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May 2009

Spectrum Management and Telecommunications

Proposed Revisions to the Canadian Table of Frequency Allocations (2009 Edition)

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Industry Canada

Radiocommunication Act

Notice No. DGTP-003-09 — Proposed revisions to the *Canadian Table of Frequency Allocations* (2009 Edition)

This notice invites comments on proposals for the revision of the *Canadian Table of Frequency Allocations* (the Canadian Table) as outlined in the above-mentioned consultation paper.

The International Telecommunication Union (ITU) adopts the *International Table of Frequency Allocations* (the International Table) as part of the international Radio Regulations. This International Table allocates radio frequency spectrum to various combinations of radio services and is revised on a periodic basis, along with other parts of the international Regulations.

The Canadian Table is derived from the International Table adopted by the ITU. The Canadian Table identifies those radio services required to meet Canadian needs and specifies, by Canadian footnote, any additional provisions for use of those services in Canada. Industry Canada revises the Canadian Table on a periodic basis, normally following an ITU World Radiocommunication Conference (WRC). The WRC-07, which took place October/November 2007, adopted a number of changes to the frequency allocations in the International Table. The Conference dealt with issues concerning amateur, mobile, radiolocation, navigation, science, broadcasting-satellite, mobile-satellite, fixed and the fixed-satellite services. The resulting changes to the International Table require the consideration of several domestic issues. The above-mentioned consultation paper presents these issues and proposals for revision to the Canadian Table.

Submitting comments

Interested parties are invited to submit comments on the consultation paper. These comments are to be submitted by August 10, 2009. Soon after the close of the comment period, all comments received will be posted on Industry Canada's [Spectrum Management and Telecommunications Web site](http://ic.gc.ca/spectrum) at <http://ic.gc.ca/spectrum>.

Respondents are requested to provide their [comments](#) in XHTML format to the following e-mail address: wireless@ic.gc.ca. Other electronic formats such as WordPerfect, Microsoft Word, Adobe PDF or ASCII TXT will also be accepted, along with a note specifying the software, version number and operating system used.

Written submissions should be addressed to the Director General, Telecommunications Policy Branch, Industry Canada, 300 Slater Street, Ottawa, Ontario, K1A 0C8.

All submissions should cite the *Canada Gazette*, Part I, the publication date, the title and notice reference number (DGTP-003-09).

Obtaining copies

Copies of this notice and documents referred to herein are available electronically on Industry Canada's Spectrum Management and Telecommunications Web site.

Official versions of *Canada Gazette* notices can be viewed at www.gazette.gc.ca/rp-pr/p1/index-e.html. Printed copies of *Canada Gazette* can be ordered by telephoning the sales counter of Canadian Government Publishing at 613-941-5995 or 1-800-635-7943.

May 1, 2009

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Acting Director General
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1. Intent

This consultation paper, announced in *Canada Gazette* Notice DGTP-003-09, reviews the *Canadian Table of Frequency Allocations* (the Canadian Table) and makes proposals for its revision, taking into account the results of the 2007 World Radiocommunication Conference (WRC-07) and domestic requirements. The Canadian Table was last modified in May 2005, to incorporate the results of WRC-03 and previous WRCs, and implement domestic policies. Subsequent changes have been made since then to reflect changes in domestic policies.

The accompanying *Canada Gazette* notice invites public comments on these proposals. As well, Industry Canada welcomes any input to ensure the completeness of the Canadian Table.

2. Background

The International Telecommunication Union (ITU) adopts an *International Table of Frequency Allocations* (the International Table) as part of its Radio Regulations. This International Table allocates spectrum to various combinations of radio services and may include conditions for the use of the spectrum. Examples of the internationally defined services include broadcasting, mobile services and fixed-satellite service. The International Table is revised, along with other parts of the international Regulations, at meetings of the ITU World Radiocommunication Conferences (WRC), which are held on a periodic basis.

The Canadian Table is derived from the International Table adopted by the ITU. The Canadian Table contains those radio services required to meet Canadian needs, among those allocated by the ITU, including the applicable international footnotes. This domestic table also specifies, by allocation and Canadian footnote, any additional provisions for use of those services in Canada.

Industry Canada revises the Canadian Table on a periodic basis, normally following a WRC. WRC-07, which met in October/November 2007, in Geneva, Switzerland, adopted a number of changes to the frequency allocations in the International Table. The Conference dealt with issues concerning amateur, mobile, radiolocation, navigation, science, broadcasting-satellite, mobile-satellite, fixed and the fixed-satellite services. The resulting changes to the International Table necessitate consideration of several domestic issues. Also, domestic requirements for other changes to the Canadian Table have emerged, and will be addressed as well. The remainder of this document discusses these issues and makes proposals for revisions to the Canadian Table.

3. Process

The accompanying *Canada Gazette* notice (DGTP-003-09) invites public comment on the proposals contained in this consultation paper. Following the review of comments received, the allocation decisions will be promulgated by the issuance of a revised Canadian Table.

4. Structure of the Document

This consultation paper is divided into six sections that address the proposed changes to the Canadian Table consequential to the decisions made at WRC-07 and related domestic modifications.

5. Conventions Used in the Document

The proposals contained in the document are identified as modifications to the Canadian Table, last revised in February 2007. (The current version of the Canadian Table may be obtained from Industry Canada's Web site at <http://ic.gc.ca/SSG/sf01678e.html>.) For a complete understanding of these proposals, refer to the most recent International Table, as found in the revised ITU Radio Regulations, Volume 1 (Geneva 2008), Article 5 and the *Final Acts of the World Radiocommunication Conference (WRC-07) Geneva, October-November 2007*.

- Underlining When used in the Canadian Table, underlining proposes the addition of a radio service or footnote. It is also used in the text of Canadian footnotes to identify proposed additional text.
- ~~Strikeout~~ When used in the Canadian Table, ~~strikeout~~ proposes the deletion of a radio service or footnote. It is also used in the text of Canadian footnotes to identify proposed deleted text.
- MOD** When used in the Canadian Table, MOD underlined proposes the addition of an international footnote modified at WRC-07.
- 5.XXX This is the designation format of an international footnote.
- CAN XX This identifies a Canadian footnote.
- MOD** This indicates an international footnote modified at WRC-07 or a Canadian footnote proposed for modification. These appear in both the Canadian Table and in the lists of footnotes.
- ADD** This is used in a list of footnotes to indicate an international footnote created at WRC-07 or a proposed new Canadian footnote.
- ADD MOD** This indicates the proposed addition of an international footnote to the Canadian Table as modified at WRC-07.
- SUP** This is used in a list of footnotes to indicate an international footnote suppressed at WRC-07 or a Canadian footnote proposed for suppression.

6. Definitions

The following is a list of terms and definitions that are relevant to the Canadian Table. These terms and definitions are extracted from the ITU's international Radio Regulations. The Regulations should be consulted for a more comprehensive listing.

6.1 General Terms

Administration: Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in Convention of the International Telecommunication Union and the Administrative Regulations.

Allocation (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term also applies to the frequency band concerned.

Allotment (of a radio frequency or radio frequency channel): Entry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more administrations for a terrestrial or space radiocommunication service in one or more identified countries or geographical areas and under specified conditions.

Assignment (of a radio frequency or radio frequency channel): Authorization given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions.

Radio: A general term applied to the use of radio waves.

Radio Waves or Hertzian Waves: Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.

Radiocommunication: Telecommunication by means of radio waves.

Terrestrial Radiocommunication: Any radiocommunication other than space radiocommunication or radio astronomy.

Space Radiocommunication: Any radiocommunication involving the use of one or more space stations or the use of one or more reflecting satellites or other objects in space.

Radiodetermination: The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

Radionavigation: Radiodetermination used for the purposes of navigation, including obstruction warning.

Radiolocation: Radiodetermination used for purposes other than those of radionavigation.

Radio Direction-Finding: Radiodetermination using the reception of radio waves for the purpose of determining the direction of a station or object.

Radio Astronomy: Astronomy based on the reception of radio waves of cosmic origin.

Coordinated Universal Time (UTC): Time scale, based on the second (SI), as defined in Recommendation ITU-R TF.460-6.

For most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT.

Industrial, Scientific and Medical (ISM) Applications (of radio frequency energy): Operation of equipment or appliances designed to generate and use locally radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications.

6.2 Radio Services

Radiocommunication Service: A service involving the transmission, emission and/or reception of radio waves for specific telecommunication purposes. Unless otherwise stated, any radiocommunication service relates to terrestrial radiocommunication.

