the carriage of particular multicast services, just as it has for the licensing of such services. The regulatory approach to the carriage of multicast services will thus reflect the policy as proposed in Public Notice 2002-32:
- Determinations concerning whether and under what terms a licensed multicast service might be authorized for distribution by a BDU would be reached by the Commission, on a case-by-case basis, at the time it considers the licence application for the multicast service.
 - The Commission would be disposed to authorize the distribution of new and innovative multicast services in preference to those that merely duplicate other services.
 - A BDU would be required to obtain prior authority if it wished to distribute a multicast service that was transmitted as part of the digital signal of a non-Canadian service.
 - The distribution of HD programming should take precedence over the distribution of multicast services.

Data services

82. In Public Notice 2002-32, the Commission proposed that a BDU be required to give priority to the distribution of broadcasting services over non-broadcasting services. A BDU's authority to distribute any service, whether this authority is contained in the Regulations or is granted by a condition of licence, would not include the authority to distribute any non-broadcasting material that is unrelated to that service's programming. Distributors would be permitted to delete the subsidiary signals of a programming service in the course of distributing the service unless the subsidiary signals are, themselves, programming services or are related to the programming service being distributed.
83. The Commission also discussed the CCTA's recommendation, in response to Public Notice 2001-62, that the Commission adopt the test used by the Federal Communications Commission (FCC) in the U.S. to determine what constitutes "program-related data." The "WGN test," as it is known, provides that the following three criteria must be met in order for data to qualify as program-related: the broadcaster's intention must be that the information be seen by the same viewers as

² See *Fact finding inquiry on interactivity*, Public Notice CRTC 2001-113, 2 November 2001, and *Call for comments on program-related interactive television (ITV) services*, Broadcasting Public Notice CRTC 2002-63, 22 October 2002 (Public Notice 2002-63).

those who are watching the video signal, the information must be available during the same interval of time as the video signal, and the information must be an integral part of the program.

Positions of the parties

84. Most of the parties agreed that contracts for the distribution of data services should be arranged through negotiations.
85. The CBC submitted that the term “program-related data” must be defined more specifically, and that the mechanism by which a distributor may remove non-related data should also be specified. The CBC was concerned that a lack of specificity in this regard could result in disputes that would turn the attention of broadcasters, BDUs and the Commission away from the development of new services that would encourage the adoption of over-the-air digital television. The CBC suggested a tagging system for all data whereby each service within a digital multiplex of signals would carry numbers that identify the service and the broadcaster. Data unrelated to any service would be assigned numbers that would never be assigned to a programming service. This would enable BDUs to remove the tagged data that is not program-related. To begin the process, the CBC recommended that a joint committee of broadcasters submit for Commission approval the range of numbers that broadcasters proposed to use to identify data not related to programming services.
86. Many parties opposed the CCTA’s suggestion that the Commission determine what constitutes “program-related data” using the WGN test. They argued that the test’s criteria were too narrow. Pelmorex indicated that if this test were adopted, “a broadcaster would not be able to offer program listings and schedule information of upcoming programs on its own channel as this would not be ‘integral’ to the program being watched.” This was a particular concern for Pelmorex since The Weather Network and MétéoMédia do not present a series of different program episodes, as do most television services, but rather provide a continuous stream of weather information.

The Commission’s analysis and determination

87. The Commission notes that, under section 7 of the Regulations, distributors are permitted to delete the subsidiary signals of a programming service in the course of distributing the service unless the subsidiary signals are, themselves, programming services or are related to the programming service being distributed. The Commission considers that program-related subsidiary signals include closed captions or descriptive video services.
88. The Commission agrees with the CBC that regulatory certainty is a valid objective, but notes that, although the CBC’s proposal would provide for some Commission oversight, it would essentially allow broadcasters to determine what data is program-related. Further, the CBC’s suggestion for a joint committee to identify and submit for Commission approval the range of numbers that would be used would involve the

Commission directly in the system's administration. While the particulars of a numbering scheme are important, they are not central to the Commission's mandate as set out in the Act. For these reasons, the Commission has decided not to adopt the CBC's proposal.

