

The RABC's Response to DGTP-001-02 is attached.

The Response was prepared by a Joint Working Group (Broadcasting, Fixed and Mobile committees) chaired by Ed Prior of TELUS.

The RABC Ballot closed on 2002-04-29; results were:

Approved: 7

Approved, with comment: 4

Abstained: 4 DND has Abstained, with comment — see below,

and has submitted its own response directly to the Department, as noted in the Introduction to the RABC Response.

Disapproved, with comment: 0

Disapproved: 0

Comments were received from five sponsor members; they are:

From CBC

A) The CBC support the Fixed Satellite Service Views on Item 3.2.1, 3.2.2 as it relates to providing more flexibility in using the conventional C-Band for the FSS. When possible, the band should be designated to a primary FSS allocation. The CBC makes extensive use of the FSS in this band for the distribution of its radio and television services, as well as for collection and backhauling between its regional centers to its main network centers. This band is even more critical to the CBC, now that it has digitized its signals and moved to a centralized presentation model, creating the need for more uplinks and receive earth stations in populated areas.

The CBC leased 5 C-band Transponders on Anik F1, as follows:

TV Distribution: 2 Transponders (Transponder 2A and 6A)

English Television (2A) - 15 channels

French Television (6A) - 11 channels

TV Collection: 1 Transponder (Transponder 8A)

English Television (8A) - 2 channels (D1 and E1)

French Television (8A) - 2 channels (M1 and M2) —

Note M2 will be built by June/02.

Radio Distribution: 1 Transponder (7A)

ERN and FRN: Use approx. 60% of transponder

FTN: Old S.A. Service - 1 channel (A1)

Fifth Transponder: Unassigned (12A)

2. CBC has 13 C-band (television) satellite uplinks across the country.

3. CBC has 199 C-band (television) satellite receive stations across the country, including remote

transmitter SRES's, CBC studio SRES's and affiliate SRES's. We also distribute television to 87 CORB SRES's.

B) The CBC supports regulatory provisions which will protect the use of the 17.3 - 17.8 GHz band for the BSS. In particular, the CBC would like that the Department takes some steps to limit, if not eliminate any FS usage in that band.

From CEA:

Section 2.2 Low and Medium Capacity Fixed Systems

For low capacity systems in the 7 GHz band (7125-7725 MHz), CEA TTG confirms that much congestion is experienced by the actual users in the transition from analogue to digital systems and that the increasing user requirements in the 7 GHz band will not release spectrum as initially anticipated. It is thus recommended to maintain the actual use and channel arrangement as described in the radio policy and Standard Radio System Plan 307.1.

Section 2.4 Priority Use

““The Spectrum Policy Framework document outlines spectrum uses which will be granted high priority and support in the access and use of the radio spectrum. These priority uses include radio communication systems vital to sovereignty, national security and defence, law enforcement, public safety and emergency services. Also, essential government operations, and other agencies providing critical services to the general public, such as electric utilities, will have high priority in use of the spectrum.”” as indicated on page 9 in the Spectrum Policy Framework for Canada (FPFC) document. This is required to recognize other needs such as public and investor owned electric utilities requiring highly reliable microwave radio systems to control and protect specific networks and public safety and security agencies needing particular autonomy.

Section 7.0 Services in the 8 GHz Frequency Range

The 7725-8275 MHz band shall become accessible and rearranged to provide spectrum relief to the L2 (lower 2 GHz) and 7 GHz bands users.

From CWTA:

The RABC observes in Sections 2.3 and 3.2.2 of its response that in the USA the FCC is considering that space-to-Earth feeder links to NGSO MSS systems be operated in the band 6700-7025 MHz. However, the RABC makes no proposals or conclusions based on this observation.

Operation of its feeder links in the frequency band 6875-7055 MHz is essential to the activities of Globalstar Canada, a CWTA member. For this reason CWTA proposes that Industry Canada introduce no new regulatory constraints on the operation of Globalstar Canada's space-to-Earth FSS networks at Smiths Falls and at High River in accordance with Radio Regulation S5.458B, a footnote in the current Canadian Table of Frequency Allocations.

From DND:

DND abstains since it cannot support some of the RABC views on certain items of the review. Due to the length and complexity of the SP 3-30 GHz DND review, DND has provided a 6 pages DGTP-001-02 response directly to Industry Canada 3 Apr 02

From Rogers Wireless:

Rogers Wireless generally supports the comments provided by the RABC from the Fixed Service ("FS") perspective and does not support the comments provided from the Fixed Satellite Service ("FSS") perspective. In addition, Rogers Wireless does not support the proposal that "emphasis be placed on a

designation for FSS systems" in the bands 18.58-18.8 GHz and 18.8-19.3 GHz. Lastly, Rogers Wireless strongly believes that the band 31.8-33.4 GHz be designated immediately for FS, since there is an immediate need for additional FS spectrum in this range.

Yours truly

E.R. (Ted) Campbell

General Manager

P.S. Sorry, CBC — your comments didn't arrive until just after I sent the first E-mail. I was, still am, trying to get the Response sent before I go to the Dentist



File: 3400

2002-04-29

Director General, Telecommunications Policy Branch
Industry Canada,
300 Slater Street,
Ottawa, Ontario
K1A 0C8

**Subject: RABC Comments on *Canada Gazette* Notice DGTP-001-02
dated 2002-01-19: Consultation on Revisions to the Spectrum
Utilization Policies in the 3-30 GHz Frequency Range**

Dear Mr. Helm;

The Radio Advisory Board of Canada commends the Department for consulting Canadians on the many important issues regarding the management and use of the 3 to 30 GHz band. The Board is pleased to offer the comments below.

The Board's comments are in two Sections:

1. General and
2. Detailed Comments.

In some cases a consensus amongst the Board's many and diverse members was not possible; in these cases all of the opinions receiving substantial support are included. Individual Board members, representing individual sectors of the radiocommunication community, will make more detailed comments in their individual responses.

1. General

Not all of the Board's members are able to participate in the preparation of this response and some of them along with some members which did participate will submit separate responses. Some of these members will inform the Board of their responses in advance. In this regard, the Board notes the views of the Department of National Defence regarding its concerns regarding the 4400-4990 MHz range.

FN C16A is dealt with on a band by band basis.

Radio Advisory Board of Canada
116 Albert Street, Suite 811
Ottawa, ON
K1P 5G3

Conseil consultatif canadien de la radio
☎ Phone: + 613 230 3261
✉ E-mail: r.a.b.c@on.aibn.com
☎ Fax: + 613 230 3262

🌐 Web site: <http://www.rabc.ottawa.on.ca/>

2. Detailed Comments – keyed to the paragraphs in the consultation paper

2.0 Discussion

In supporting the Department's assessment that the need for broadband access and advanced telecommunications services to consumers and business are continuing to grow globally, the Board would like to add that the demand for spectrum has increased dramatically as a result of explosive growth in wireless communications.

Further, in view of similar deliberations currently taking place in the US on the development of policies for the allocations/designations of spectrum for use by specific services in the 3 to 30 GHz frequency range, the Board would recommend that the spectrum utilization policies in the frequency bands under discussion would need to be generally harmonized with those of the FCC, particularly in those cases where service needs are the same, where service coverage extends to both Canada and the US, and where potential equipment cost advantages may be realized through economy of scale.

2.1 High Density Deployments

In the case of high density implementations in fixed service frequency bands, the Board recommends that the Department should continue to harmonize the spectrum utilization policies to the extent practicable with those of the FCC, as done in the 2300 MHz (WCS), 2.5 GHz (MCS), 24 GHz, 28 GHz and 38 GHz bands. The harmonization was both desirable and practical in these cases because of common service requirements and potential equipment cost advantages through economy of scale. However, in the case of FWA systems in the 3.5 GHz band where the FCC has yet to finalize their FWA policy, the Board supported the Department's initiatives in DGTP-003-97 and DGTP-006-97 to harmonize with similar FWA allocations of a number of countries in order to meet the FWA service needs in Canada, and at the same time for reasons of potential equipment cost advantages through the economy of scale.

In the case of multimedia satellites in the fixed-satellite service (FSS) as currently allocated in portions of the Ku and Ka bands, the Board recommends that the spectrum utilization policies for such FSS systems should be generally harmonized with those of the FCC, since the service coverage areas of such FSS satellites are likely to include both Canada and the US.

The Board supports the Department's proposed "soft partitioning" approach in cases where some measure of exclusivity of operation by one service is desirable. Such an approach, besides retaining more flexibility to achieve the desired level of exclusivity, would also result in efficient use of the spectrum.

2.2 Low and Medium Capacity Fixed Systems

In Section 2.2 of its consultation paper, the Department seeks comments on: *the suitability of including traffic rates of less than 1.544 Mb/s in the definition of low capacity systems for microwave bands above 1 GHz*

- (i) *For these reasons, this document will include proposals in many cases to allow for the accommodation of all capacities within the same band.*

- (ii) *The Department seeks comments on the suitability of including traffic rates of less than 1.544 Mb/s in the definition of low capacity systems for microwave bands above 1 GHz.*

RABC Response:

- (i)

The Board generally agrees with the Department's assessment that there is increased pressure to find new bands to support LC and MC systems. However, each proposal to allow for the accommodation of all capacities within the same band would need to be examined to ensure that any adverse impact is controlled.

For example, in the case of 4 GHz and 6 GHz bands which are shared on a co-primary basis by FS and FSS, the proposal for accommodating all capacities in each band may not be conducive to another proposal on changing the sharing approach to a first-come, first-served basis. In this case, further analysis would be required.

Where a band is heavily used by MC and HC deployments, such as the upper 6 GHz band, the addition of LC designation of spectrum would have an adverse impact on the growth of MC/HC deployments.

However, where the nature of demand on the type of deployments has dramatically altered, for example the lack of heavy-route and high capacity radio systems needs in the upper 4 GHz and 8 GHz digital radio bands, the proposals for the accommodation of all capacities within the same band would appear to be beneficial through permitting increased flexibility in the types of radio system deployments.