Fixed Service (FS): A radiocommunication service between specified fixed points.

Fixed-Satellite Service (FSS): A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified point or any fixed point within specified areas; in some cases, this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services.

Inter-Satellite Service: A radiocommunication service providing links between artificial satellites.

Space Operation Service: A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand.

These functions will normally be provided within the service in which the space station is operating.

Mobile Service: A radiocommunication service between mobile and land stations, or between mobile stations.

Mobile-Satellite Service: A radiocommunication service:

- between mobile earth stations and one or more space stations, or between space stations used by this service; or
- between mobile earth stations by means of one or more space stations.

This service may also include feeder links necessary for its operation.

Land Mobile Service: A mobile service between base stations and land mobile stations or between land mobile stations.

Land Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on land.

Maritime Mobile Service: A mobile service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.

Maritime Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.

Aeronautical Mobile Service: A mobile service between aeronautical stations, and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical Mobile (R)¹ Service: An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.

Aeronautical Mobile (OR)² Service: An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.

Aeronautical Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.

Aeronautical Mobile-Satellite (R)¹ Service: An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.

Aeronautical Mobile-Satellite (OR)² Service: An aeronautical mobile-satellite service intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.

Broadcasting Service: A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmission.

Broadcasting-Satellite Service: A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public.

¹ (R): route

² (OR): off-route

In the broadcasting-satellite service, the term *direct reception* shall encompass both individual reception and community reception.

Radiodetermination Service: A radiocommunication service for the purpose of radiodetermination.

Radiodetermination-Satellite Service: A radiocommunication service for the purpose of radiodetermination involving the use of one or more space stations.

This service may also include feeder links necessary for its own operation.

Radionavigation Service: A radiodetermination service for the purpose of radionavigation.

Radionavigation-Satellite Service: A radiodetermination-satellite service used for the purpose of radionavigation.

This service may also include feeder links necessary for its operation.

Maritime Radionavigation Service: A radionavigation service intended for the benefit and for the safe operation of ships.

Maritime Radionavigation-Satellite Service: A radionavigation-satellite service in which earth stations are located on board ships.

Aeronautical Radionavigation Service: A radionavigation service intended for the benefit and for the safe operation of aircraft.

Aeronautical Radionavigation-Satellite Service: A radionavigation-satellite service in which earth stations are located on board aircraft.

Radiolocation Service: A radiodetermination service for the purpose of radiolocation.

Radiolocation-Satellite Service: A radiodetermination-satellite service used for the purpose of radiolocation.

This service may also include feeder links necessary for its operation.

Meteorological Aids Service: A radiocommunication service used for meteorological, including hydrological, observations and exploration.

Earth Exploration-Satellite Service: A radiocommunication service between earth stations and one or more space stations, which may include links between space stations, in which:

- information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors or passive sensors on Earth satellites;
- similar information is collected from airborne or Earth-based platforms;

- such information may be distributed to earth stations within the system concerned;
- platform interrogation may be included.

This service may also include feeder links necessary for its operation.

Meteorological-Satellite Service: An earth exploration-satellite service for meteorological purposes.

Standard Frequency and Time Signal Service: A radiocommunication service for scientific, technical and other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.

Standard Frequency and Time Signal-Satellite Service: A radiocommunication service using space stations on earth satellites for the same purposes as those of the standard frequency and time signal service.

This service may also include feeder links necessary for its operation.

Space Research Service: A radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes.

Amateur Service: A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

Amateur-Satellite Service: A radiocommunication service using space stations on earth satellites for the same purpose as those of the amateur service.

Radio Astronomy Service: A service involving the use of radio astronomy.

Safety Service: Any radiocommunication service used permanently or temporarily for the safeguarding of human life and property.

6.3 Categories of Services

Primary and Secondary Services:

In the Canadian Table, where a band is indicated as allocated to more than one service, services are listed in the following order:

- (a) primary services are printed in “all capital letters” (example: FIXED); and
- (b) secondary services are printed in “upper and lower case letters” (example: Amateur).

Additional remarks are printed in “upper and lower case letters” (example: MOBILE except aeronautical mobile).

For each category, services are listed in alphabetical order but that order does not indicate relative priority.

Stations of a Secondary Service:

- (a) shall not cause harmful interference to stations of primary service to which frequencies are already assigned or to which frequencies may be assigned at a later date;
- (b) cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date; and
- (c) can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

The frequency band referred to in each allocation is indicated in the top left-hand corner of the box of the Table concerned.

The footnote references that appear in the Table below the allocated service or services apply to more than one of the allocated services, or the whole of the allocation concerned.

The footnote references to the right of the name of a service are applicable only to that particular service.

Section A: Mobile, Aeronautical Mobile, Radiolocation and Radiolocation Services

A1 (AI 1.3) – Radiolocation Service in the 9 000 MHz Band

Background (A)

Upgrade of the Radiolocation Service in the Bands 9 000-9 200 MHz and 9 300-9 500 MHz

As identified in Resolution **747 (WRC-03)**, there is a need to provide contiguous primary spectrum around the 9 000 MHz band in order for existing and planned radiolocation systems to satisfy their required missions. Changes in technology and emerging requirements for increased image resolution and increased range accuracy necessitate wider contiguous emission bandwidths. Therefore, there is a need to upgrade the status of frequency allocations to the radiolocation service in the frequency range 9 000-9 200 MHz and 9 300-9 500 MHz.

The bands 9 000-9 200 MHz and 9 300-9 500 MHz are allocated on a primary basis to aeronautical radionavigation and radionavigation respectively. Radio Regulation No. **4.10** recognizes radionavigation as a safety service. The radiolocation services and the radionavigation service have demonstrated compatible operations over many years through the use of similar system characteristics such as low-duty cycle emissions, scanning beams and interference reduction techniques. For example, past operational experience in the band 2 900-3 100 MHz as found in Report ITU-R M.2032, *Tests illustrating the compatibility between maritime radionavigation radars and emissions from radiolocation radars in the band 2 900-3 100 MHz*, confirms that it is possible to mitigate interference from radiolocation radars to maritime radionavigation radars in the band.

Some completed studies within ITU-R WP 8B³ characterize the technical performance and protection criteria of radiolocation and radionavigation systems that ensure compatible operations in the bands 9 000-9 200 MHz and 9 300-9 500 MHz. Recommendation ITU-R M.1313 contains the technical characteristics and protection criteria for maritime radars in the band 9 300-9 500 MHz, and Recommendation ITU-R M.1372 identifies interference reduction techniques that enhance compatibility among radar systems.

The completed ITU-R studies on radionavigation radars and emissions from radiolocation radars in the band 9 000-9 500 MHz illustrate compatibility between the two services in this band. These studies indicate that typical radionavigation radars can suppress emissions from other radars, even when the radar receivers operate with very high interference-to-noise (I/N) ratios if the unwanted pulsed waveform is asynchronous and has a low effective duty cycle. These study results support the successful historical sharing experience between the services in the 9 000-9 500 MHz band. Therefore, a primary allocation for radiolocation can be added to the 9 000-9 200 and 9 300-9 500 MHz bands.

³ As a result of ITU-R re-structuring, ITU-R WP 8B is now known as ITU-R WP 5B

Summary of Proposed Changes to the Canadian Table (A)

9 000-9 500 MHz

9 000-9 200	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation <u>RADIOLOCATION</u> 5.473A
9 200-9 300	MARITIME RADIONAVIGATION 5.472 RADIOLOCATION 5.474
9 300-9 500	<u>EARTH EXPLORATION-SATELLITE (active)</u> Radiolocation <u>RADIOLOCATION</u> RADIONAVIGATION 5.476 <u>SPACE RESEARCH (active)</u> 5.427 5.474 MOD 5.475 <u>5.475A</u> <u>5.475B</u> MOD 5.476A

ADD 5.473A In the band 9 000-9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471**. **(WRC-07)**

MOD 5.475 The use of the band 9 300-9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300-9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. ~~In the band 9 300-9 500 MHz, ground-based radars used for meteorological purposes have priority over other radiolocation devices.~~ **(WRC-07)**

ADD 5.475A See Section A1-B.

ADD 5.475B In the band 9 300-9 500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation uses. **(WRC-07)**

SUP 5.476 ~~In the band 9 300-9 320 MHz in the radionavigation service, the use of shipborne radars, other than those existing on 1 January 1976, is not permitted until 1 January 2001.~~ **(WRC-07)**

ADD MOD 5.476A See Section A1-B.