89. With regard to Pelmorex's concern, as noted in the previous section, the Commission notes that issues regarding program-related data, including the WGN test, are under consideration as part of the proceeding initiated by Public Notice 2002-63.
90. The Commission considers that none of the concerns raised by the parties were significant enough to require an amendment to the proposed policy. Accordingly, the Commission adopts the following principles:
 - A BDU will be required to give priority to the distribution of broadcasting services over non-broadcasting services.
 - A BDU's authority to distribute any service, whether this authority is contained in the Regulations or is granted by a condition of licence, does not include the authority to distribute any non-broadcasting material that is unrelated to that service's programming.

Simultaneous substitution

91. In Public Notice 2002-32, the Commission proposed the following approach to simultaneous substitution:

Substitution rights for the primary digital service

- An over-the-air digital television service distributed by a BDU would have the same substitution rights as any analog service having the same level of priority under the Regulations, subject to the following qualification concerning the definition of "comparable."
- The definition of "comparable" contained in the Regulations would be amended to conclude with the phrase "and equivalent in signal quality." Consequently, a BDU would only be required to carry out a substitution where the quality of the signal provided by the broadcaster making the request is the same as or is higher than the quality of the signal to be replaced.

Substitution rights for a multicast service licensed as a conventional over-the-air television service

- A multicast service that is licensed as a conventional over-the-air television service and that is distributed by a BDU would have the same level of priority under the Regulations as the primary over-the-air digital television service for the purpose of determining substitution rights.

Substitution rights for a multicast service licensed as other than a conventional over-the-air television service

- The substitution rights of a multicast service licensed as other than a conventional over-the-air television programming service would be determined on a case-by-case basis at the time of licensing, as part of the Commission's consideration of whether the service should be authorized for distribution by BDUs.

Positions of the parties

92. The CAB, BEV/CTV and other broadcasters supported the Commission's proposal that the service of a digital station carried as a priority service would have the same substitution rights as an analog service with the same priority. However, the CAB raised the concern that "rights holders of foreign digital programming may elect to withhold HD rights from Canadian broadcasters, forcing them to acquire that programming in lower quality digital or analogue format. This in turn would eliminate substitution opportunities against identical programming in HD format broadcast by U.S. border stations."
93. In such cases, the CAB proposed that the Commission authorize simultaneous substitution by condition of licence. Specifically, BDUs would be required to "undertake special-case simultaneous substitution on behalf of a digital TV station in circumstances where the technical format of the signal to be substituted was lower than the one to be replaced. The Commission could authorize this type of substitution by way of condition of licence, permitting the Commission to react quickly to any unreasonable withholding of digital rights by foreign rights-holders."
94. The CCTA supported the Commission's proposal that a high quality signal should only be substituted by a signal that is at least equivalent in quality, and not by a lower quality signal. It expressed concern, however, regarding the availability and suitability of the digital switching equipment that is currently available.

The Commission's analysis and determination

95. Simultaneous substitution requirements protect the program rights acquired by Canadian broadcasters and help to underpin the continued financial health of the Canadian broadcasting system. The Commission remains of the view that, if a Canadian over-the-air digital signal is considered sufficiently valuable to be granted carriage by distributors, then it should also be granted the substitution rights that would accompany similar carriage under the current regulatory regime for analog signals. For this reason, the Commission will require that a primary digital signal carried by a distributor on a priority basis be afforded the same substitution rights as an analog signal with the same priority status.
96. The Commission notes the concerns expressed by the CAB and BEV/CTV regarding the possible inability of Canadian broadcasters to obtain HD television rights to non-Canadian programming. However, as discussed above, should the withholding of rights to

programming in HD format become an issue, the Commission would consider an application to remove the authority of BDUs to distribute the non-Canadian service in question.

97. Accordingly, the Commission will amend the Regulations such that substitution will be required only if the quality of the signal of the broadcaster making the request is the same as or higher than the quality of the signal to be replaced. In making determinations as to signal quality, the Commission will take a number of factors into account, including signal format and compression ratio.
98. The Commission considers that the CCTA's concern regarding the availability of equipment to implement simultaneous substitution of digital signals is a temporary problem that should resolve itself within the next few years. The Commission notes that Canadian Digital Television (CDTV) submitted, in response to Public Notice 2002-32, that there is technology available that could be adapted for simultaneous substitution.
99. The Commission's regulatory policy for simultaneous substitution will therefore be as follows:

- Substitution will be required only if the quality of the signal of the broadcaster making the request is the same as or higher than the quality of the signal to be replaced.