- (ii)

The Board sees no requirement for the provision of fractional T1 links in microwave bands above 1 GHz. Therefore, the Board suggests that there is no need to change the definition of low capacity systems as currently defined in SP 1-20 GHz. Furthermore, the current note in SP 1-20 GHz stating that "Smaller system capacities are also permitted in LC bands on a case-by-case basis" would be adequate to meet any unforeseen demand for traffic rates less than 1.544 Mb/s. It should be noted that the FCC Part 101 rules do not permit the use of traffic rates less than DS-1 in all radio systems employing digital modulation and operating below 19.7 GHz.

2.3 Fixed Satellite Service

The Board would like to draw four points to the attention of the Department with respect to this section:

- The band 10.95-11.2 GHz is allocated on a co-primary basis to the FS and the FSS in both the domestic and international allocation tables. Since this band is not subject to AP30B, the Board believes that this band should be included as part of the "extended conventional" Ku band

- While the two Ka-band pairs quoted by the Department under this section are those that have been licensed for first generation Canadian Ka-band GSO satellites, it is recognized that FSS allocations exist throughout the entire Ka-band range (17.7-20.2 GHz and 27.5-30 GHz), which might be used in a manner very different from that indicated by the parenthetical statements. Thus, the Board suggests that the parenthetical statements might cause misunderstanding. The Board has provided detailed comments on the Ka band sub-bands further on in this submission.
- With respect to the Ka band, it is not correct that there is complete alignment with recent designations by the US FCC, in that the sub-band 18.58 – 18.8 GHz has been authorized by the FCC for blanket licensing.
- The correct orbital location in Appendix 30B to the ITU *Radio Regulations* is 114.9°W and not 114.7°W.

The Board would like to draw attention to the FCC Report and Order (FCC 02-23; ET Docket No. 98-142) released on 2002-02-07 making new spectrum available on a co-primary basis to the FSS. These FSS allocations will provide necessary feeder link spectrum for a number of NGSO MSS systems. Specifically, the FCC has allocated the bands 5091-5250 MHz and 15.43-15.63 GHz for Earth-to-space transmissions (“uplinks”) and the band 6700-7025 MHz for space-to-Earth transmissions (downlinks”). The use of these FSS allocations is limited to feeder links for 2 GHz MSS and Big LEO MSS service links. The Board makes reference to these FSS allocations in response to the Department’s proposals as appropriate.

2.3.1 Canadian Domestic Footnote C16A

The Board notes that Section 2.3.1 of the Consultation addresses only some of the frequency bands that are included in the current FN C16A. The Board has addressed FN C16A as required in the individual frequency band discussions that follow in this Consultation.

2.3.2 Domestic Coordination Considerations

The Board would like to draw attention to the FCC’s Second Report and Order (FCC 02-17; IB Docket No. 00-203) released on 2002-01-30 terminating the request for a ruling to require partial-band licensing of earth stations in the fixed-satellite service in bands shared on a primary basis with the terrestrial fixed service. The FCC concluded that the record in the proceeding provided an insufficient basis to impose the proposed conditions on the FSS earth stations in bands that are shared on a co-primary basis with fixed service operations.

The Board notes that the partial-band coordination issue raised in the FCC proceeding is a non-issue in Canada, since the coordination procedure specified in RSP-114, which protects only the assigned frequency and the direction for the earth station, has thus far proven satisfactory to the operators of both earth stations and fixed stations. Therefore, the Board does not see any need to provide comment on the partial band question raised in various shared bands.

2.4 Priority Use

In Section 2.4 the Department: *considers that there may be an opportunity to facilitate access to spectrum by systems which support priority use applications in bands above 3 GHz . While no specific proposals are made in this document, comment is sought on possible opportunities to improve priority use communications capabilities and access to spectrum in the frequency range 3-30 GHz.*

RABC Response: the Radio Advisory Board of Canada contends that *Priority Use* should refer to the services available in a band rather than to the band itself. In some cases – in the radar bands used by military fire control systems, for example – *Priority Use* of the service implies exclusive use of the band in a given area but in many other cases *Priority Use* can be provided by administrative and technical means which allow service providers to optimize the use of the bands and provide services to a wide range of users. The Board believes that such optimization is an important national interest and the administrative and technical means which facilitate both optimized use for many and occasional priority use by a select few should be exploited to avoid unnecessary exclusivity which, in the Board's view, translates to inefficient spectrum use and, even, to hoarding.

The Board has been actively participating in the preparatory activities for WRC-03 Agenda Item 1.3 future advanced solutions to meet the needs on Public Protection and Disaster Relief. It is important to pursue opportunities to improve priority use communications capabilities and access to the spectrum in the frequency range 3-30 GHz for public safety and emergency services.

3.2.1 Conventional C Bands 3700-4200 MHz and 5925-6425 MHz

The Department seeks comments on the following issues, potential directions and public interest:

- (i) *whether to migrate the conventional C band from co-primary FS and FSS to a primary designation for fixed-satellite service (discussed in section 3.1);*
- (ii) *whether to consider segregation between fixed and fixed-satellite services in either mutually exclusive geographic areas, or for mutually exclusive portions of the frequency bands (discussed in section 3.1);*
- (iii) *whether to designate additional low capacity and medium capacity spectrum for fixed service in either or both bands and to remove the traffic growth requirements in all or part of each band in order to facilitate new fixed service applications; and*
- (iv) *whether to consider coordination requirements similar to the FCC proposal for partial-band licensing of earth stations in the fixed-satellite service in bands shared on a primary basis with the terrestrial-fixed service;*

RABC Response:

- (i) There are two divergent views amongst RABC members:

Fixed Service views:

The Fixed Service community believes that although a large number of 4 GHz and 6 GHz radio systems have been retired and more are planned to be retired in the near future, a fairly large number of both 4 GHz and 6 GHz radio systems currently exist, some of which are planned to be retained indefinitely. Over and above, the 4 and 6 GHz bands are premium bands for the Fixed Service; the long reach characteristic, its availability country-wide and the amount of bandwidth available are key attributes that make it suitable for other applications such as backhaul network for mobile and fixed access networks. As existing systems are retired by telcos there will be an opportunity for new users who previously have had very little or no access to this spectrum because of the wide deployment of these very high capacity systems in the past, especially in light of previous re-allocation below 3 GHz and potential new ones in the 5850-5915 GHz band. Therefore, it would be neither practical nor appropriate to delete the FS allocation in the C bands at this time, nor to delete the FS allocation in the foreseeable future, as many users currently have no plans to retire all of their 4/6 GHz radio systems. Some users even plan to grow and there is a demand for other applications. Therefore, the Fixed Service community would request that the Department not make any change in the allocation status for the Fixed Service in C bands at this time. However, the fixed service community believes that this should not preclude the Department to review periodically the use of C bands.

but

Fixed Satellite Service views:

The Fixed Satellite Service community is of the following view. The C-band has been allocated co-primary to the FS and FSS since the introduction of communication satellites in the 1960's. This co-primary allocation has historically been successful, as domestic satellite earth stations were constructed, first in remote areas not served by terrestrial means, and later, through careful frequency co-ordination in more populous, urban areas. Such co-ordination, however, often requires extensive calculation, delicate negotiation, and occasionally field measurements. Therefore, due to the necessity of frequency coordination between the two services, the provision of C-band satellite services within Canada has required more lead-time and cost than deployment in bands used exclusively for the fixed satellite service.

In the past decade, technological developments have greatly impacted the use of the C-band by the fixed service. Once the backbone of Canada's high capacity coast-to-coast telecommunications networks, C –band microwave links have been supplanted in this role by fibre optic links. Although some high-capacity routes will remain in-service for an unknown period, a large number of 4 and 6 GHz terrestrial microwave radio systems have been retired or will be

retired in the near future. This trend, as evidenced by the significant decline in L4 GHz and L6 GHz licences issued by the Department in recent years, provides the opportunity to reconsider the future use of these important bands.

In contrast to trends in the terrestrial use, the C-band remains a critical element of today's Canadian satellite infrastructure, and is playing an important role in the rollout of broadband services to communities that are not economical to serve using terrestrial means. Unique among the FSS bands, C-band propagation characteristics enable the provision of services with the high availability that is required for critical broadband applications, such as telemedicine, and services requiring "always-on" performance and reliability. Today, C-band transponders are being made available to public institutions, at no cost, as application trials and commercial services are implemented to advance the Government's Connectedness Agenda. Recently, a partnership was announced between a First Nations regional broadband network, the federal government, and Telesat to make use of this capacity as an initial step in providing access to multimedia services (such as high-speed internet access, tele-health and tele-education) to several First Nations communities in Northern Ontario. More C-band capacity will be needed to implement these services nationally.

As the high speed revolution has transformed business and 'connected' consumers and launched the new economy; demand for similar access is expected to be very high, not only in remote or northern areas of Canada, but also in rural areas very close to urban centres where population densities are too low to support broadband terrestrial access. Canadians everywhere will want access to high-speed data services, and C-band satellite is the ideal vehicle to provide this service. Lowering the cost of earth station installations is key to making this service affordable.

For the above reasons, the Fixed Satellite Service community urges the Department to take steps that will establish the FSS as the primary designation within the conventional C-band.