Discussion

Given the potential allocation to other services in the upper band 9 300-9 500 MHz, and because of similarity of services in the two bands, the agenda item focused on the upgrade of radiolocation from the secondary to the primary status. Radiolocation systems in these bands have been operating compatibly with the radionavigation service, allocated on a primary basis as it is a safety of life service.

Canada joined the CITELE Inter-American Proposal (IAP) on this agenda item, which supported the upgrade to a primary status on condition that a new footnote be created to maintain the relative status between radiolocation and radionavigation, recognizing that radionavigation is used for safety of life.

Because the ITU-R studies and extensive experience had shown compatibility, there was opposition to establishing super-primary status. The agreed upon solution was to refer to systems of the service. This way, one service would not have a higher status, but specific systems could claim extra protection.

In the case of the band 9 000-9 200 MHz, systems that can be deployed are already limited to those listed in No. **5.337**. The new footnotes also conveyed protection to the maritime radionavigation systems operating in this band under a primary allocation in specific countries. Consequently, new footnotes were created that provided the required protection for the specific systems under the radionavigation service.

Regarding the modification to No. **5.475**, the priority of the meteorological ground-based radars is included in added provision No. **5.473B** for housekeeping purposes.

Background (B)

200 MHz Extension of the Primary EESS (Active) and SRS (Active) Allocations

The band 9 500-9 800 MHz is allocated on a primary basis to the Earth exploration-satellite (EESS) (active), space research (SRS) (active), radiolocation and radionavigation services. In order to satisfy global environmental monitoring requirements for increased resolution, the EESS (active) and the SRS (active) allocations require an increase of 200 MHz..

The ITU-R studied the compatibility between the EESS (active) and the existing services in the two bands identified by Resolution **747 (WRC-03)** for consideration as extension bands.

Results of ITU-R tests and measurements indicate that representative radiolocation and radionavigation radars do not suffer any performance degradation due to any of the representative EESS (active) waveforms. These various ITU-R compatibility studies combined with tests and measurements indicate that sharing is feasible in the additional 200 MHz of spectrum between the EESS (active) and existing services in either the 9 300-9 500 MHz band or the 9 800-10 000 MHz band. In addition, these studies demonstrate that narrow band (less than 300 MHz) synthetic aperture radars (SARs) present higher interference potential compared to wide band (300 MHz or greater) SARs extending over the whole 9 300-9 800 MHz band. With respect to sharing between the EESS (active) and the fixed service, ITU-R studies have shown that interference from a distribution of FS transmitters operating in the 9 800-10 000 MHz band did not exceed the interference threshold of a spaceborne SAR.

Recognizing further that narrow bandwidth (less than 300 MHz) SAR can operate in the existing frequency band (9 500-9 800 MHz) and that the requested extension is only justified for SAR systems requiring more than 300 MHz bandwidth, a limitation of such 200 MHz extension to these wideband (300 MHz or greater) SAR systems could limit the risk of interference to meteorological radars while responding to the need for 200 MHz EESS extension.

Given that the SRS (active) systems operate in the vicinity of planets and celestial bodies other than the Earth or as experimental platforms for future EESS (active) systems, SRS (active) systems were not studied for compatibility with any Earth-based systems. Another possible use of the SRS (active) is as an experimental platform for a future EESS (active) system. However, in this case, the SRS (active) system and the EESS (active) system would be essentially the same. With respect to other types of EESS (active) systems other than SARs, it should be noted that precipitation radars and cloud profile radars cannot operate in this frequency range due to the physical characteristics of their intended applications. Altimeters, which are wideband EESS (active) systems operating at relatively low-power levels, have been shown to not cause interference to radiodetermination systems in the 9 500-9 800 MHz band. Results for any extension band should be analogous.

Summary of Proposed Changes to the Canadian Table (B)

9 300-10 000 MHz

9 300-9 500	<p><u>EARTH EXPLORATION-SATELLITE (active)</u> Radiolocation-<u>RADIOLOCATION</u> RADIONAVIGATION <u>5.476</u> <u>SPACE RESEARCH (active)</u></p> <p style="text-align: right;">5.427 5.474 MOD 5.475 5.475A 5.475B MOD 5.476A</p>
9 500-9 800	<p>EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active)</p> <p style="text-align: right;">MOD 5.476A</p>
9 800-10 000 9 900	<p><u>RADIOLOCATION</u> <u>Earth exploration-satellite (active)</u> Fixed <u>Space Research (active)</u></p> <p style="text-align: right;"><u>5.478A 5.478B 5.479</u></p>
<u>9 900-10 000</u>	<p>RADIOLOCATION Fixed</p> <p style="text-align: right;">5.479</p>

MOD 5.475 See Section A1-A.

- ADD 5.475A** The use of the band 9 300-9 500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9 500-9 800 MHz band. **(WRC-07)**
- ADD 5.475B** See Section A1-A.
- SUP 5.476** See Section A1-A.
- MOD 5.476A** In the band 9 500-9 800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, ~~or constrain the use and development of~~ nor claim protection from, stations of the radionavigation and radiolocation services. **(WRC-9707)**
- ADD 5.478A** The use of the band 9 800-9 900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9 300-9 800 MHz band. **(WRC-07)**
- ADD 5.478B** In the band 9 800-9 900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. **(WRC-07)**

Discussion

This issue addressed the extension of the primary allocations to EESS (active) and SRS (active) for a total of 500 MHz of contiguous spectrum, for systems that could not be accommodated within the 300 MHz in 9 500-9 800 MHz because of an operating bandwidth greater than 300 MHz. The radionavigation and radiolocation services will continue to be protected from EESS (active) and SRS (active) systems.

The extension of these allocations up to 200 MHz, in the downward direction, was not controversial. However, the European Conference of Postal and Telecommunications Administrations (CEPT) also wanted to extend the allocation by another 100 MHz from 9 800-9 900 MHz for the operation of a 600 MHz bandwidth satellite system, for better resolution. This was considered outside the scope of the agenda item and the WRC refused to address the issue until the very last days of the Conference. As a last-minute compromise, EESS and SRS were granted a secondary allocation that must also protect the status of the FS even though the FS is allocated a secondary status. This addition was supported by Canadian stakeholders who can make use of the data provided by this additional extension to EESS and SRS, while not harming the other services to which the band is allocated.

A2 (AI 1.4) – Spectrum for Advanced Mobile Systems (IMT-2000 and beyond)

Background

International Mobile Telecommunications (IMT) systems are mobile systems that provide access to a wide range of telecommunication services, including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based.

In Resolution **228 (WRC-2003)**, the ITU-R was asked to report, in time for WRC-07, on the results of studies on the spectrum requirements and potential frequency ranges suitable for the future development of IMT-2000 and systems beyond IMT-2000 (IMT-Advanced), taking into account the:

- evolving user needs, including the growth in demand for IMT-2000 services;
- evolution of IMT-2000 and pre IMT-2000 systems through advances in technology;
- bands currently identified for IMT-2000;
- time frame in which spectrum would be needed;
- period for migration from existing to future systems; and
- extensive use of frequencies below those identified for IMT-2000 in No. **5.317A**.

Resolution ITU-R 56 provides the new name for Systems Beyond IMT-2000, IMT-Advanced, and resolves that “IMT” is the root name that encompasses both IMT-2000 and IMT-Advanced systems. When considering the naming of IMT systems, one must consider the Radio Regulations and regulatory clarity. Systems that meet the regulatory criteria in the frequency band should not be limited in their evolution and there is no precedence for limiting an allocation in the Radio Regulations to a specific technology or generation of technology. Therefore, WRC-07 decided to identify spectrum generically for IMT.

The objectives of identifying spectrum for use by IMT are to encourage global harmonization and to provide guidance to manufacturers so that they can develop equipment for global roaming at minimum cost. In order to maximize the benefit of this newly available spectrum, it is important to establish an international regulatory framework that allows adequate time for regulators, manufacturers and operators to prepare for the introduction of new services.

In addition to bands already identified for IMT-2000, the following bands were considered for the terrestrial component of IMT-2000 and IMT-Advanced: 410-430 MHz, 450-470 MHz, 470-806/862 MHz, 2.3-2.4 GHz, 2.7-2.9 GHz, 3.4-4.2 GHz and 4.4-4.99 GHz. In all of these bands, administrations have implemented various systems and services, as listed in Report ITU-R M.2079, so that these bands are not currently available for the worldwide or Regional deployment of IMT-2000 and IMT-Advanced.