Substitution rights for the primary digital service

- A primary digital service that is carried by a distributor on a priority basis will enjoy the same substitution rights as an analog service with the same priority status.

Substitution rights for a multicast service licensed as a conventional over-the-air television service

- A multicast service that is licensed as a conventional over-the-air programming service that is carried by a distributor will enjoy the same substitution rights as the station's primary service.

Substitution rights for a multicast service licensed as other than a conventional over-the-air television service

- The substitution rights of a multicast service licensed as other than a conventional over-the-air television programming service will be determined on a case-by-case basis at the time of licensing, as part of the Commission's consideration of whether the service should be authorized for distribution by BDUs.

Distribution quality standards

100. In Public Notice 2002-32, the Commission proposed that an over-the-air digital television signal distributed by a BDU to its subscribers should be of the same quality and in the same format as that received by the BDU, without any degradation.

Positions of the parties

101. While the parties generally agreed that the technical quality of an over-the-air digital television signal should not be degraded by a BDU, their opinions differed on the regulatory approach to be adopted. The CAB submitted that “specific regulatory measures” should be adopted to ensure that BDUs maintain the quality of over-the-air digital television signals and do not use digital capacity for other purposes.
102. Similarly, the CBC argued that the phrase “without any degradation” is open to interpretation, and objective criteria must be established to prevent BDUs from imposing additional compression on over-the-air digital television signals. To this end, the CBC put forward a detailed definition of the expression “distribution of a digitally encoded service” to be incorporated into the Regulations. Under the proposed definition, distributors would transmit all data packets and bits used by the programming service to encode its video, audio and related data, without any change in the coding parameters.
103. The CCTA agreed that the quality of over-the-air digital television signals should not be materially degraded by distributors. It pointed out, however, that modulation and compression technology will improve over time.

The Commission’s analysis and determination

104. The Commission is of the view that the CBC’s proposed definition for the expression “distribution of a digitally encoded service” has considerable merit, but considers it could be overly restrictive. Such a definition would require, for example, that distributors transmit every data packet and bit used by the program service to every receiver on the network. However, such an objective would be impractical without some allowance for a minimum error rate.
105. At the same time, the Commission recognizes that allowances should be made for improvements in modulation and compression technology. Furthermore, the Commission notes that improvements in production and display technology, as well as the bandwidth requirements of the programming delivered, must also be considered.
106. Given the number of elements that must be taken into account in establishing a standard, as well as the rapid rate of technological change, the Commission considers that it is more appropriate to adopt the general principle set out in Public Notice 2002-32 rather than to adopt a specific technical standard.

107. Accordingly, the Commission adopts the following principle:
- An over-the-air digital television signal distributed by a BDU to its subscribers should be of the same quality and in the same format as that received by the BDU, without any degradation.

Carriage of over-the-air digital television services by direct-to-home (DTH) satellite distribution undertakings

108. In Public Notice 2002-32, the Commission proposed that DTH licensees should be required to distribute the over-the-air digital television versions of the analog services that they must currently distribute as part of the basic service. It noted that such an approach would be consistent with the proposed approach for terrestrially based BDUs.

Position of the parties

109. BEV/CTV concurred with the Commission's proposal as set out in Public Notice 2002-32. The CAB also supported the proposal, but submitted that DTH licensees should be expected to carry the digital version of all the licensed analog services that they distribute.
110. In its submission, CDTV noted that the requirement that distributors carry both analog and digital signals during the transition period could create a lack of bandwidth capacity. It suggested that this could prevent DTH licensees from distributing a broadcaster's HD television signal from an originating station to other affiliated stations across the country. It noted that the bandwidth requirements could be four to five times greater than the current distribution system for the networks.
111. The CCTA expressed a number of concerns with the proposed policy. In its view, the policy "would entrench asymmetries in the regulatory obligations of distributors that could distort market forces in the highly competitive digital market." In addition, since only certain broadcasters have carriage rights on DTH undertakings, the policy would create inequalities among broadcasters.