(ii)

The Board is of the view that the Department's policy of protecting the 4 GHz and 6 GHz radio bands for use by long-haul heavy-route microwave systems has served the country well in the development of the backbone of the telecommunications networks. This policy has required that the Fixed Satellite Service 6/4 GHz earth stations be located away from the long-haul microwave routes and urban areas. However, with the revision of licensing procedure for earth stations (RSP-114) involving the use of frequency coordination with terrestrial microwave stations on partial-band and partial-arc basis, it has now become feasible to establish 6/4 GHz earth stations (Teleports) in metropolitan areas. Furthermore, in view of the greatly diminished requirements for 6/4 GHz heavy-route long-haul microwave facilities with the advent of intercity fibre optic systems, it is believed that the Department's policy of protecting such long-haul heavy-route microwave systems is no longer needed. Therefore, it is recommended that the Department's current policy restricting the location of 6/4 GHz earth stations should be changed so as to provide full flexibility for the deployment of Fixed Satellite Service earth stations in the conventional C bands in Canada on a coordinated first-come, first-served

basis with the Fixed Service. The Board does not support geographical or frequency segregation between the FS and FSS. Satellites in operation cannot be retuned, and the satellite antenna patterns cannot be reshaped. Geographical or frequency segregation would render useless large portions of the very costly satellite payload. Moreover, such segregation would continue to impose co-ordination burdens on both the FSS and FS operators.

(iii) As in (i), above, there are diverging views:

Fixed Service views:

The Fixed Service community considers that the designation of high capacity spectrum for fixed service in the 4 GHz and 6 GHz bands, together with the associated traffic growth requirements in their respective SRSP's were justified in order to support the heavy-route traffic requirements for both the 4 GHz and 6 GHz long-haul and medium-haul radio systems. In view of the continued use of the 4 GHz and 6 GHz radio systems with a greatly diminished requirements for heavy-route and long-haul radio systems, the justification for retaining the traffic growth requirements is no longer present. Therefore, the Department is urged to remove the traffic growth requirements of 4 GHz and 6 GHz radio systems in their respective SRSP-303.7 and SRSP-305.9.

The Fixed Service Community believes that the following factors should be taken into consideration for the designation of additional LC and MC spectrum for fixed service in the 4 GHz and 6 GHz bands:

- Sufficient MC spectrum would be needed to accommodate the possible displacement of some 340 FS frequency assignments in the bands 1990-2025/2160-2200 MHz by the introduction of 2 GHz MSS systems, and also to accommodate the possible displacement of some 216 FS frequency assignments in the bands 2305-2320/2345-2360 MHz by the introduction of 2.3 GHz WCS systems.
- The upper 6 GHz band, which is being heavily used in the provision of MC and HC facilities for PCS back-hauls, may not have adequate capacity left to meet the growth requirements of PCS back-hauls as well as the requirements for the upcoming 3G back-hauls.
- The Department's proposal to add mobile allocation to the band 5850-5925 MHz and to designate this 75 MHz of spectrum to accommodate ITS applications, as outlined in Section 6.0 of its consultation paper, would require the designation of additional LC/MC spectrum to compensate for the loss of any LC/MC spectrum currently designated in the 5850-5915 MHz band.
- Both 6/4 GHz C-band and 14/12 GHz Ku-band are used in Canada and US for television distribution systems. A very large number of TVRO terminals are used to receive these signals in both countries. Since the terrestrial 4 GHz band in the US is also used for television STL applications, the FCC policy restricting the 4 GHz band's use to a 20 MHz channelling plan (equivalent to the Department's HC designation) has remained unchanged.

- Taking into consideration Telesat's requirement to connect rural and remote communities with medium to high capacity transport links for Internet service where such access cannot be provided by terrestrial means, as discussed in Section 3.1 of the consultation paper; and
- Taking into consideration the Board's recommendation, as discussed above, for lifting the restriction on locating 6/4 GHz earth stations so as to provide full flexibility for the deployment of FSS earth stations in the conventional C-band on a coordinated first-come, first-served basis with the fixed service;

Therefore, taking into account the abovementioned factors, the Department is requested to designate additional LC and MC spectrum as follows:

1. 6 GHz Band (5925-6425 MHz)

- a. Designate MC spectrum throughout the 6 GHz band;
 1. for the accommodation of FS systems displaced by 2 GHz MSS and 2.3 GHz WCS systems;
 2. for any compensation of the loss of MC spectrum currently designated in the 5850-5915 MHz band; and
 3. for other MC applications, such as back-hauls for PCS and 3 G systems.
- b. Designate LC spectrum in 40+40 MHz portion of the 6 GHz to compensate for the loss of any LC spectrum currently designated in the 5850-5915 MHz band.

2. 4 GHz Band (3700-4200 MHz)

- a. No change in the current designation of HC spectrum in line with similar FCC policy.
- b. However, should the use of the 6/4 GHz FSS systems for television distribution systems were to reduce significantly, then provide additional designations of LC and MC spectrum similar to the 6 GHz band case, as described above.

but

Fixed Satellite Service views:

As outlined in the response to part (i) above, the Fixed Satellite Service community believes that the Department should take steps that will establish the FSS as the primary designation within the conventional C-band. Accordingly, new uses of the band for terrestrial purposes should be discouraged, and the Fixed Satellite Service community does not support designating FS LC or MC services in the C-Band. The Fixed Satellite Service community also notes that

LC and MC services would result in more inefficient use of spectrum and facilities in this band than is currently the case.

(iv)

The Board agrees that, as discussed in Section 2.3.2, comment is no longer required on partial-band coordination.

3.2.2 Allotment C bands 4500-4800 MHz and 6725-7075 MHz

The Department seeks comments on the following issues, potential directions and the public interest:

- (i) *to provide full flexibility for the deployment of fixed-satellite service earth stations in the allotment C bands in Canada on a coordinated first-come, first served-basis with the fixed service in order to stimulate the development of the available Canadian orbital positions and advance competition in satellite offerings, or to retain the application of domestic footnote C16A for FSS in the bands;*
- (ii) *whether to designate additional low capacity spectrum for fixed service in all or part of the band 6425-6930 MHz;*
- (ii) *whether to designate additional low capacity and medium capacity spectrum for fixed service and to remove the traffic growth requirements in the band 4500-4800 MHz in order to facilitate new fixed-service applications;*

OR

- whether to add a mobile service allocation to the band 4500-4800 MHz, with fixed and mobile services restricted to use by the Government of Canada (see section 3.2.3 below); and*
- (iv) *based on the response to item (iii), whether to consider coordination requirements similar to the approach described in the FCC proposal for partial-band licensing of earth stations in the fixed-satellite service in bands shared on a primary basis with the terrestrial-fixed service discussed in section 2.3.2.*

The Board notes that the upper limit of this allotment band is 7025 MHz, not 7075 MHz (as per FN 5.441 and AP30B), although the FSS allocation extends to 7075 MHz.

The views of the Board's members are not uniform and those of the Fixed Satellite Service and Fixed Service communities follow.

(i)

Fixed Satellite Service views

The FSS community is of the opinion that the FS and FSS should be coordinated on a first-come-first-served basis in the 4500-4800 MHz and 6725-7075 MHz bands. Ubiquitous deployment of either service is not foreseen in this co-primary band, and as such domestic footnote C16A is not required.

but

Fixed Service views:

In the view of the FS community, the allotment bands 'C' and 'Ku' are currently heavily used by FS services, particularly around urban areas. Therefore, sharing of these bands by FSS can only be feasible on the basis of few FSS earth stations located away from urban centers. Any relaxation of sharing provisions between FS and FSS in FN C16A will dramatically have adverse impact on the growth of FS systems, particularly from the large number of international FSS systems. However, in view of the Department's proposed spectrum utilization policies detailing allocations and designations of bands to FS and FSS services in the Ka bands, there is no longer any need to make reference to the Ka bands in the domestic footnote C16A. Therefore, it is recommended that the current footnote C16A should be accordingly revised as follows:

C16A (CAN-00) The use of spectrum for fixed-satellite services in the bands 4500-4800 MHz , and 10.7-11.45 GHz and ~~17.8-19.7 GHz~~ in the space-to-Earth direction and 6725-7025 MHz , and 12.75-13.25 GHz, and ~~28.35-29.5 GHz~~ in the Earth-to-space direction is presently limited to large antenna earth stations located in areas outside of urban centres. Domestic implementation of fixed-satellite services in these bands will be governed by spectrum utilization policies which will be formulated in the future. These policies will consider existing services.

The Fixed Service community notes that the Allotment C bands (4500-4800 MHz and 6725-7075 MHz) are currently used by a variety of fixed service radio systems. The 4500-4800 band portion is used by Upper 4 GHz heavy-route HC radio systems. The 6725-7075 MHz band portion is used by MC and HC radio systems, STL and TV Pick-ups.

While the Upper 4 GHz band (4545-4705 and 4735-4895 MHz) is currently lightly used with the advent of fibre optic systems, the Upper 6 GHz band (6425-6930 MHz) is currently used mainly for medium and high capacity FS systems. This band is specifically used by cellular and PCS carriers that have been licensed by the Department to make reliable and affordable mobile services available to Canadians in both urban and rural areas. These carriers use the Upper 6 GHz band for medium and high capacity intercity and inter-site backbone transmissions. The FS community notes that in some areas where the Upper 6 GHz band is used for this purpose, fibre is not readily available, or is uneconomic, as an alternative. Accordingly, wireless carriers have no plans to jettison their Upper 6 GHz FS systems. As well, with the advent of 3G (wideband) applications, additional capacity will increasingly be required to meet the higher bandwidth needs of service providers. The FS community notes that the Department foresees tremendous growth in the 3G and therefore respectfully submits that the Upper 6 GHz band should not face additional congestion associated with co-ordination with FSS. The FS community believes that co-ordination with FSS would be extremely difficult as this band is already

congested and the number of available channels is small. The FS community is therefore not in favour of this proposal.

It should be noted that in this connection the FCC has designated the allotment C band 4500-4800 MHz/6725-7025 MHz as an internationally planned band which is currently lightly used in the US. Further, as discussed earlier in Section 2.3 of this submission, the FCC has allocated the band 6700-7025 MHz for space-to-Earth transmissions (downlinks) for use by NGSO FSS feeder link earth stations (gateways), which are expected to be few and likely to be located in remote areas. Therefore, it would appear that the FCC is also using a “soft partitioning” approach in permitting the sharing of their heavily used upper 6 GHz FS band (6525-6875 MHz) with a limited number of FSS gateway earth stations. The FCC does not allow the use of the allotment C bands by domestic FSS systems.