Regulatory and technical studies were carried out to assess the advantages and disadvantages of identifying specific frequency bands for IMT-2000 and IMT-Advanced. These studies addressed sharing and compatibility considerations with services that already have allocations in candidate spectrum for IMT identification, taking into account the needs of other services.

As a result, the following bands were identified for IMT at WRC-07: 450-470 MHz, parts of 698-862 MHz (varies Regionally), 2 300-2 400 MHz and 3 400-3 600 MHz in Regions 1 and 3.

With regard to the satellite component of IMT-2000 and IMT-Advanced, studies were undertaken to assess the spectrum requirements for the period 2010 to 2020, which identified a requirement for additional spectrum. Candidate frequency bands for the satellite component were proposed for identification in the ranges 1 518-1 525 MHz and 1 668-1 675 MHz, recognizing the difficulties of using the band 1 668-1 675 MHz for such a purpose (see No. **5.380A** and Resolution **744 (Rev. WRC-07)**).

450-470 MHz

WRC-07 identified the band 450-470 MHz for global IMT through new international footnote No. **5.286AA**. In addition, WRC-07 adopted modifications to footnote Nos **5.286D** and **5.286E** under Agenda Item 1.1.

Canada and the United States submitted a declaration that states:

“The United States of America and Canada state that, in application of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) pertaining to the use of the 450-470 MHz band, they intend to make use of applications in the mobile service and fixed service, including public safety networks, in the 450-470 MHz band, as appropriate, which will preclude its use for terrestrial International Mobile Telecommunications (IMT).”

Summary of Proposed Changes to the Canadian Table

450-470 MHz

450-455	MOBILE <u>5.286AA</u> <u>Cxx</u> Fixed 5.209 5.286 5.286A 5.286B 5.286C MOD 5.286D 5.286E C26A C26B
455-456	FIXED MOBILE <u>5.286AA</u> <u>Cxx</u> MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209 C26A C26B
456-459	MOBILE <u>5.286AA</u> MOD 5.287 <u>Cxx</u> Fixed 5.288
459-460	FIXED MOBILE <u>5.286AA</u> <u>Cxx</u> MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209 C26A C26B

460-470	MOBILE <u>5.286AA</u> MOD 5.287 <u>Cxx</u> Fixed 5.289
470-608	BROADCASTING MOD 5.293 <u>5.297</u> C24

ADD 5.286AA The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution **224 (Rev. WRC-07)**. This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (**WRC-07**)

MOD 5.286D See Section F1.

SUP 5.286E See Section F3.

MOD 5.287 See Section E2.

SUP 5.288 See Section F3.

MOD 5.293 *Different category of service:* in Canada, Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed service and mobile services is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Canada, Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. In Argentina and Ecuador, the allocation of the band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (**WRC-2007**)

ADD 5.297 See Section F1.

ADD Cxx (**CAN-09**) In Canada, the band 450-470 MHz is not generally available for use by broadband systems (e.g., IMT) due to the extensive use by conventional and trunked mobile radio systems.

Discussion

The Department believes that the proposed changes to the Canadian Table will reflect the identification of IMT in the band 450-470 MHz internationally. In Canada, however, the band is not generally available for IMT systems due to its extensive use by existing systems.

- MOD 5.149** See Section F2.
- SUP 5.348A** See Section F3.
- SUP 5.348C** For the use of the bands ~~1 518-1 525 MHz and 1 668-1 675 MHz~~ by the mobile-satellite service, see Resolution ~~225 (Rev. WRC-03)~~. (~~WRC-03~~) (**WRC-07**)
- MOD 5.351A** For the use of the bands ~~1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz, 1 668-1 675 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, 2 483.5-500 MHz, 2 500-2 520 MHz and 2 670-2 690 MHz~~ by the mobile-satellite service, see Resolutions **212 (Rev. WRC-9707)** and **225 (Rev. WRC-200007)**. (**WRC-200007**)
- MOD 5.379B** See Section C1.
- MOD 5.379D** See Section C1.
- MOD 5.380A** See Section F2.
- SUP C33** See Section C1.

Discussion

The Department believes that the proposed changes to the Canadian Table will reflect the identification of the bands for the satellite component of IMT. The modification to footnote No. **5.351A** identifies new bands for use by the satellite component of IMT through Resolutions **212** and **225**. Footnote No. **5.348C** is no longer necessary.

2 300-2 400 MHz

WRC-07 globally identified the band 2 300-2 400 MHz for use by IMT through changes to international footnote No. **5.384A**.

Canada and the United States submitted a declaration that states:

“The United States of America and Canada refer to footnote No. **5.394** of Article 5 of the Radio Regulations concerning the use of the 2 300-2 390 MHz band in the United States and the 2 300-2 400 MHz band in Canada and state that, in application of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) in those bands, the aeronautical mobile service for telemetry has priority over other uses by the mobile services. Furthermore, in conformity with additional allocations specified in footnote No. **5.393** of Article 5 of the Radio Regulations in the 2 310-2 360 MHz band, the United States of America and Canada state that, in application of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) in the band 2 310-2 360 MHz, they intend to use parts of this band for the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service, which may preclude its use for terrestrial International Mobile Telecommunications (IMT).”

Summary of Proposed Changes to the Canadian Table:

2 300-2 450 MHz

2 300-2 450 FIXED MOBILE MOD 5.384A MOD 5.394 <u>Cyy</u> RADIOLOCATION Amateur 5.150 5.282 MOD 5.393 MOD 5.394 5.396 C12 C13 MOD C13A C17

ADD MOD 5.384A The bands, or portions of the bands, 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) in accordance with Resolution **223 (Rev. WRC-200007)**. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. **(WRC-200007)**

MOD 5.393 See Section F1.

MOD 5.394 See Section F1.

MOD C13A See Section F1.

ADD Cyy **(CAN-09)** In the band 2 300-2 400 MHz, the portions of the band identified for IMT in Canada are 2 305-2 320 and 2 345-2 360 MHz.

Discussion

The Department believes that the proposed changes to the Canadian Table will reflect the international identification of the band 2 300-2 400 MHz for IMT. The new Canadian footnote shows which portions of the band 2 300-2 400 MHz may be available for IMT in Canada.

3 400-4 200 MHz

Although many countries in other Regions signed onto footnotes identifying the band 3 400-3 600 MHz for IMT, Canada and Region 2 did not identify this band. Some other administrations in our Region did opt to upgrade their mobile allocation to primary in the band 3 400-3 500 MHz through a footnote.

A3 (AI 1.5) – Spectrum Requirements for Aeronautical Telecommand and High Bit-Rate Aeronautical Telemetry

Background

This agenda item addressed a growing demand for spectrum allocated for aeronautical telemetry and associated telecommand. There was an increasingly significant shortfall in spectrum necessary to conduct aeronautical telemetry. The shortfall was exacerbated by the loss of telemetry spectrum diverted to other applications and services. Without access to additional spectrum, aeronautical development

would be subject to escalating delays and costs, and the growth of the aerospace industry would be impaired (including equipment manufacturers, civilian programs and test ranges, as well as airlines).

Aeronautical mobile telemetry (AMT) is an application within the aeronautical mobile service. The new allocations enabling aeronautical mobile telemetry applications include the band 4400-4940 MHz through the new footnote **5.440A**, the band 4825-4935 MHz through Mod **5.442**, the band 5091-5150 MHz through the new footnote **5.444B** and the band 5925-6700 MHz through the new footnote 5.457C. These aeronautical mobile telemetry applications will only be for transmission of telemetry information for flight test purposes in the air-to-ground direction inasmuch as telecommand functions (i.e. ground-to-air transmissions) can be accommodated in existing bands. Consequently, in these bands, AMT in the aeronautical mobile service is not considered an application of a safety service as defined in RR No. **1.59**. These international footnotes are instrumental in the establishment of spectrum sharing conditions and Canada-US cross-border coordination arrangements. The department plans to hold public consultations in the near future to develop spectrum utilization policies to address the spectrum requirements of the aeronautical community and AMT in particular.

Hence, AMT applications in new spectrum will not require the level of protection associated with operations in existing telemetry bands. However, the new AMT application may share spectrum with other services such as fixed and fixed satellite services. The World Radio Conference has considered ITU-R studies that have determined conditions under which AMT for flight test purposes can be implemented without adversely affecting the operation of existing systems and allocated services.