The Commission's analysis and determination

112. The Commission noted in Public Notice 2002-32 that the existing basic service carriage rules for DTH differ in some respects from those that apply to terrestrial BDUs. This regulatory approach, as set out in Part 4 of the Regulations, reflects the fact that DTH distributors are licensed on a national basis. It also reflects the role that DTH plays in the Canadian broadcasting system as a competitive alternative to cable.
113. The Commission agrees with CDTV's comment that capacity constraints will be a significant factor limiting the provision of services by satellite. Given the bandwidth requirements of programming in HD format, the Commission shares the view that DTH distributors will be unable to replicate a majority of their current LD services in HD format. Moreover, the Commission notes that, although not all of the services currently carried by DTH distributors may wish to make the transition to HD, a number of new

broadcast services are being added to DTH line-ups pursuant to *Direct-to-home (DTH) broadcasting distribution undertakings – simultaneous and non-simultaneous program deletion and the carriage of local television signals in smaller markets*, Broadcasting Public Notice CRTC 2003-37, 16 July 2003. Furthermore, the Commission's regulatory approach to access and carriage of HD pay and specialty services has yet to be determined. Consequently, today's broadcast services may have to be reconfigured and multi-satellite platforms used to meet future distribution objectives. The Commission considers that these changes will have a significant impact on DTH distributors, as well as on programming undertakings.

114. The Commission considers that the regulatory obligations of BDU licensees operating in the same market should in principle be equivalent, taking into account their different circumstances, including the differences in their distribution technologies. In view of the concerns raised by the CCTA and the potential capacity demands discussed above, the Commission will launch a separate proceeding to examine the regulatory framework governing the obligations of DTH undertakings with respect to the carriage of HD services. The issues raised by the CCTA will be addressed in this proceeding.
115. In the interim, the Commission's regulatory approach to the carriage of digital services by DTH undertakings will be as follows:
 - DTH licensees will be required to distribute the upgraded versions of the services that they must currently distribute as part of the basic service.

Carriage of over-the-air digital television services by undertakings using multipoint distribution system (MDS) and switched broadband technologies

116. In Public Notice 2002-32, the Commission stated its intention to adopt a policy framework that is applicable to all BDUs. It noted, however, that the proposals set out in that notice had been drafted with only limited regard to the distinctions that exist between the distribution technologies used by BDUs. Accordingly, the Commission sought comment on how its policy proposals should be adapted to take these different technologies and their particular capabilities into account. The Commission noted, in particular, the spectrum limitations that MDS undertakings face and invited comment on how these challenges could best be addressed.

Positions of the parties

117. Craig Wireless International Inc. (SkyCable) noted that its current MDS technology does not support the carriage of over-the-air digital television services. It further noted that, although some costly technical upgrades could be made, there would still be insufficient spectrum available to allow it to deliver additional over-the-air digital television services.

118. Similarly, Saskatchewan Telecommunications submitted that, unless advances are made in digital compression technologies, it will not be able to distribute HD television services using asymmetric digital subscriber line (ADSL) technology. It added further that distributing over-the-air digital television services raised economic concerns since such distribution will not be commercially viable for many years.
119. However, Telus submitted that capacity can be enhanced either by using compression technologies or by moving from lower capacity xDSL technologies, such as ADSL, to higher throughput versions such as Very High Rate Digital Subscriber Line (VDSL), by upgrading distribution networks from Synchronous Optical Network (SONET) OC-3 to OC-12 or OC-48, by upgrading from SONET to Gigabit Ethernet,³ or by upgrading to faster Internet Protocol (IP) routers.

The Commission's analysis and determination

120. The Commission recognizes that the amount of spectrum available to MDS undertakings is limited.
121. The Commission concurs with Telus that, although the maximum data rate that ADSL hardware can currently transmit is limited, higher performance equipment should soon be available. Moreover, while installing such equipment involves capital costs, so too do digital upgrades that broadcasters and cable BDUs are implementing.
122. As discussed in the preceding section, the Commission is of the view that the carriage requirements of BDUs operating in the same market should in principle be similar, but must take into account their inherent technological and other differences. Therefore, if a distributor lacks the infrastructure or spectrum necessary to carry priority signals, or to provide the access required for Canadian upgraded pay and specialty services, the Commission may grant, by condition of licence, an exception to relevant regulatory requirements. Such conditions of licence will be granted on a case-by-case basis and will be subject to any commitment or undertaking that might be deemed necessary.