Consequently, in view of the sharing constraint with FS use in the upper 6 GHz band, the Department’s proposal “to provide full flexibility for the deployment of FSS earth stations in the allotment C bands in Canada on a coordinated first-come, first-served basis with the fixed service” is not supported. Therefore, it is recommended, by the FS community, that the current provision in the domestic footnote C16A for FSS use in the allotment C bands should be retained.

(ii)

The Fixed Satellite Service views:

The FSS community is of the opinion that the Fixed Service and Fixed Satellite Service should be coordinated on a first-come-first-served basis in the 6425-6930 MHz band. Ubiquitous deployment of either service is not foreseen in this co-primary band. Therefore, the FSS community believes that should additional low capacity spectrum be required in the fixed service, it should be designated in the 6425 – 6930 MHz band, rather than in the 5925-6425 MHz band.

but

The Fixed Service views:

As above, the Fixed Service community notes that currently the Upper 6 GHz band is mainly used by medium and high capacity Fixed Service systems. Allowing deployment of low capacity Fixed Service in this band would make it increasingly difficult to coordinate in the future. Therefore, the FS community is not in favour of this proposal.

(iii)

The Fixed Service views:

Although a large number of 4545-4705 MHz/4735-4895 MHz high capacity radio systems have already been retired, yet a significant number of these high capacity radio systems are planned to be retained indefinitely. While a majority of these systems has no growth plans, some of these systems could be reused

in other routes. In view of the diminishing use of this band for heavy route traffic, the current traffic growth requirement as specified in SRSP-304.5 should be removed. Also, in view of the current light usage of this band and in order to facilitate new fixed service applications, it is recommended that additional low capacity and medium capacity spectrum should be designated for fixed service use in this band.

Regarding the proposal for adding a mobile service allocation in the 4500-4800 MHz band for Government of Canada use, the FS community has no objection for such an allocation as long as its use would not cause any interference to fixed service systems operating in this band.

but

The Fixed Satellite Service views:

Similar to our response in part (ii) above, the FSS community believes that should additional low capacity spectrum be required in the fixed service, it should be designated in the 4500 – 4800 MHz band, rather than in the 3700 – 4200 MHz band.

The FSS community is of the opinion that a mobile service allocation should not be made to the 4500-4800 MHz band. It is very difficult to coordinate with the mobile service, thus their inclusion as a co-primary allocation could substantially increase coordination costs.

(iv)

Board members are agreed that, as discussed in Section 2.3.2, comment is no longer required on partial-band coordination.

3.2.3 Additional Proposal 4400-4990 MHz

The Department proposes to realign the designation of the spectrum restricted to use by the Government of Canada to the bands 4400-4500 MHz and 4800-4990 MHz. Based on the response to this proposal and those described in the previous section, the Department will consider the realignment of the service use in the band 4500-4800 MHz. No specific change is proposed at this time for the addition of wireless communications services to the band 4940-4990 MHz.

As noted above in its comments under 2.4, the Board is participating in WRC-03 preparatory activities under Agenda Item 1.3 to identify candidate bands for worldwide or regional harmonization for public protection and disaster relief, including the band 4940-4990 MHz. The Board would draw attention to the FCC announcement of 2002-02-14 of the adoption of a Second Report and Order and further Notice of Proposed Rulemaking allocating 50 megahertz of spectrum in the band 4940-4990 MHz for fixed and mobile wireless services and designating the band for use in support of public safety. The Board recommends that the band 4940-4990 MHz be harmonized with the US for public safety use. This would allow public safety agencies in Canada to take advantage of new wireless tools that will become available elsewhere and also benefit from reduced costs as discussed in section 2.0 above.

Regarding the Department's proposal to realign the designation of spectrum restricted to use by the Government of Canada to the bands 4400-4500 MHz and 4800-4990 MHz, the Board has no objection to the Department's proposal, other than noted in the paragraph immediately above. However, the Board would request that due consideration be given to protecting or grandfathering the continued use of existing fixed systems operating in the sub-band 4800-4895 MHz.

4.3 10.7-11.7 GHz

The Department seeks comments on the following issues, potential directions and the public interest:

- (i) *whether to provide full flexibility for the deployment of fixed-satellite service earth stations in the band 10.7-11.7 GHz on a coordinated first-come-first-served basis with the fixed service in order to stimulate the development of the available Canadian orbital positions and advance competition in satellite offerings or to retain the domestic footnote C16A for FSS in the band and extend its application to the entire band 10.7-11.7 GHz;*
- (ii) *whether to consider coordination requirements similar to the approach described in the FCC proposal for partial-band licensing of earth stations in the fixed-satellite service in bands shared on a primary basis with the terrestrial-fixed service discussed in section 2.3.2; and*
- (iii) *whether there is any action that could or should be taken regarding MSS use of FSS*

RABC Response:

- (i) The Board's members have diverging views.

Fixed Satellite Service views:

In the view of the FSS community, consistent with the above comments, the FS and FSS should be coordinated on a first-come-first-served basis. Ubiquitous deployment of either service is not foreseen in this co-primary band, and as such domestic footnote C16A is not required.

but

Fixed Service views:

In the view of the FS community, it should be noted that the FCC has addressed the sharing issues between FS systems and GSO FSS and NGSO FSS earth stations operating in the band 10.7-11.7 GHz in their First Report and Order and Further Notice of Proposed Rule Making released on December 8, 2000 (FCC 00-418). Their decision is that the expanded use of this band should not be permitted. The FCC believes that the FS growth could be significantly inhibited if FCC were to authorize domestic and international GSO FSS use of the entire band because of the large number of GSO earth stations that would likely be deployed. Accordingly, the FCC decided to continue to limit the operation of GSO FSS earth stations to the 10.95-11.2 GHz and 11.45-11.7 GHz portions of

the band for international systems only. Further, the FCC also decided to limit domestic and international FSS use of the entire 10.7-11.7 GHz band to NGSO FSS gateways.

In view of the above FCC deliberation on the sharing issues between FS systems and GSO FSS earth stations, the FS community believes that it would be premature to provide full flexibility for the deployment of FSS earth stations in the band 10.7-11.7 GHz on a coordinated first-come, first-served basis with the fixed service. Therefore, the current provision in the footnote C16A should be retained.

(ii)

As discussed in Section 2.3.2 of this submission, the RABC is of the view that comment is no longer required on the partial band coordination issue.

(iii)

The Board notes that with respect to MSS use of FSS transmissions for two-way messaging and position tracking satellite systems, the question would be more relevant to the 11.7-12.2 GHz band, than to the 10.7-11.7 GHz band. For a number of years an MSS system has been successfully coordinated for use on a Canadian satellite in the 11.7-12.2 GHz band. The Department may wish to consider addition of the MSS allocation on a secondary basis to the 11.7 – 12.2 GHz band.

4.4 12.7-13.25 GHz

The Department seeks comments on the following issues, potential directions and the public interest:

- (i) *whether to provide full flexibility for the deployment of fixed-satellite service earth stations in the band 12.7-13.25 GHz in Canada on a coordinated basis first-come, first-served with the fixed service (point-to-multipoint) in order to stimulate the development of the available Canadian orbital positions and advance competition in satellite offerings or to retain the application of domestic footnote C16A for FSS in the band; and*
- (ii) *whether to consider coordination requirements similar to the approach described in the FCC proposal for partial-band licensing of earth stations in the fixed-satellite service in bands shared on a primary basis with the terrestrial-fixed service discussed in section 2.3.2.*

RABC Response:

- (i) There are divergent views in this section:

Fixed Satellite Service views:

In the view of the FSS community, consistent with the above comments, the FS and FSS should be coordinated on a first-come-first-served basis. Ubiquitous deployment of either service is not foreseen in this co-primary band, and as such domestic footnote C16A is not required.

but

Fixed Service views:

The Fixed Service community is of the view that:

This band is heavily used by FS systems comprised of VHCM in both urban and remote areas and by TV STL and TV Pick-ups, in urban areas. As discussed in Section 4.3 (i) of this submission, the FCC has addressed the sharing issues between FS systems and GSO FSS and NGSO FSS earth stations operating in the band 12.7-13.25 GHz in their First Report and Order and Further Notice of Proposed Rule Making released on December 8, 2000 (FCC 00-418). The FCC believes that the FS growth could be significantly inhibited if FCC were to authorize domestic and international GSO FSS use of the entire band because of the large number of GSO earth stations that would likely be deployed. Therefore, similar to the rule for the 10.7-11.7 GHz band, the FCC decided to continue to limit the use of the band 12.7-13.25 GHz for international systems only, i.e. the domestic FSS use is not permitted in this band.

Based on the above discussion, the FS community believes that it would be premature to provide full flexibility for the deployment of FSS earth stations in the band 12.7-13.25 GHz on a coordinated first-come, first-served basis with the fixed service. Therefore, the current provision in the footnote C16A should be retained.

(ii)

The Board considers, as discussed in Section 2.3.2, that comment is no longer required on partial-band coordination.

The Department also solicits comments on:

(i) *the types of point-to-multipoint fixed system deployments which will continue to use the spectrum in the band 12.7-13.25 GHz; and,*

(ii) *the kind of new point-to-multipoint applications which are envisaged for this band, for example, could this spectrum provide broadband wireless access or wireless cable distribution to the home.*

RABC Response:

(i)

While fibre optic deployments are replacing some Very High Capacity Microwave (VHCM) facilities operating in the band 12.7-13.2 GHz, the majority of existing VHCM will continue to exist. VHCM is used to interconnect cable systems, both from large systems to distant systems and within and between regional systems. It is the most economical and often the most practical way of delivering signals to small remote cable systems and within and between regional systems, as well. The links typically originate

from a larger cable system and terminate at smaller remote systems. These links often carry the entire cable programming line-up of the originating system.