Summary of Proposed Changes to the Canadian Table

4 400-4 990 MHz

4 400-4 500	FIXED MOBILE <u>5.440A</u> C25
4 500-4 800	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE <u>5.440A</u> C16A C25
4 800-4 825	FIXED MOBILE <u>5.440A</u> Radio astronomy C25
4 825-4 835	FIXED MOBILE <u>5.440A</u> MOD 5.442 RADIO ASTRONOMY 5.443 MOD 5.149 5.443 C25

4 835-4 950	FIXED MOBILE <u>5.440A</u> Radio Astronomy C25
4 950-4 990	FIXED MOBILE MOD 5.442 RADIO ASTRONOMY 5.443 MOD 5.149 5.339 5.443

5 030-6 700 MHz

5 030- 5 150 <u>5 091</u>	AERONAUTICAL RADIONAVIGATION 5.367 MOD 5.444 5.444A
<u>5 091</u> -5 150	AERONAUTICAL RADIONAVIGATION <u>AERONAUTICAL MOBILE 5.444B</u> AERONAUTICAL RADIONAVIGATION 5.367 MOD 5.444 MOD 5.444A
5 150-5 250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile MOD 5.446A 5.446B 5.446 5.447B 5.447C C39B
...	
5 650-5 725	MOBILE except aeronautical mobile MOD 5.446A 5.450A RADIOLOCATION Amateur Space Research (deep space) 5.282 C39B
...	
5 925-6 700	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A <u>MOBILE 5.457C</u> MOD 5.149 5.440 5.458 C39D

MOD 5.149 See Section F2.

- ADD 5.440A** In Region 2 (except Brazil, Cuba, French Overseas Departments and Communities, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 400-4 940 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. **(WRC-07)**
- MOD 5.442** In the bands 4 825-4 835 MHz and 4 950-4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 825-4 835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution 416 (WRC-07) and shall not cause harmful interference to the fixed service. **(WRC-07)**
- MOD 5.444** See Section A4.
- MOD 5.444A** See Section A4.
- ADD 5.444B** See Section A4.
- MOD 5.446A** The use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (WRC-03)**. **(WRC-0307)**
- ADD 5.457C** In Region 2 (except Brazil, Cuba, French Overseas Departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), the band 5 925-6 700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. **(WRC-07)**

Discussion

The Department believes that the proposed changes to the Canadian Table will help address the needs for AMT for flight test purposes in Canada while providing protection to the existing services and systems. It will also provide adequate regulatory mechanisms to ensure the protection of Canadian systems from AMT for flight test purposes to be deployed by the United States in border areas in the 4/6 GHz band.

A4 (AI 1.6) - Aeronautical Mobile (R) Service in Bands 108– MHz - 6 GHz and Modernization of Civil Aviation Systems

Background

Resolution 414 (WRC-03)

Existing AM(R)S bands are nearing saturation in high-traffic areas. In addition, new applications and concepts in air traffic management put further pressure on existing AM(R)S bands that do not conform to the definition of aeronautical radionavigation in the Radio Regulations.

ITU-R Working Party 8B⁴ (WP 8B) and the International Civil Aviation Organization (ICAO) developed a draft operational concept, as well as technology selection criteria and procedures for new aviation technology requiring two distinct categories of AM(R)S spectrum. The first category for surface applications at airports could support high data throughput over moderate transmission distances. There is a high degree of reuse of this spectrum. The second category for bidirectional air-to-ground applications could support a moderate data throughput over longer propagation distances out to radio line-of-sight. These applications require a number of distinct channels to allow for sector-to-sector assignments.

WRC-07 addressed these issues under Agenda Item 1.6 and Resolution **414 (WRC-03)**. Consequential modifications to No. **5.444A** were also considered.

Summary of Proposed Changes to the Canadian Table

108-137 MHz

108-117.975	AERONAUTICAL RADIONAVIGATION MOD 5.197A
117.975-137	AERONAUTICAL MOBILE (R) MOD 5.111 5.198 5.199 MOD 5.200 5.203

960-1 164 MHz

960-1 164	<u>AERONAUTICAL MOBILE (R) 5.327A</u> AERONAUTICAL RADIONAVIGATION 5.328
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⁴ As a result of ITU-R re-structuring, ITU-R WP 8B is now known as ITU-R WP 5B

5 030-5 150 MHz

5 030-5 150 5 091	AERONAUTICAL RADIONAVIGATION
	5.367 MOD 5.444 5.444A
5 091-5 150	<u>AERONAUTICAL MOBILE 5.444B</u> AERONAUTICAL RADIONAVIGATION
	5.367 MOD 5.444 MOD 5.444A

MOD 5.111 See Section E2.

MOD 5.197A *Additional allocation:* ~~the band 108-117.975 MHz may also be used by~~ is also allocated on a primary basis to the aeronautical mobile (R) service on a primary basis, limited to systems that transmit navigational information in support of air navigation and surveillance functions operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 413 (Rev. WRC-037) and shall not cause harmful interference to nor claim protection from stations operating in the aeronautical radionavigation service which operate in accordance with international aeronautical standards. The use of the band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-0307)

SUP 5.198 *Additional allocation:* ~~the band 117.975-136 MHz is also allocated to the aeronautical mobile satellite (R) service on a secondary basis, subject to agreement obtained under No. 9.21. (WRC-97) (WRC-07)~~

SUP 5.199 See Section E2.

SUP 5.203 ~~In the band 136-137 MHz, existing operational meteorological satellites may continue to operate, under the conditions defined in No. 4.4 with respect to the aeronautical mobile service, until 1 January 2002. Administrations shall not authorize new frequency assignments in this band to stations in the meteorological satellite service. (WRC-97) (WRC-07)~~

ADD 5.327A The use of the band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 417 (WRC-07). (WRC-07)

MOD 5.444 The band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the band 5 030-5 091 MHz, the requirements of this system shall take precedence over other uses of this band. For the use of the band 5 091-5 150 MHz, No. 5.444A and Resolution 114 (Rev. WRC-03) apply. (WRC-0307)

MOD 5.444A *Additional allocation:* the band 5 091-5 150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.

In the band 5 091-5 150 MHz, the following conditions also apply:

- prior to 1 January 2018, the use of the band 5 091-5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution **114 (Rev. WRC-03)**;
- ~~- prior to 1 January 2018, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5 000 — 5 091 MHz band, shall take precedence over other uses of this band;~~
- after 1 January 2016, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;
- after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service. (**WRC-0307**)

ADD 5.444B The use of the band 5 091-5 150 MHz by the aeronautical mobile service is limited to:

- systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (WRC-07)**;
- aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (WRC-07)**;
- aeronautical security transmissions. Such use shall be in accordance with Resolution **419 (WRC-07)**. (**WRC-07**)

Discussion

The Department believes that the proposed changes to the Canadian Table will satisfy the needs for Aeronautical Mobile (En route) Service (AM(R)S) growth and requirements while providing protection to the existing services and systems. The Department also believes that the modification of the status of microwave landing systems (MLS) in the band 5 091-5 150 MHz is acceptable to permit the introduction of the new AM(R)S systems, as the protection of future MLS deployment has been considered in the applicable Resolutions.

A5 (AI 1.9) – to review the technical, operational and regulatory provisions applicable to the use of the band 2 500-2 690 MHz by space services in order to facilitate sharing with current and future terrestrial services without placing undue constraint on the services to which the band is allocated.

The use of the 2 500 MHz band in Canada will be the subject of a forthcoming consultation that will address, among other issues, proposals for modifications to the Canadian Table, including the adoption of WRC-07 decisions related to the 2 500 MHz band.

Section B: Space Science Services

B1 (AI 1.2) – Allocations and Regulatory Issues related to the Earth Exploratory Space Service (passive), Space Research Service (passive) and Meteorological Satellite (MetSat) Service

B1 - Part (A) Expansion of the MetSat Allocation by 100 MHz Around 18 GHz

Background

Remote sensing of the Earth from space provides the meteorological community with the critical data required to predict the future state of the environment. With the rapid advances in remote sensing technologies, communication systems, computing capabilities and the increased knowledge of the physical processes involved in the development of weather systems, the meteorological community will take advantage of higher resolution data to observe and predict the motion, development and decay of short-term events, such as severe thunderstorms, for appropriate warnings to the general public.

A primary allocation to the geostationary-satellite orbit (GSO) MetSat (space-to-Earth) service already exists in the band 18.1-18.3 GHz based on RR. No. **5.519**. However, it is recognized that the bandwidth of the existing allocation is insufficient to support the required data rates. The next generation GSO MetSat systems are expected to have bandwidth requirements up to 300 MHz.