Exempt undertakings

123. The Commission has issued two exemption orders relating to certain classes of broadband distribution undertakings. *Final revisions to certain exemption orders*, Public Notice CRTC 2000-10, 24 January 2000, pertains to master antenna television systems (MATV) that distribute services to residents of multiple unit dwellings, such as hotels, apartment buildings, condominiums and row houses. *Exemption order respecting cable systems having fewer than 2,000 subscribers*, Public Notice CRTC 2001-121, 7 December 2001 (Public Notice 2001-121), governs cable undertakings that serve fewer than 2,000 subscribers.

³ A network switching technology originally developed by Xerox that is widely used in Local Area Networks to send data packets to their destinations based on hardware addresses.

124. In addition, the Commission has issued *Call for comments on a proposed exemption order for cable broadcasting distribution undertakings that serve between 2,000 and 6,000 subscribers; and changes to the exemption order respecting cable systems having fewer than 2,000 subscribers*, Broadcasting Public Notice CRTC 2003-41, 29 July 2003. In this notice, the Commission invited comments on the proposed exemption order for cable BDUs serving between 2,000 and 6,000 subscribers, and on the proposed revisions to the Exemption order for small cable undertakings, set out in the appendix to Public Notice 2001-121.

The Commission's analysis and determination

125. The Commission recognizes that exempt undertakings operate in a competitive environment and must, in order to survive, offer service packages to their subscribers that are comparable to those offered by competitors. The Commission notes, however, that these undertakings tend to be small in size and have access to limited technology and resources. Given these realities, the Commission has determined that these two classes of exempt undertakings will not be required to duplicate mandatory services in digital format. The Commission is of the view that this will afford these undertakings the flexibility to make the digital transition at their own pace, while ensuring that subscribers continue to have access to Canadian services.
126. The Commission therefore intends to propose amendments to the exemption orders that reflect the following principle:
- Exempt undertakings will be permitted to distribute their mandatory television services in either analog or digital format, that is, they will not be required to carry both the analog and digital versions of a priority service.

Provision of service – An interim solution

127. In Public Notice 2002-32, the Commission stated that, in order to hasten the delivery of over-the-air digital television services to Canadians, it would be predisposed to adopt an interim approach for a period of between 12 and 18 months, while the licensees of transitional digital television undertakings construct their over-the-air facilities. Under this proposed approach, which was originally advanced by BEV/CTV, the service of a transitional digital television undertaking might be delivered by direct feed to a BDU's uplink facilities or to its head end for distribution to subscribers, pending construction of an over-the-air digital transmitter.
128. Applicants for transitional digital licences wishing to take advantage of this interim method of delivering their digital services to BDUs would be required to submit with their applications specific proposals and time frames for the construction of conventional digital broadcast facilities. Furthermore, any such interim carriage arrangements authorized by the Commission would be subject to conditions of licence requiring that construction of these facilities be completed, and that they be in operation, within

specified deadlines. Such interim carriage arrangements would not be mandated by the Regulations. Instead, they would be the subject of negotiations between the television broadcaster and the BDU concerned.

Positions of the parties

129. The CAB supported the Commission's proposal for interim measures, but requested that the Commission add that, when the service of a transitional digital television undertaking is delivered by direct feed to a BDU for distribution to subscribers, "the direct feed should receive priority carriage entitlement and substitution privileges consistent with the requirement applicable to the over-the-air station."
130. For their part, BEV/CTV asked the Commission to extend the 12- to 18-month interim period, noting that a longer period may be necessary to make the cost of implementing the interim solution worthwhile. Further, BEV/CTV suggested that the Commission consider on its merits any future application that proposes this interim solution as a permanent one for certain broadcasters in special circumstances.

The Commission's analysis and determination

131. Given the temporary nature of these arrangements, the regulatory and policy implications of mandating carriage, and the importance of ensuring that Canadian viewers are not disenfranchised by the transition, the Commission concludes that the proposal for an interim solution will stand as it was originally advanced. However, the duration of the interim operation will correspond to the implementation period for the licensed over-the-air facility, which is usually set at 24 months.
132. Accordingly, the Commission's interim solution will be as follows:
 - Following the Commission's approval of an application for a licence for a transitional digital television undertaking, the undertaking's service may be provided through a direct feed to a BDU's uplink facilities or head end until the undertaking constructs its over-the-air facilities.
 - These carriage arrangements will be the subject of negotiations between the broadcaster and the BDU concerned; they will not be mandated by the Regulations.