Cable system capacities vary from 330 MHz for the very small up to 860 MHz for the very large. Analogue transmission is used for the distribution of signals up to 500-550 MHz and digital technology is employed for signals above 500-550 MHz. Most of the existing VHCM deployments will continue to employ analogue transmission technology over the 12.7-13.2 GHz band as the programming that is carried within that 500 MHz band is analogue.

The Canadian Radio-television and Telecommunications Commission (CRTC) recently licensed over 300 new programming services for distribution in digital. While only 50 of these new services have been added to cable companies' line-ups to date, a significant number will continue to be added and these will appear at frequencies above 550 MHz. As such, cable companies will exhaust the capacity available at 12.7-13.2 GHz and will be seeking additional bandwidth to deliver signals to the remote VHCM-interconnected systems.

In some limited cases, cable companies were not using the entire 500 MHz VHCM capacity and, therefore are now using some of the 6 MHz channels to carry digitally multiplexed programs. Between 8-12 programming services are multiplexed together and modulated using either 64 or 256 QAM technology onto a 6 MHz channel.

(ii)

While some wireless broadband terrestrial schemes are being used in this band in other countries, such as Mexico, Canadian cable operators have no plans to use the spectrum for anything but point-to-multipoint VHCM to feed signals from one system to another or within large regional systems. In Canada, a very significant number of cable operators have already upgraded their cable plant to accommodate two-way broadband transmission to provide high-speed Internet access service as well as Impulse Pay-Per-View (IPPV). Cable operators do not need to rely on broadband wireless solutions, as their local access networks are sufficiently advanced and already support a variety of broadband services.

The primary purpose of the VHCM band will and should continue to be for the trunking of programming services to remote cable systems and within and between regional systems. The VHCM band is critical to the continued operation of many cable systems. Their existence would be threatened if the spectrum was no longer available to them for this particular purpose. In fact, while the overall number of systems that rely on VHCM is dropping due to fibre optics links, those companies that do rely on VHCM will require additional spectrum to enable them to accommodate the services that are above 500 MHz on a cable system.

5.0 The Ka Band

In Section 5 the Department asks for comments on the following issues in the context of its proposals, for each of the sub-bands and services:

- (a) *the level of exclusivity which may be required for each portion of the bands for particular services as proposed above, as well as on the continued access by other services, i.e., partitioning of portions of the spectrum required?;*
- (b) *the requirement, if any, for a moratorium on the licensing of new terrestrial fixed services in portions of the band, taking into account the time frames for implementation of satellite service in the bands;*
- (c) *in addition to international regulations, is it necessary to develop domestic rules for the implementation of FSS systems and eventually FSS NGSO systems in these bands or portions of these bands?;*
- (d) *is there a need to distinguish between FSS service links (consumer access) for NGSO and GSO systems in the context of access to portions of the bands?*
- (e) *is there a need to distinguish between FSS feeder links for NGSO and GSO systems in the context of access to portions of the bands?*

The Department also noted that *there are a number of domestic footnotes related to the bands discussed above which may require modification to reflect policy decisions made with respect to the proposals described above. These footnotes are included in Annex A. **Comments on these footnotes are requested in light of the responses submitted to this section.***

RABC Response:

As stated in section 2.1, the Board supports the concept of “soft partitioning” between FS and FSS, especially in the Ka-band range where some priority of one service over the other is desirable. Specific proposals to this effect are contained in the following sub-sections. Suggested domestic footnotes are presented in Annex A.

The Board believes that there is no need to distinguish between “feederlink” and “service link” applications in the FSS. With the “soft partitioning” approach, the “service links” of the FSS will naturally evolve in the bands primarily identified for FSS use over FS, while the bands primarily identified for FS use will only be suitable for FSS feederlink and other communication services involving few earth stations. However, the Board does not believe that there is any necessity to prevent deployment of “feederlink” in the “service link” bands (i.e., those primarily identified for FSS use) and in fact some systems do intend to deploy in such a manner.

Furthermore, the Board recognises the need for different regulatory treatment in various parts of the Ka-band for GSO FSS and non-GSO FSS applications as described below.

17.7-17.8 GHz

According to the Department: *“No change is proposed to the status of services in this band.”*

The Board supports the Department’s proposal for not making any change in the status of services in this band. The Board recognizes that the band 17.7-17.8 GHz is allocated for Broadcast Satellite Service (BSS) after 2007-04-01, and suggests for reasons of clarity that the entire band which is allocated for this service, 17.3-17.8 GHz, be written in (i.e. replace "17.7" with "17.3" where the former appears).

The Board notes that the *de facto* moratorium in Section 4.5 of SRSP-317.7 for the licensing of fixed systems in the band 17.7-17.8 GHz, which is based on feeder link requirements for a Canadian BSS, may no longer be valid. However, based on the possibility that a BSS service could be introduced in Canada as early as 2007-04-01 in the band 17.3-17.8 GHz, the Board suggests that the Department issue a moratorium on the licensing of new fixed systems in the band 17.7-17.8 GHz as soon as practicable. FN C-45 should be retained.

The Board encourages the Department to monitor the FCC’s actions in this band.

17.8-18.58 GHz

The Department proposes *“that emphasis be placed on a designation for FS in this band.”*

The Board strongly supports the Department’s proposal for emphasizing a designation of FS in the band 17.8-18.58 GHz, along with a similar proposal for emphasizing a designation of FS in the companion band 19.3-19.7 GHz.

These two FS designations are important, as there are currently a large number of LC/MC/HC radio systems operating in the paired bands 17.7-18.14 GHz and 19.26-19.7 GHz and licensed in accordance with SRSP-317.7. It should be noted that in view of the possible loss of spectrum in the sub-bands 17.7-17.8 GHz and 19.26-19.3 GHz to other services, the paired bands 17.8-18.14 GHz and 19.3-19.7 GHz would need to be rechannelized. It should be noted that the channelization plan in SRSP 317.7 is currently harmonized with the channelization plan in the US. However, since the FCC has chosen not to revise their corresponding channelization plan in their 18 GHz Order (FCC 00-212) because of their band pairs 17.7-18.58 GHz and 19.3-19.7 GHz (with 19.26-19.3 GHz grandfathered as FS co-primary), the Board will assist the Department in the development of an appropriate revised channelization plan during the revision of SRSP-317.7, while ensuring minimum adverse impact from the revision to current channelization plan.

The Board urges the Department to leave the 18.14-18.58 GHz MCS/VHCM band intact. As specified in section 4.4 above, the 12.7-13.2 GHz VHCM band available to cable operators is limited to 500 MHz of spectrum. Cable operators’ networks are expanding up to 860 MHz in some cases and, therefore, the current capacity of the existing VHCM band is insufficient to support the spectrum requirements of those operators. Those operators will require additional spectrum to enable them to deliver/backhaul signals to their smaller, remote systems. The spectrum band between 18.14-18.58 GHz will provide that relief.

The 18.14-18.58 GHz band is designated as a CARS band in the U.S. For purposes of coordination, as well as equipment procurement, we submit that the band should be exclusively used for the applications that have already been defined in SRSP 318.14 that was drafted and submitted to the Department, but never issued. Since the Government is not currently proposing any changes to the policy, the SRSP for this band should be immediately issued to facilitate applications for use of the band.

The Board's suggested FN text is:

C[AAA]: Use of the band 17.8 – 18.58 GHz by the fixed satellite service in the space to Earth direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as applications involving a small number of large aperture earth stations that have been coordinated on an individual basis.

18.58-18.8 GHz

The Department proposes *“that emphasis be placed on a designation for FSS systems in this band.”*

The Board strongly supports the Department's proposal for emphasizing a designation for FSS in this band.

The Board notes that this band is included in Canadian footnote C16A. This is inconsistent with the intended usage of this band, which is ubiquitous deployment of FSS terminals. The Board notes that in the United States, the FCC in June 2000 allocated this band for blanket licensing of GSO FSS earth stations. The Board believes that this band should not be included in Canadian footnote C16A.

This band should be prioritised for FSS usage. To achieve this, a moratorium on deployment of new FS stations is proposed to take effect at the earliest date possible. To accommodate the type of FS systems that are currently deployed in these bands, the Department is urged to adopt a frequency plan for low and medium capacity systems in the bands 17.8-18.14 GHz and 19.3-19.7 GHz as soon as possible.

With respect to existing licensed FS stations in the band, the Board suggests that Industry Canada undertake a subsequent consultation to deal with the issues of the existing Fixed Service, consistent with the prioritization of FSS use.

The Board's suggested FN text is:

C[BBB]: Use of the bands 18.58 – 19.3 GHz by the fixed service shall pose minimal constraints upon the ubiquitous deployment of earth stations in the fixed satellite service. A moratorium has been placed on the issuance of new fixed service licences in these bands.

As for sharing between GSO and non-GSO FSS, the Board supports adoption domestically of the ITU Regulations wherein the non-GSO FSS would need to meet the EPFD, operational EPFD and additional EPFD limits of Article 22 of the Radio

Regulations plus the aggregate limits in Resolution 76 (WRC-2000) and would not impose any restriction on the ubiquitous deployment of GSO FSS earth stations.

18.8-19.3 GHz

The Department proposes *“that this emphasis be placed on a designation for FSS systems in this band.”*

The Board strongly supports the Department’s proposal for emphasizing a designation for FSS in this band.

The Board notes that this band is included in Canadian footnote C16A. This is inconsistent with the intended usage of this band, which is ubiquitous deployment of FSS terminals. The Board notes that in the United States, the FCC in June 2000 allocated this band for blanket licensing of non-GSO FSS earth stations. The Board believes that this band should not be included in Canadian footnote C16A.

This band should be prioritised for FSS usage. To achieve this, a moratorium on deployment of new FS stations is proposed to take effect at the earliest date possible. To accommodate the type of FS systems that are currently deployed in these bands, the Department is urged to adopt a frequency plan for low and medium capacity systems in the bands 17.8-18.14 GHz and 19.3-19.7 GHz as soon as possible.

With respect to existing licensed FS stations in the band, the Board suggests that Industry Canada undertake a subsequent consultation to deal with the issues of the existing Fixed Service, consistent with the prioritization of FSS use.