While sharing between GSO MetSat systems and FSS systems is generally feasible, operating MetSat systems below 18.3 GHz would avoid several potential difficulties with High Density Fixed-Satellite Service (HDFSS). Therefore, Canada supported an expansion of the current allocation by an additional 100 MHz below 18.1 GHz to satisfy the high data rate requirement of MetSat.

Summary of Proposed Changes to the Canadian Table

17.8-18.4 GHz	
17.8-18.1	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.484A 5.516 MOD 5.519 C16D C43
18.1-18.4	FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.484A 5.516B 5.520 MOD 5.519 C16D C16E C43

MOD 5.519 *Additional allocation: the band 18.1-18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellite and shall be in accordance with the provisions of Article 21, Table 21-4. the bands 18-18.3 GHz in Region 2 and 18.1-18.4 GHz in Regions 1 and 3 are also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Their use is limited to geostationary satellites. (WRC-07)*

Discussion

The Department believes that the proposed changes to the Canadian Table will satisfy the following needs:

- the meteorological community will be able to meet its future operational requirement;
- the fixed service will be protected given that the regulatory measures that currently apply in the existing MetSat allocation in the band 18.1-18.3 GHz will also apply in the expansion band; and
- the development of HDFSS operating in the band above 18.3 GHz will not be constrained in Region 2, as the MetSat will be operating in the band 18.0-18.3 GHz.

B1 - Part (B) Revision of the Sharing Criteria between Earth Exploration Satellite Service (EESS) (passive) and Fixed and Mobile Services (FS and MS) in the Band 10.60-10.68 GHz

Background

The band 10.6-10.68 GHz is allocated to the passive services on a primary basis, including the EESS (passive), the radio astronomy service (RAS) and the SRS (passive). This band is of prime interest to measure rain, snow, sea state and ocean wind. The retrieved data is part of a set of measurements performed in five interrelated frequency bands (around 6, 10, 18, 24 and 36 GHz). This data is used by and exchanged between meteorological organizations in all Regions.

The 10.6-10.68 GHz band is also allocated to the FS on a primary basis. It is used by the FS for point-to-point and point-to-multipoint systems.

Currently, No. **5.482** limits the equivalent isotropically radiated power (e.i.r.p.) of FS and MS stations in this band to 40 dBW and the transmitter power to -3 dBW, except in the 26 countries listed in the footnote. However, it has been shown that this provision is not sufficient to ensure the protection of the EESS (passive) in the band 10.6-10.68 GHz.

Summary of Proposed Changes to the Canadian Table

10.6-10.68 GHz

10.6-10.68	EARTH EXPLORATION-SATELLITE (passive) FIXED RADIO ASTRONOMY SPACE RESEARCH (passive)
	MOD 5.149 MOD 5.482 <u>5.482A</u>

MOD 5.149 See Section F2.

MOD 5.482 In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed -3 dBW. These limits This limit may be exceeded, subject to agreement obtained under No. 9.21. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Libyan Arab Jamahiriya, Kazakhstan, Kuwait, Latvia, Lebanon, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan and, Tunisia, Turkmenistan and Viet Nam, this restriction, the restrictions on the fixed and mobile, except aeronautical mobile, services are service is not applicable. (WRC-037)

ADD 5.482A For sharing of the band 10.6-10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution 751 (WRC-07) applies. (WRC-07)

Discussion

The Department is of the view that the proposed modifications will provide a good balance between the operational requirements of the passive and active systems, as appropriate protections will be afforded to future EESS (passive) systems without imposing undue constraints to the development of fixed systems.

B1 – Part (C) Development of Sharing Criteria between Earth Exploration-Satellite Service (EESS) (passive) and Fixed and Mobile Services (FS and MS) in the Band 36-37 GHz

Background

The band 36-37 GHz is allocated on a primary basis to the EESS (passive), SRS (passive), FS and MS. The data gathered by EESS (passive) and SRS (passive) systems operating in the band 36-37 GHz contributes to the estimate of total vapour, total cloud liquid water, sea surface wind speed, sea surface temperature, sea ice extent, snow depth and soil moisture content. These parameters are derived from measurements near 7, 10.7, 18.7, 23.8, 50.3, 52.8 and 89 GHz combined with measurements in the 36-37 GHz band.

Without the appropriate regulatory measures, the FS and MS systems could potentially cause interference to the passive services, and the collection of vital scientific information by EESS (passive) systems could be compromised.

Summary of Proposed Changes to the Canadian Table

36-37 GHz

36-37

EARTH EXPLORATION-SATELLITE (passive)
 FIXED
 MOBILE
 SPACE RESEARCH (passive)

MOD 5.149 5.550A

MOD 5.149 See Section F2.

ADD 5.550A For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (**WRC-07**)

Discussion

The Department is of the view that the mandatory power limits imposed on stations of future fixed and mobile systems, as well as the limitation on some operational characteristics of EESS (passive) systems, will facilitate sharing between future passive and active systems in the band 36-37 GHz without unduly constraining their development.

B2 (AI 1.20) - Protection of Earth Exploratory Space Services (passive) from Unwanted Emissions of Active Services

Background

The compatibility between the EESS (passive) and active services has been discussed since WRC-95. Based on the experience gained from the four previous conferences, WRC-07 was requested to consider the results of the ITU-R compatibility analysis, using band pairs identified in Resolution **738** and the associated proposals for regulatory measures regarding the protection of EESS (passive) from unwanted emissions of active service stations.

In order to address this issue, and taking into consideration the impacts on both the active and the passive services involved, WRC-07 adopted two regulatory measures:

- impose a limit on the power level of unwanted emissions from the active stations; and
- recommend compliance with a maximum power level of unwanted emissions from active stations.

Summary of Proposed Changes to the Canadian Table

1 350-1 400 MHz

1 350-1 370	AERONAUTICAL RADIONAVIGATION 5.334 FIXED C5 MOBILE C5 RADIOLOCATION MOD 5.149 <u>5.334</u> <u>5.338A</u>
1 370-1 400	FIXED C5 MOBILE C5 RADIOLOCATION MOD 5.149 <u>5.338A</u> 5.339 5.339A C27 C27A

1 427-1 452 MHz

1 427-1 429	FIXED SPACE OPERATION (Earth-to-space) <u>5.338A</u> 5.341
1 429-1 452	FIXED MOBILE <u>5.338A</u> 5.339A 5.341 C27A

22.55-23.55 GHz

22.55-23.55	FIXED INTER-SATELLITE <u>5.338A</u> Mobile MOD 5.149
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30-31.3 GHz

30-31	FIXED-SATELLITE (Earth-to-space) <u>5.338A</u> C49 MOBILE-SATELLITE (Earth-to-space) C50 Standard Frequency and Time Signal-Satellite (space-to-Earth)
31-31.3	FIXED <u>5.338A</u> MOBILE Space Research 5.544 Standard Frequency and Time Signal-Satellite (space-to-Earth) MOD 5.149

48.2-50.2 GHz

48.2-50.2	FIXED FIXED-SATELLITE (Earth-to-space) <u>5.338A</u> 5.516B 5.552 MOBILE MOD 5.149 5.340 5.555
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50.4-52.6 GHz

50.4-51.4	FIXED FIXED-SATELLITE (Earth-to-space) <u>5.338A</u> MOBILE Mobile-satellite (Earth-to-space)
51.4-52.6	FIXED <u>5.338A</u> MOBILE MOD 5.547 5.556

MOD 5.149 See Section F2.

ADD 5.338A In the bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz and 51.4-52.6 GHz, Resolution **750 (WRC-07)** applies. (**WRC-07**)

SUP 5.339A See Section C2.

MOD 5.547 See Section F2.

SUP C27A See Section C2.

Discussion

After extensive discussion at WRC-07, Resolution **750 (WRC-07)** was adopted in an effort to balance the interests of both the EESS (passive) and the active services and to ensure compatibility between these services in some specified band pairs. The Department believes that, with these regulatory measures, collection of vital scientific information through EESS (passive) systems will be protected without putting undue constraint on the deployment and the development of active services in the adjacent bands.

B3 (AI 1.21) - Compatibility between the Radio Astronomy Service and Active Space Services

Background

WRC-03 adopted Resolution **739**, which defines a consultation process for select radio astronomy/active space service band pairs to assist administrations in reaching mutually acceptable solutions when unwanted emissions from space services exceed specified levels in certain radio astronomy bands. WRC-03 also adopted Resolution **740** to expand the consultation process to some other band pairs, taking into consideration the results of ITU-R studies.