Other matters

133. Chris Stark and Marie Laporte-Stark submitted that the Commission's proposal does not acknowledge that broadcasters and distributors must meet the needs of persons with disabilities. In their view, "the services must carry captioning [and] descriptive narration in an easily accessible way and the equipment attached to it ... must be completely ... accessible."

The Commission's analysis and determination

134. The Commission agrees that the needs of persons with disabilities must not be overlooked in the digital transition. It notes that, in fact, broadcasters and distributors should find it easier to meet these needs since the A/53 standard provides for five separate audio channels, as well as for supplementary data services. The Commission reminds broadcasters and distributors that the upgraded versions of programming services will be subject to the same conditions of licence and carriage requirements as their analog counterparts. This includes provisions for closed captioning and for descriptive video as set out in individual conditions of licence. The Commission likewise reminds distributors that their obligations for the distribution of the digital versions of programming services are the same as those that apply to their analog counterparts.

The regulatory framework - Next steps

135. The Commission intends to issue for public comment proposed amendments to the Regulations and exemption orders that are necessary to implement this regulatory framework.
136. The Commission will also launch two follow-up proceedings. The first proceeding will establish a licensing framework governing the transition of pay and specialty services to HD. It will also establish a framework to govern the distribution of such services by BDUs. The second proceeding will examine the regulatory framework governing the carriage of HD services by DTH undertakings.

Secretary General

This document is available in alternative format upon request and may also be examined at the following Internet site: <http://www.crtc.gc.ca>

Appendix to Broadcasting Public Notice CRTC 2003-61

The regulatory framework for the distribution of digital television signals

Summary of determinations

Priority over-the-air Canadian digital television signals

- Except as otherwise provided under a condition of licence, a distribution undertaking must carry the primary signal of Canadian over-the-air digital television signals identified in sections 17, 32 and 37 of the Regulations.
- The Commission expects all BDUs to implement the upgrades necessary in order to comply with the priority carriage requirements for over-the-air digital signals.
- In order to provide some flexibility and to make better use of limited distribution capacity, the Commission will consider granting exceptions, by condition of licence, to the carriage requirements related to priority signals that, except for their local programming, essentially provide duplicate programming.
- The Commission will, in exceptional circumstances, consider granting exceptions by condition of licence, on a time-limited basis, to the carriage requirements of priority signals in order to provide relief to cable undertakings facing capacity problems.
- The Commission expects over-the-air digital television broadcasters to provide affected BDUs with reasonable notice of the date they intend to go on air. This information may be provided on a confidential basis.

Establishing priorities for the distribution of over-the-air digital television services - Definitions of local, regional and extra-regional over-the-air digital television stations

The Commission has determined that it is appropriate to use a station's DSA contour, as defined by the Department, to determine priorities for digital distribution. Accordingly, the definitions of local, regional and extra-regional stations will be amended in the Regulations to reflect the following principles:

- A local digital television station, in relation to a BDU, is one that has a local service contour that includes any part of the licensed area of the distribution undertaking. A local service contour means a service contour with a field strength of seven decibels above the field strength obtained at its DSA contour, as defined in the Department's BPR, Part 7.
- A regional digital television station, in relation to a BDU, is one that has a DSA contour, as defined in the Department's BPR, Part 7, that includes any part of the licensed area of the distribution undertaking.

- An extra-regional digital television station, in relation to a BDU, is one that has a DSA contour, as defined in the Department's BPR, Part 7, that does not include any part of the licensed area of the distribution undertaking, but does include any point located within a radius of 32 km from the local head end of the undertaking.

Position of over-the-air digital television signals in a BDU's channel line-up

- Distributors are free to place digital priority signals anywhere in their channel line-ups, without regard to their priority status, as long as the services are included as part of the basic service and made available to all subscribers at no additional charge.
- Distributors are expected to give prominence to digital Canadian services in their French- and English-language navigation and menu systems.

Duplication of analog and digital versions of mandatory Canadian services

- A BDU may submit an application requesting the Commission's approval to cease the carriage of analog signals once 85% of the BDU's subscribers have the ability to receive digital services by means of digital television receivers or set-top boxes. The Commission will determine, at that time, the terms and conditions under which the analog services may be removed from the system.