The Board’s suggested FN text is:

C[BBB]: Use of the bands 18.58 – 19.3 GHz by the fixed service shall pose minimal constraints upon the ubiquitous deployment of earth-stations in the fixed satellite service. A moratorium has been placed on the issuance of new fixed service licences in these bands.

As for sharing between GSO and non-GSO FSS, the Board supports a priority for non-GSO FSS use wherein the GSO FSS would need to successfully coordinate against non-GSO FSS systems to ensure that interference does not occur.

19.3 to 19.7 GHz

In the consultation: *“It is proposed that emphasis be placed on a designation for FS in this band.”*

The Board supports the Department’s proposal for emphasizing a designation of FS in the band 19.3-19.7 GHz, along with a similar proposal emphasizing a designation of FS in the band 17.8-18.58 GHz. As discussed earlier for the band 17.8-18.58 GHz, these two FS designations are important, as there are currently a large number of LC/MC/HC radio systems operating in the paired bands 17.7-18.14 GHz and 19.26-19.7 GHz and licensed in accordance with SRSP-317.7.

The Board believes that FN C16A in its present form is no longer required. Instead, the Board urges the Department to clearly outline the conditions to be placed on the deployment of both FSS and MSS in this band. A replacement for FN C16A, as it applies to this band, is proposed in this response and the Board's support is conditional on this replacement being accepted.

The Board's suggested FN text is:

C[CCC]: Use of the band 19.3 – 19.7 GHz by the fixed satellite service in the space to Earth direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as feeder link earth stations for the MSS or other applications involving a small number of large aperture earth stations that have been coordinated on an individual basis.

Sharing between GSO FSS and non-GSO MSS feeder-link in this band would be on a first-come, first-served basis through mutual coordination. The Board further believes that other non-GSO FSS applications in this band should be on a secondary basis. The Board would also support the deletion of the allocation to the FSS in the Earth-to-space direction as this usage has not materialized and this requirement seems to have disappeared.

19.7 to 20.2 GHz

The Department proposes that *“FSS remains unaffected by this proposal.”*

The Board supports the Department's proposal for no change to the FSS status in this band.

As for sharing between GSO and non-GSO FSS, the Board supports adoption domestically of the ITU Regulations wherein the non-GSO FSS would need to meet the EPFD, operational EPFD and additional EPFD limits of Article 22 of the Radio Regulation plus the aggregate limits in Resolution 76 (WRC-2000) and would not impose any restriction on the ubiquitous deployment of GSO FSS earth stations.

24.75-25.25 GHz

The Board wishes to draw the Department's attention to the band 24.75-25.25 GHz, and Canadian domestic footnote C44. The Board suggests that this footnote be revised to better align with the FCC position on this band, as reflected in footnote NG167 to the US Table of Frequency allocations. Rather than dictating that feederlinks to the 17.3-17.8 GHz unplanned BSS band be implemented in the 25 GHz band (as the current C44 reads), the intention is to reserve the use of the 25 GHz FSS allocation specifically for FSS operations in conjunction with the 17.3-17.8 GHz BSS allocation.

Suggested replacement for C44

The use of the fixed-satellite service (Earth-to-space) in the band 24.75-25.25 GHz is limited to feeder links to broadcasting-satellite space stations, or other digital carriers for fixed satellite services associated with the broadcasting satellite service, operating in the band 17.3-17.8 GHz. In areas where fixed systems have been licensed using a competitive process, future earth stations (Earth-to-space) in the band 25.05-25.25 GHz

will be permitted provided that such installations will not cause interference to any licensed fixed service to be deployed in the authorized service area.

5.5 27.5 - 30.0 GHz

The Department proposes that: “The band 27.5-29.5 GHz is allocated to the fixed service on a primary basis. The band 27.5-30.0 GHz is allocated to the fixed-satellite service (Earth-to-space) on a primary basis. Noting that the spectrum for FSS is paired with FSS (space-to-Earth) spectrum at 17.7-20.2 GHz, consideration should be given to where similar sharing conditions exist.”

The Board notes that a segment of this band, 28.35-29.5 GHz, is included in Canadian footnote C16A. Many administrations are planning to use the bands 28.35-28.6 GHz, 28.6-29.1 GHz and 29.25-29.5 GHz for HDFSS applications (Earth-to-space). The Board notes that in the United States, the FCC in June 2000 allocated the band 28.35-28.6 GHz for blanket licensing of GSO FSS earth stations and the band 28.6-29.1 GHz for blanket licensing of non-GSO earth stations. The Board believes that the 28.35-29.1 GHz and 29.25-29.5 GHz portions of this band should not be included in Canadian footnote C16A.

5.7 Proposal 27.5-30 GHz

27.5-28.35 GHz

According to the Department: “*No changes are proposed to the spectrum utilization policy decisions which have already been made for this band*”.

The Board recognizes that the band 27.5-28.35 GHz has been licensed for LMCS systems. By definition LMCS is a very high density deployment in the FS, so sharing with FSS is very difficult. The Board supports the Department’s proposal to retain the current spectrum utilization policies in this band and retain FS priority use. However, the Board notes that footnote C47A, which applies in this band, seems to have very similar intent to FN C16A.

The Board’s suggested FN text is:

C[DDD]: Use of the band 27.5 – 28.35 GHz by the fixed satellite service in the Earth to space direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as applications involving a small number of large aperture earth stations that have been coordinated on an individual basis, taking into account existing and potential serving areas for ubiquitous deployment in the fixed service

28.35-28.6 GHz

In the consultation the Department proposes “*that emphasis be placed on a designation for FSS systems in this band.*”

The Board supports the Department’s proposal and believes that this band should not be included in Canadian footnote C16A and should be prioritised for FSS usage, consistent with the FCC’s June 2000 *Report and Order*.

The Board's suggested FN text is:

C[EEE]: Use of the band 28.35 – 29.1 GHz by the fixed service shall pose minimal constraints upon the ubiquitous deployment of earth-stations in the fixed satellite service. A moratorium has been placed on the issuance of new fixed service licences in these bands.

As for sharing between GSO and non-GSO FSS, the Board supports adoption domestically of the ITU Regulations wherein the non-GSO FSS would need to meet the EPFD limits of Article 22 of the Radio Regulations and would not impose any restriction on the ubiquitous deployment of GSO FSS earth stations.

28.6-29.1 GHz

In the consultation the Department proposes *“that emphasis be placed on a designation for FSS systems in this band.”*

The Board supports the Department's proposal and believes that this band should not be included in Canadian footnote C16A and should be prioritised for FSS usage, consistent with the FCC's June 2000 *Report and Order*.

The Board's suggested FN text is:

C[EEE]: Use of the band 28.35 – 29.1 GHz by the fixed service shall pose minimal constraints upon the ubiquitous deployment of earth-stations in the fixed satellite service. A moratorium has been placed on the issuance of new fixed service licences in these bands.

As for sharing between GSO and non-GSO FSS, the Board supports a priority for non-GSO FSS use wherein the GSO FSS would need to successfully coordinate against non-GSO FSS systems to ensure that interference does not occur.

29.1-29.25 GHz

In the consultation the Department proposes *“that emphasis be placed on a designation for FS systems in this band.”*

The Board supports the Department's proposals. The Board believes that FN C16A in its present form is no longer required. Instead, the Board urges the Department to clearly outline the conditions to be placed on the deployment of both FSS and MSS in this band.

Sharing with low-density applications in the FSS or MSS feederlink is deemed feasible. Therefore, a replacement for FN C16A is proposed in this response and the Board's support is conditional on this replacement being accepted.

The Board's suggested FN text is:

C[FFF]: Use of the band 29.1–29.25 GHz by the fixed satellite service in the Earth to space direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as feeder link earth stations for the MSS or other applications involving a small number of large aperture earth stations that have been coordinated on an individual basis, taking into account existing and potential serving areas for ubiquitous deployment in the fixed service.

Sharing between GSO FSS and non-GSO MSS feeder-link in this band would be on a first-come, first-served basis through mutual coordination. The Board further believes that other non-GSO FSS applications in this band should be on a secondary basis.

29.25-29.5 GHz

In the consultation the Department proposes: *“that emphasis be placed on a designation for FSS systems in this band.”*

The Board supports the Department's proposal for 'emphasis' on the FSS, including non-GSO MSS feeder-link.

The Board's suggested FN text is:

C[GGG]: Use of the band 29.25 – 29.5 GHz by the fixed service shall pose minimal constraints upon the deployment of earth stations in the fixed-satellite service, including feeder links for MSS systems.

Sharing between GSO FSS and non-GSO MSS feeder-link in this band would be on a first-come, first-served basis through mutual coordination. The Board further believes that other non-GSO FSS applications in this band should be on a secondary basis.

29.5-30 GHz

In the consultation the Department notes that FSS in this band remains unaffected by its proposals.

The Board supports the Department's proposal for no change to the FSS status in this band.

As for sharing between GSO and non-GSO FSS, the Board supports adoption domestically of the ITU Regulations wherein the non-GSO FSS would need to meet the EPFD limits of Article 22 of the Radio Regulations and would not impose any restriction on the ubiquitous deployment of GSO FSS earth stations.

6.0 Intelligent Transportation Systems in the Band 5850-5925 MHz

Recognizing the importance of safety and efficiency to Canada's transportation infrastructure, the Department is proposing to designate 75 MHz of spectrum for ITS systems in the band 5850-5925 MHz.

Comments are requested on the following:

- (a) *whether there is a requirement to add a mobile allocation to the band 5850-5925 MHz to accommodate ITS applications;*
- (b) *options available to minimize the impact on existing microwave users in the band; and*
- (c) *the requirement, if any, for a moratorium on the licensing of new fixed systems in portions of the band, taking into account the time frames for implementation of ITS service in the bands.*

Concerning whether there is a requirement to add a mobile allocation to the band 5850-5925 MHz to accommodate mobile applications, most ITS applications involve a requirement to communicate with moving vehicles, hence a provision should be made for a mobile application in this band.