After extensive discussions, WRC-07 agreed to expand the consultation process to all of the band pairs for which studies have been concluded within the ITU-R.

Summary of Proposed Changes to the Canadian Table

137-138 MHz

<p>137-1387.025</p> <p>METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) MOD 5.208A <u>5.208B</u> 5.209 SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth)</p> <p>5.208</p>
<p>137.025-137.175</p> <p>METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208 5.209 SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth)</p> <p>5.208</p>
<p>137.175-137.825</p> <p>METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208 5.209 SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth)</p> <p>5.208</p>
<p>137.825-138</p> <p>METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208 5.209 SPACE OPERATION (space-to-Earth) SPACE RESEARCH (space-to-Earth)</p> <p>5.208</p>

387-390 MHz

<p>387-390</p> <p>FIXED MOBILE Mobile-satellite (space-to-Earth) MOD 5.208A <u>5.208B</u> 5.254 5.255</p> <p>C5</p>
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400.15-401 MHz

<p>400.15-401</p> <p>METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) MOD 5.208A <u>5.208B</u> 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space Operation (space-to-Earth)</p> <p>5.264</p>
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1 452-1 492 MHz

1 452-1 492	BROADCASTING BROADCASTING-SATELLITE 5.208B 5.347A FIXED Mobile 5.343 5.341 5.345 C28 C29 C30 C40
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1 525-1 610 MHz

1 525-1 530	MOBILE-SATELLITE (space-to-Earth) 5.347A <u>5.208B</u> MOD 5.351A Earth Exploration-Satellite Space Operation (space-to-Earth) 5.341 5.351 5.354
1 530-1 535	MOBILE-SATELLITE (space-to-Earth) 5.347A <u>5.208B</u> MOD 5.351A 5.353A Earth Exploration-Satellite 5.341 5.351 5.354
1 535-1 559	MOBILE-SATELLITE (space-to-Earth) 5.347A <u>5.208B</u> MOD 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A 5.362A
1 559-1 610	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) <u>5.208B</u> MOD 5.328B MOD 5.329A 5.341

1 613.8-1 626.5 MHz

1 613.8-1 626.5	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) MOD 5.351A Mobile-Satellite (space-to-Earth) 5.347A <u>5.208B</u> 5.341 5.364 5.365 5.366 5.367 5.368 5.372
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2 655-2 690 MHz

2 655-2 686

BROADCASTING
 FIXED
 MOBILE except aeronautical mobile **MOD 5.384A C38A**
 Earth Exploration-Satellite (passive)
 Radio Astronomy
 Space Research (passive)

MOD 5.149 5.416 5.347A

2 686-2 690

FIXED
 MOBILE except aeronautical mobile **MOD 5.384A C38A**
 Earth Exploration-Satellite (passive)
 Radio Astronomy
 Space Research (passive)

MOD 5.149 5.347A**21.4-22 GHz**

21.4-22

FIXED
 Mobile

5.347A**MOD 5.149** See Section F2.**MOD 5.208A** See Section F2.

ADD 5.208B* In the bands:
 137-138 MHz,
 387-390 MHz,
 400.15-401 MHz,
 1 452-1 492 MHz,
 1 525-1 610 MHz,
 1 613.8-1 626.5 MHz,
 2 655-2 690 MHz,
 21.4-22 GHz,
 Resolution **739 (Rev. WRC-07)** applies. (**WRC-07**)

* This provision was previously numbered as No. **5.347A**. It was renumbered to preserve the sequential order.

MOD 5.328B See Section F2.

MOD 5.329A See Section F2.

SUP 5.347A ~~In the bands:~~
~~1 452-1 492 MHz,~~
~~1 525-1 559 MHz,~~
~~1 613.8-1 626.5 MHz,~~
~~2 655-2 670 MHz,~~
~~2 670-2 690 MHz,~~
~~21.4-22 GHz,~~
Resolution **739 (WRC-03)** applies. ~~(WRC-03)-(WRC-07)~~

MOD 5.351A See Section A2.

SUP 5.362A See Section F3.

MOD 5.384A See Section A2.

SUP 5.416 See Section F3.

Discussion

The implementation of this WRC-07 decision in Canada complements a mechanism adopted by WRC-03 to ensure compatibility between Canadian radio astronomy stations and active space stations operating in the bands listed in footnote No. **5.208B**, as modified by WRC-07.

Section C: Fixed-Satellite, Mobile-Satellite and Broadcasting Satellite Services Below 3 GHz

C1 (AI 1.7) - Sharing between Mobile-Satellite Service (MSS) and Space Research Service (SRS) (1 668-1 668.4 MHz) and Mobile Service (1 668.4-1 675 MHz)

Background

Issue A:

The band 1 668-1 668.4 MHz is allocated to the space research (passive) service (SRS (passive)) and the MSS (Earth-to-space).

WRC-07 was requested to take appropriate measures to ensure the protection of space research (passive) space stations from harmful interference from mobile earth stations in the band 1 668-1 668.4 MHz, taking care to avoid undue constraints on either service's stations.

WRC-07 adopted conditions to trigger the coordination procedure between MSS and SRS (passive) systems.

Issue B:

The band 1 668.4-1 675 MHz is allocated to the fixed and mobile services. Since WRC-03, the band 1 670-1 675 MHz has also been allocated to the MSS (Earth-to-space). WRC-07 was requested to address the sharing issue between the mobile-satellite service and the fixed and mobile services. The Conference decided to limit the use of the mobile service allocation to transportable radio-relay systems and recommended compliance with specific power levels for stations in these systems, except in two countries, Canada and the United States.

Summary of Proposed Changes to the Canadian Table

1 668-1 675 MHz

1 668-1 668.4	MOBILE-SATELLITE (Earth-to-space) 5.348C MOD 5.351A MOD 5.379B 5.379C C31 RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed MOD 5.149 5.341 5.379A 5.379D
1 668.4-1 670	FIXED METEOROLOGICAL AIDS MOBILE-SATELLITE (Earth-to-space) 5.348C MOD 5.351A MOD 5.379B 5.379C C31 RADIO ASTRONOMY MOD 5.149 5.341 MOD 5.379D 5.379E

1 670-1 675

FIXED
 METEOROLOGICAL AIDS
 METEOROLOGICAL-SATELLITE (space-to-Earth)
 MOBILE (Except aeronautical mobile)
 MOBILE-SATELLITE (Earth-to-space) ~~5.348C~~ **MOD 5.351A**
MOD 5.379B C31

5.341 **MOD 5.379D 5.379E MOD 5.380A C33****1 755-1 850 MHz**

1 755-1 850

FIXED
 Mobile **MOD 5.384A C5**

5.386 ~~C33~~ C37**MOD 5.149** See Section F2.**SUP 5.348C** See Section A2.**ADD MOD 5.351A** See Section A2.

MOD 5.379B The use of the band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the band 1 668-1 668.4 MHz, Resolution **904 (WRC-07)** shall apply. **(WRC-0307)**

MOD 5.379D For sharing of the band 1 668.4-1 675 MHz between the mobile-satellite service and the fixed and mobile and space research (passive) services, Resolution **744 (Rev. WRC-0307)** shall apply. **(WRC-0307)**

SUP 5.380* The bands 1 670-1 675 MHz and 1 800-1 805 MHz are intended for use, on a worldwide basis, by administrations wishing to implement aeronautical public correspondence. The use of the band 1 670-1 675 MHz by stations in the systems for public correspondence with aircraft is limited to transmissions from aeronautical stations and the use of the band 1 800-1 805 MHz is limited to transmissions from aircraft stations. **(WRC-07)**

* Although there is no reference to this footnote in the 2005 edition of the Canadian Table of Frequency Allocations, it is listed in the International Footnotes section.

MOD 5.380A See Section F2.**MOD 5.384A** See Section A2.

SUP C33 In the bands 1 670-1 675 MHz and 1 800-1 805 MHz, the use of aeronautical public correspondence in accordance with international footnote **5.380** may be the subject of a future policy review.

Discussion

During WRC-07 discussions, Canada did not have any preference on the approach to be considered to ensure the protection of SRS (passive) under Issue A. Concerning Issue B, the objective was to guarantee a complete access to the band 1 670-1 675 MHz for mobile and fixed service systems in Canada, noting the non-practicability of an MSS deployment in Canada. This has been achieved through modification of footnote No. **5.379D** and Resolution **744 (Rev. WRC-07)**.