Carriage of optional and discretionary, Canadian and non-Canadian, digital television services

- Subject to the access requirements, the authority to distribute a discretionary or optional service, whether it be over-the-air, pay or specialty, and Canadian or non-Canadian, will also include the upgraded version of that service.
- The Regulations will be amended to clarify that, if a non-Canadian analog service was added to a distributor's channel line-up before 6 May 1996, either the upgraded version or the analog version of that service, at the distributor's option, will receive grandfathered carriage. The other version will be considered a post-1996 service.
- Distributors will be permitted to distribute the upgraded version of an authorized service, provided that not less than 95% of the video and audio components of the upgraded and analog versions of the service are the same, exclusive of the commercial messages and of any part of the service carried on a subsidiary signal.
- The Commission will authorize the upgraded version of a Canadian pay or specialty service by means of an amendment to the licence of the corresponding analog service.

- Any condition that applies to the authority to distribute optional or discretionary analog services will also apply to the corresponding upgraded version of the service.
- For the purposes of the predominance rule, the upgraded version of a Canadian or a non-Canadian service will be counted as a service that is separate from the analog version.

Carriage of multicast services

- Determinations concerning whether and under what terms a licensed multicast service might be authorized for distribution by a BDU would be reached by the Commission, on a case-by-case basis, at the time it considers the licence application for the multicast service.
- The Commission would be disposed to authorize the distribution of new and innovative multicast services in preference to those that merely duplicate other services.
- A BDU would be required to obtain prior authority if it wished to distribute a multicast service that was transmitted as part of the digital signal of a non-Canadian service.
- The distribution of HD programming should take precedence over the distribution of multicast services.

Data services

- A BDU will be required to give priority to the distribution of broadcasting services over non-broadcasting services.
- A BDU's authority to distribute any service, whether this authority is contained in the Regulations or is granted by a condition of licence, does not include the authority to distribute any non-broadcasting material that is unrelated to that service's programming.

Simultaneous substitution

- Substitution will be required only if the quality of the signal of the broadcaster making the request is the same as or higher than the quality of the signal to be replaced.

Substitution rights for the primary digital service

- A primary digital service that is carried by a distributor on a priority basis will enjoy the same substitution rights as an analog service with the same priority status.

Substitution rights for a multicast service licensed as a conventional over-the-air television service

- A multicast service that is licensed as a conventional over-the-air programming service that is carried by a distributor will enjoy the same substitution rights as the station's primary service.

Substitution rights for a multicast service licensed as other than a conventional over-the-air television service

- The substitution rights of a multicast service licensed as other than a conventional over-the-air television programming service will be determined on a case-by-case basis at the time of licensing, as part of the Commission's consideration of whether the service should be authorized for distribution by BDUs.

Distribution quality standards

- An over-the-air digital television signal distributed by a BDU to its subscribers should be of the same quality and in the same format as that received by the BDU, without any degradation.

Carriage of over-the-air digital television services by direct-to-home (DTH) satellite distribution undertakings

- DTH licensees will be required to distribute the upgraded versions of the services that they must currently distribute as part of the basic service.

Carriage of over-the-air digital television services by undertakings using multipoint distribution system (MDS) and switched broadband technologies

The Commission is of the view that the carriage requirements of BDUs operating in the same market should in principle be similar, but must take into account their inherent technological and other differences. Therefore, if a distributor lacks the infrastructure or spectrum necessary to carry priority signals, or to provide the access required for Canadian upgraded pay and specialty services, the Commission may grant, by condition of licence, an exception to relevant regulatory requirements. Such conditions of licence will be granted on a case-by-case basis and will be subject to any commitment or undertaking that might be deemed necessary.

Exempt undertakings

- Exempt undertakings will be permitted to distribute their mandatory television services in either analog or digital format, that is, they will not be required to carry both the analog and digital versions of a priority service.

Provision of service – An interim solution

- Following the Commission's approval of an application for a licence for a transitional digital television undertaking, the undertaking's service may be provided through a direct feed to a BDU's uplink facilities or head end until the undertaking constructs its over-the-air facilities.
- These carriage arrangements will be the subject of negotiations between the broadcaster and the BDU concerned; they will not be mandated by the Regulations.