The FCC, in their Report and Order on ITS, adopted the following definition of DSRC services:

The use of non-voice radio techniques to transfer data over short distances between roadside and mobile radio units, between mobile units, and between portable and mobile units to perform operations related to the improvement of traffic flow, traffic safety and other intelligent transportation service applications in a variety of public and commercial environments. DSRC systems may also transmit status and instructional messages related to the units involved.

The United States Table of Frequency Allocations for the band 5850-5925 MHz includes the Mobile service as co-primary, with the following domestic footnote:

NG160 In the 5850-5925 MHz band, the use of the non-Federal government mobile service is limited to Dedicated Short Range Communications operating in the Intelligent Transportation System radio service.

Current planning for ITS in the band 5850-5925 MHz includes a provision for approximately 10% of the total bandwidth to be made available for emergency applications. As has been noted earlier, a portion of this band has been proposed as a potential candidate band for identification under WRC-03 Agenda Item 1.3 It is likely that the entire band will be included in future versions of the text being prepared by the ITU-R for the Conference Preparatory Meeting.

(a)

It is the opinion of the Board that the Intelligent Transportation System is "mobile in nature" and the Canadian Table of Frequency Allocations should be modified to include a "Mobile" allocation in the 5850 to 5975 MHz band.

(b)

The Board recommends that "Intelligent Transportation Systems" be limited to "Dedicated Short Range Communications. The Board believes that there are options available to minimize the impact on Fixed Service users in this band. Frequency co-ordination, transmitter power and PFD limits are techniques, which can be used to limit impact on existing services. Where co-existence between ITS and FS cannot occur, a policy should be established where ITS providers are responsible for the transition costs of affected systems. Alternate spectrum for relocation of Lower Lower 6 GHz FS systems should be made available as discussed in the Fixed Service views in 3.2.1. In areas where co-existence is possible, displacement of FS systems should not be required.

(c)

The RABC does not believe that a moratorium on the licensing of new fixed systems in portions of the band is required at this time. When ITS systems are deployed, the Department may place technical limitations on them so that the service can co-exist with the incumbent fixed services in the bands. Any displacement out of the band that is required of the incumbent fixed service providers should be done only as required on a per case basis. In areas where co-existence is possible, no displacement of fixed systems should be required.

NOTE: A precise definition of "Dedicated Short Range Communications" may require development by the Department. Maximum EIRP and antenna heights are but two of the criteria.

7.0 Services in the 8 GHz Frequency Range

The 7725-8275 MHz Band

The Department is proposing to add a low capacity designation to this band. Comments are solicited on whether the designation for low capacity should be made throughout the band or be limited to a portion of the band, e.g., 80+80 MHz. Comments are also requested on the types of systems and their deployments which will continue to use the spectrum and new applications which are expected to require access to spectrum in this range.

RABC Response:

With the increasing implementations of intercity fibre optic transmission systems, the need for long-haul and medium-haul high capacity microwave systems operating in the band 7725-8275 MHz has greatly diminished. This situation has greatly improved the potential use of this band for low capacity applications. Therefore, the Board supports the Department's proposal to add a low capacity designation to this band. In view of the limited availability of spectrum in bands below 10 GHz for LC systems, the Board

recommends that this designation for low capacity should be made throughout the band 7725-8275 MHz.

There is some limited broadcaster use of this band for long-established, analog video/audio circuits, primarily for some hops on long-haul interconnections of TV rebroadcasting facilities; however, these are licensed on a non-standard basis, because they follow a channel plan different from that of the current SRSP for this band. Generally, these are located in remote and rural locations, such as Sudbury to Kearns, Ontario. So far as the RABC is aware, the TV broadcasters intend to continue using these channels for the foreseeable future.

It is not anticipated that there would be any increase in the number of systems using this band for TV broadcast networking purposes; however, the low-capacity usage contemplated by Industry Canada may be compatible with the interconnection requirements of DAB broadcasters (e.g. for single frequency networking links). Comprehensive DAB link planning has yet to be done so it is not possible to quantify these requirements at this time.

The 8275-8500 MHz Band

The 8275-8500 MHz band is designated for low and medium capacity fixed service video systems. The band 8275-8400 MHz is shared with FSS (Earth-to-space) limited to GoC use. Comments are requested on the types of systems and their deployments which will continue to use the spectrum, as well as, potential new applications which could be accommodated in this band.

RABC Response:

The 8275 - 8500 MHz band was custom designed for medium to long-haul analog video, per SRSP 308.2. It provides 6 channels forward and 3 back, so is not generally suited to carrying two-way circuits; the two directions carry completely different one-way signals. There are numerous systems in Ontario operated by television networks, such as CTV and CHUM, for inter-transmitter network feeds and by cable licensees, such as Rogers, Cogeco and Regional Cablesystems - Northern Division for importation of distant TV signals to local cable systems. These systems work well in these applications and, other than a few instances in Southern Ontario, will not soon be replaced by fibre. For example, CTV has an extensive, two-way network in this band from Sudbury to Sault Ste. Marie and to Hallebourg (near Hearst). CHUM has a system between Toronto and Windsor and Wingham and between Ottawa and Pembroke.

The RABC does not envisage this band, in its current configuration (channel plan), as being suitable to other services. Neither broadcast users nor cable licensees would wish to see the channel plan reconfigured, unless this could be done without rendering their existing systems non-standard, without constraining or preventing any future expansions, and without producing any disruptions to the existing facilities. These links provide interconnections between TV markets in many parts of Canada and are essential to networking requirements of the TV licensees. Equally important, they provide a cost-effective means of importing distant television signals to local cable systems and, thus, are also essential to those cable licensees.

8.0 Licence-Exempt Applications

In Section 8.0 the Department seeks comments on the support of licence-exempt devices and systems below 10 GHz. Specifically, it asks for comment on four issues related to LE devices below 10 GHz:

The Department seeks comments on the following issues, potential directions and the public interest:

- (a) *whether more spectrum should be made available for LE applications recognizing that high power LE applications may constrain other services;*
- (b) *whether there is spectrum where LE applications could be designated;*
- (c) *the amount of spectrum which would be required; and*
- (d) *the types of applications which should be accommodated*

RABC Response:

In the case of Licence-exempt applications in the 900 MHz, 2.4 GHz and 5 GHz frequency bands, the Board recommends that the Department should continue to harmonize the spectrum utilization policies, first of all with those of the FCC, and second with the European standards. In particular the band 5470 to 5725 currently under consideration for indoor/outdoor deployments is seen as highly desirable for wireless access applications. The Board notes, in this respect, the recent FCC order 01-357 dated 2001-12-14 regarding licence exempt allocations in the 24 GHz band.

It is our belief that allocation of this additional spectrum in the 5 GHz band and the use of interference mitigation techniques such as Dynamic Frequency Selection (DFS) and Automatic Transmit Power Control (ATPC) would avoid the type of congestion currently seen in the 2.4 GHz band in some urban environments. The Board supports the efforts of the Department to mitigate potential Radar interference through the use of elevation masks. This type of radio footprint is in keeping with the type of applications being deployed in this band, namely private and commercial service providers deploying wireless access networks for P-P and P-MP.

On 2002-02-14 the FCC issued a News Release advising of the adoption of a First Report and Order (FCC 02-08) regarding the revision of Part 15 rules that permits the marketing and operation of certain types of new products incorporating ultra-wideband (UWB) technology. The UWB technology is expected to provide a vast array of new applications that have the potential to provide new public safety applications and broadband Internet access among uses envisioned. The Order includes also standards designed to ensure that existing and planned radio services, particularly safety services, are adequately protected. The Board requests the Department to assess the potential of harmonization with the Part 15 standards on UWB technology.

With respect to the type of applications which could be accommodated, in any specific band in which new LE applications are being considered, the resulting interference environment between the LE devices and coordinated and licensed systems of existing services has to be fully taken into account, in part because the LE devices are by

definition not coordinated with existing networks. The interference may be of a significant single-entry nature, or may be significant aggregate interference as a result of a large number of very low-level interference sources.

One place where this latter interference environment has to be taken into account is in bands where there are existing Earth-to-space satellite services allocated. An example of this sharing of spectrum with Earth-to-space satellite links is the 5150-5250 MHz band, where LE-LAN devices share spectrum with Earth-to-space MSS feeder links in accordance with current Canadian Regulations as specified in SP-5150 and portions of RSS-210. The RABC anticipates that the Department is not considering at this time the revision of these recently approved documents. Perhaps the work that went into the preparation of SP-5150 and associated sections of RSS-210 can be used in considering the sharing of spectrum between LE devices and existing services in other bands.

8.1 Licence-Exempt Applications at 57 GHz

The Board has no comments on this band.

8.2 Licence-Exempt Applications at 90 GHz

The Board has no comments on this band.

8.3 TV Pick-ups and Airborne TV Pick-ups

In Section 8.3 of its consultation paper, the Department seeks comments on the following specific questions:

- (a) *whether there is suitable additional spectrum available for these applications, such as the existing video distribution band at 8275-8500 MHz;*
- (b) *whether airborne TV pick-up applications can be introduced into the current TV pick-up band 6930-7125 MHz;*
- (c) *whether these applications should be shared with LE devices as they operate on a temporary basis.*

RABC Response:

(a)

Channel availability in the existing 8275-8500 MHz TV distribution plan in, for example, The Greater Toronto Area, the region between Toronto and Windsor, the region northwest of Toronto, the Ottawa Valley in and westward from Ottawa through to Pembroke, as well as much of the corridors of Highways 11 and 17 in Northeastern Ontario, is limited due to congestion. Adding airborne TV pick-up channels to this band would certainly create interference problems to the existing fixed services. Due to the nature of airborne transmissions and required flight patterns in and around cities, it would be impossible to maintain protection for the various routings of microwave traffic.

TV broadcasters currently have access only to TV pick-up equipment designed for the 1.7 to 7 GHz band and at the 15 GHz band. The band of choice depends on the specific TV pickup channels available within each region in both Canada and the USA. To date, equipment suppliers do not have systems available for the 8 GHz band but they could likely design and manufacture such systems if the market warrants it. The key concern is whether a unique band designation for Canada would be sufficient to cause this to happen. The RABC believes that it would not. Therefore, any new 8 GHz TV pick-up spectrum that may be allocated would be of practical use in Canada only if US broadcasters also use it for this same purpose.

As well, the RABC's comments in regard to the 8275-8500 MHz band given in Section 7.0 apply equally here.

(b)

Introducing airborne operations into the current TV pick-up band 6930-7125 MHz would be impossible for congested markets such as Toronto, Ottawa, Vancouver and other major cities. For example, in Toronto at present, this band is fully occupied, with all television broadcasters having primary and secondary channel assignments for their mobile terrestrial ENG operations. With the possibility of new TV broadcasters coming into the Toronto market and possibly others, available TV pickup channels in this band are already in short supply. However, channel congestion for this ENG application would be less in the smaller TV markets.

Fixed-satellite systems operate in Canada in the 6875-7075 MHz band, including those that provide space-to-earth feeder-links to NGSO MSS systems operating in the 1-3 GHz band. These systems operate in accordance with Footnote 5.458B. Currently there are two licensed earth stations of this type operating in Canada, at Smiths Falls ON and at High River AB. These earth stations track non-geostationary satellites wherever visible from the earth station. It is anticipated that if airborne TV pick-up transmitters were to operate in this band, harmful interference would be experienced at these earth stations if co-frequency TV pick-up transmissions were to occur within several hundred kilometres of the earth stations. Natural site shielding could not be relied upon to provide the means for sharing of spectrum if the transmitters were airborne. Coordination of the airborne TV pick-ups to avoid this harmful interference is not likely to be feasible during a rapidly-evolving news event.

In addition to the MSS feeder link operations described in the previous paragraph, Industry Canada has also licensed an earth station in Canada to operate in the 7025-7075 MHz band in conjunction with an S-band satellite that is licensed by the Administration of the United States. Specifically, TT&C operations have been successfully coordinated and licensed for this earth station. Applications of this type would be difficult to coordinate with the broadcast service as there is the potential for interference into the TV Pick-Up band 6930 to 7125 MHz, the extent of which depends upon the relative locations of the ES and the TV-Pick-Up central receive antenna and other system-specific parameters.

For these reasons, the Board is of the opinion that airborne TV pick-up transmitters should not be introduced in the band 6930 to 7125 MHz.

(c)

The RABC believes that LE bands are not acceptable for use by airborne TV pickups. These operations require protected status in view of the important role they play in communicating news and information to the public, especially during local emergencies.

General Comments on TV Pick-ups

Operational Constraints

The basic rule of thumb for airborne pick-up systems is that the higher the frequency and range requirements, the larger and heavier the payload.

Operating an airborne TV pickup at the higher frequencies will certainly have difficulties in:

- *Range:* The current range for a helicopter using today's 2 GHz equipment would be drastically reduced at 6-8 GHz due to higher propagation losses. Larger transmit antennas would be required which would increase the payload of the helicopter. Higher power transmitters would have higher power consumption and weight. To improve the transmit side, a larger and more expensive helicopter may be required. To improve the link performance at higher frequencies on the receive side, a larger receive antenna system with a high-gain LNB & sensitive receiver would be essential. Even with these improvements, one cannot match the range associated with a 2 GHz operation.
- *Aiming & tracking:* As mentioned previously, airborne pickup manufacturers do have products operating at the higher frequency bands. The effective 3 dB beam width for both the transmit and receive antennas at higher frequencies would be significantly reduced as compared to 2 GHz, thereby increasing the complexity and difficulty for tracking. A more elaborate receive array and tracking system would be required to track the transmission.

9. 24.05-24.25 GHz

With a view toward designating the band 24.05-24.25 GHz to Safety Warning Systems on a secondary basis, the Department requests comments on the level of interest in the provision of these systems in Canada, as well as any other potential uses that would increase the flexibility of this band.

RABC Response:

The band is used by the Amateur service for weak signal operation. Specific comments cannot be made until more information becomes available on proposed safety warning system operations.

10. 31.0-31.3 GHz

The Department proposes to designate the band 31.0-31.3 GHz for LMCS. It is further proposed to structure the band to pair the centre 150 MHz with the spectrum at 29.1-29.25 GHz and pair the two 75 MHz blocks at either end.

RABC Response:

The Board is generally in favour of harmonization with U.S. band plans to the extent possible but, given the history to date of the use of the LMCS spectrum that was opened for licensing several years ago, the Board wonders whether it might not be premature to designate additional spectrum for the use of LMCS.

11.0 31.8-33.4 GHz

With the premise that the domestic allocation is made, the Department is proposing that the spectrum 31.8-33.4 GHz be designated for fixed services, for a future licensing process. Comment is requested on this proposal.

RABC Response:

The Board supports the Department's proposal for designating the spectrum 31.8-33.4 GHz for fixed services, for a future licensing process. However, the designation of this spectrum for possible fixed service applications should be delayed until such time a clearer picture develops on the desired applications in this band.

Yours truly,



D. Farnes
President

Annex A

Suggested Treatment of Canadian Domestic Footnotes C16A, C44 and C47A

Introduction

Canadian domestic footnote C16A currently applies to the following bands:

- Allotment C-bands: 4500 - 4800 MHz (s to E) and 6725 - 7025 MHz (E to s)
- Allotment and extended Ku-bands: 10.7 – 11.45 GHz (s to E) and 12.75 – 13.25 GHz (E-s)
- Ka-band: 17.8 –19.7 GHz (s to E) and 28.35 – 29.5 GHz (E to s).

The Board is of the view that the appropriate footnote provisions vary from band to band. Suggested treatment for the allotment C bands and the allotment and extended Ku-bands has been presented in the body of this submission. Suggested treatment for the Ka-band is given below.

Canadian domestic footnote C47A applies in the band 27.35 – 28.35 GHz. This band is also treated below.

The Board also suggests amended wording to Canadian domestic footnote C44, as given below.

Suggested Replacements for C16A and C47A in Ka Sub-bands

17.8 – 18.58 GHz

The Board concurs that emphasis be placed on the FS, with respect to FSS (s-E) within this band. The Board suggests that this soft-partitioning approach be treated in a domestic footnote as follows:

C[AAA]: Use of the band 17.8 – 18.58 GHz by the fixed satellite service in the space to Earth direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as applications involving a small number of large aperture earth stations that have been coordinated on an individual basis.

18.58 – 18.8 GHz and 18.8 – 19.3 GHz

The Board concurs that emphasis be placed on the FSS, with respect to FS within these bands. The Board suggests that this soft-partitioning approach be treated in a domestic footnote as follows:

C[BBB]: Use of the bands 18.58 – 19.3 GHz by the fixed service shall pose minimal constraints upon the ubiquitous deployment of earth stations in the fixed satellite service. A moratorium has been placed on the issuance of new fixed service licences in these bands.

19.3 – 19.7 GHz

The Board concurs that emphasis be placed on the FS, with respect to FSS (s-E) within this band. The Board suggests that this soft-partitioning approach be treated in a domestic footnote as follows:

C[CCC]: Use of the band 19.3 – 19.7 GHz by the fixed satellite service in the space to Earth direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as feeder link earth stations for the MSS or other applications involving a small number of large aperture earth stations that have been coordinated on an individual basis.

27.5 – 28.35 GHz

The Board concurs that access to this spectrum by fixed-satellite earth stations should continue to be limited to applications that pose minimal constraints on the fixed service systems. The Board suggests that with respect to this band, existing footnote C47A be replaced as follows:

C[DDD]: Use of the band 27.5 – 28.35 GHz by the fixed satellite service in the Earth to space direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as applications involving a small number of large aperture earth stations that have been coordinated on an individual basis, taking into account existing and potential serving areas for ubiquitous deployment in the fixed service.

28.35 – 28.6 GHz and 28.6 – 29.1 GHz

The Board concurs that emphasis be placed on the FSS, with respect to FS within these bands. The Board suggests that this soft-partitioning approach be treated in a domestic footnote as follows:

C[EEE]: Use of the band 28.35 – 29.1 GHz by the fixed service shall pose minimal constraints upon the ubiquitous deployment of earth stations in the fixed satellite service. A moratorium has been placed on the issuance of new fixed service licences in these bands.

29.1 – 29.25 GHz

The Board concurs that emphasis be placed on the FS, with respect to FSS within this band. The Board suggests that this soft-partitioning approach be treated in a domestic footnote as follows:

C[FFF]: Use of the band 29.1–29.25 GHz by the fixed satellite service in the Earth to space direction shall be limited to those applications that pose minimal constraints upon the deployment of fixed service systems, such as feeder link earth stations for the MSS or other applications involving a small number of large aperture earth stations that have been coordinated on an individual basis, taking into account existing and potential serving areas for ubiquitous deployment in the fixed service.

29.25 – 29.5 GHz

The Board concurs that emphasis be placed on the FSS, with respect to FS within these bands. The Board suggests that this soft-partitioning approach be treated in a domestic footnote as follows:

C[GGG]: Use of the band 29.25 – 29.5 GHz by the fixed service shall pose minimal constraints upon the deployment of earth stations in the fixed-satellite service, including feeder links for MSS systems.

Suggested replacement for C44

The use of the fixed-satellite service (Earth-to-space) in the band 24.75-25.25 GHz is limited to feeder links to broadcasting-satellite space stations, or other digital carriers for fixed satellite services associated with the broadcasting satellite service, operating in the band 17.3-17.8 GHz. In areas where fixed systems have been licensed using a competitive process, future earth stations (Earth-to-space) in the band 25.05-25.25 GHz will be permitted provided that such installations will not cause interference to any licensed fixed service to be deployed in the authorized service area.