C2 (AI 1.17) - Sharing Between Fixed Satellite Service (FSS) and Mobile-Satellite Service (MSS) Feeder Links in the 1.4 GHz Band and Other Services

Background

WRC-03 allocated the bands 1 390-1 392 MHz and 1 430-1 432 MHz to the FSS on a secondary basis limited to feeder links of non-GSO satellite systems in the MSS operating below 1 GHz. WRC-03 also recognized the need to delay the use of these bands until the completion of the studies requested by Resolution **745 (WRC-03)** and their consideration by WRC-07.

On the basis of ITU-R studies, WRC-07 unanimously decided to suppress the secondary FSS allocation in the bands 1 390-1 392 MHz and 1 430-1 432 MHz. WRC-07 took into consideration the incompatibility between the protection requirements of incumbent services and services operating in the adjacent bands, as well as the operational requirements of FSS stations.

Summary of Proposed Table Changes

1 370-1 400 MHz

1 370-1 400 FIXED C5 MOBILE C5 RADIOLOCATION MOD 5.149 <u>5.338A</u> 5.339 5.339A C27 C27A

1 429-1 452 MHz

1 429-1 452 FIXED MOBILE <u>5.338A</u> 5.339A 5.341 C27A

MOD 5.149 See Section F2.

ADD 5.338A See Section B2.

SUP 5.339A *Additional allocation:* the band 1 390-1 392 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a secondary basis and the band 1 430-1 432 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis. These allocations are limited to use for feeder links for non-geostationary-satellite networks in

~~the mobile-satellite service with service links below 1 GHz, and Resolution 745 (WRC-03) applies. (WRC-03) (WRC-07)~~

SUP C27A ~~(CAN-04) In the bands 1 390-1 392 MHz and 1 430-1 432 MHz, the fixed-satellite service, in accordance with 5.339A, (WRC-03) is withheld in Canada.~~

Discussion

At WRC-07, there was a unanimous agreement among administrations to remove the secondary allocation to FSS in the bands 1 390-1 392 and 1 430-1 432 MHz. In Canada, the implementation of this WRC-07 decision will help to avoid an increase in interference as a result of the addition of a service in bands that are heavily used by other services.

Section D: Fixed Service (FS), Including High Altitude Platform Systems (HAPS) and FSS Above 3 GHz

D1 (AI 1.8) – High Altitude Platform Stations in the 28/31 GHz and 47/48 GHz Bands

Background

Agenda Item 1.8 covered two major issues: 1) **Resolution 145** (WRC-03): potential use of the bands 27.5-28.35 GHz and 31-31.3 GHz by HAPS in the FS; and 2) **Resolution 122** (Rev. WRC-03): use of the bands 47.2-47.5 GHz and 47.9-49.2 GHz by HAPS in the FS and by other services. Although both Resolutions were addressed under this agenda item, only Resolution 122 implicates the Canadian Table through footnote No. **5.552A**.

Resolution 122: The ITU has been considering the implications of HAPS in the FS in the 47.2-47.5 GHz and 47.9-48.2 GHz bands since 1997, when WRC-97 first made provision for the operation of HAPS within the FS. Studies have been ongoing under versions of Resolution 122 since WRC-97.

Resolution **122 (Rev. WRC-2000)** indicated that sharing studies are yet to be completed between the fixed-satellite service (FSS) and HAPS operations in the FS. Pending the completion of the studies, Resolution **122 (Rev. WRC-2000)** instructed the Radiocommunication Bureau “that from 22 November 1997, and pending review of the sharing studies in *considering j*) and review of the notification process by WRC-2000, the Bureau shall accept notices in the bands 47.2-47.5 GHz and 47.9-48.2 GHz only for high altitude platform stations in the FS and for feeder links for the broadcasting-satellite service (BSS), shall continue to process notices for FSS networks (except for feeder links for the broadcasting-satellite service) for which complete information for advance publication has been received prior to 27 October 1997, and shall inform the notifying administrations accordingly.” In other words, notices received after 22 November 1997, from non-BSS feeder link FSS networks in the 47.2-47.5 GHz and 47.9-48.2 GHz bands, have not been accepted.

Resolution **122 (Rev. WRC-03)** extended the restriction on processing of notices for FSS networks other than those providing service exclusively within Region 2. It also instructed the Bureau to maintain, until a date to be decided by a future WRC, notices concerning HAPS that were received by the Bureau prior to 22 November 1997, and provisionally recorded in the Master International Frequency Register. The studies regarding HAPS in the 47.2-47.5 GHz and 47.9-48.2 GHz bands have been completed and the results are contained in Recommendation ITU-R SF.1481-1. This Recommendation makes clear that co-frequency operations between HAPS in the FS and FSS networks and systems are feasible in the 47.2-47.5 GHz and 47.9-48.2 GHz bands, even while noting that “there may be a need to develop the maximum allowable power flux density at satellites on the GSO due to aggregate interference caused by ground user terminals of high altitude platform networks.” Resolution **122 (Rev. WRC-03)** confirms that co-existence between HAPS in the FS and the FSS at 47.2-47.5 GHz and 47.9-48.2 GHz is feasible, as administrations were encouraged to facilitate inter-service coordination.

In Resolution **122 (Rev. WRC-03)**, the ITU-R was invited to study power limitations on HAPS ground stations to facilitate sharing with space station receivers, as well as regulatory provisions to address deployment of HAPS in the FS near country borders. Technical sharing criteria between HAPS in the FS and both radio astronomy and FSS systems were also studied (taking into account the operational environments and the requirements of FSS systems). With the exception of interference to and from FSS

spacecraft, and border area coordination matters in the FS, the deployment of HAPS is considered a national issue.

Summary of Proposed Table Changes

No allocation changes were made for this agenda item as a result of WRC-07; however, some changes were made to No. **5.552A**.

MOD 5.552A The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz is subject to the provisions of Resolution **122 (Rev. WRC-9707)**. (**WRC-07**)

Discussion

Resolution **122 (Rev. WRC-03)** was significantly revised to include, in a new *resolves*, hard on- and off-axis e.i.r.p. density limits on HAPS ground terminals to protect the FSS. For the protection of the FS, PFD limits at the Earth's surface were included in a new *resolves*. In addition, a "sunset date" (1 January 2012) by which networks must be brought into use was imposed on HAPS systems received by the Radiocommunication Bureau before 22 November 1997.

Section E: Services in LF, MF and HF Bands and Maritime Mobile Service

E1 (AI 1.13) - Review of Allocations in HF Bands between 4 and 10 MHz

Background

The aim of the WRC-07 was to consider allocation changes in the bands between 4 and 10 MHz, taking into account the requirements of all services.

Summary of Proposed Changes to Canadian Table

No allocation changes were made as a result of WRC-07; however, some changes were made to some footnotes in order to ensure consistency with decisions from previous world radio conferences.

MOD 5.134 The use of the bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service ~~as from 1 April 2007~~ is subject to the application of the procedure of Article 12. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev. ~~WRC-037~~). (~~WRC-073~~)

MOD 5.136 ~~The band 5 900-5 950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: in Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev. WRC-95). After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located;~~
Additional allocation: frequencies in the band 5 900-5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

MOD 5.143 ~~The band 7 300-7 350 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis and to the land mobile service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev. WRC-95). After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service.~~
Additional allocation: frequencies in the band 7 300-7 350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful

interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. **(WRC-07)**

MOD 5.146 ~~The bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution 21 (Rev. WRC-95). After 1 April 2007, frequencies in these bands may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service.~~
Additional allocation: frequencies in the bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. **(WRC-07)**

MOD 5.151 ~~The bands 13 570-13 600 kHz and 13 800-13 870 kHz are allocated, until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev. WRC-95). After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service.~~
Additional allocation: frequencies in the bands 13 570-13 600 kHz and 13 800-13 870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. **(WRC-07)**

Discussion

All modifications indicated above are consequential to previous WRC decisions, and will be included in the Canadian Table.

E2 (AI 1.14) - Operational Procedures and Requirements of the Global Maritime Distress and Safety System (GMDSS) and New Technologies in the VHF Maritime Mobile Band

Background

WRC-07 agenda item 1.14 addressed mainly two issues: the transition to the GMDSS and the introduction of new technologies in the VHF maritime mobile band.

The development of GMDSS began more than two decades ago, and its global implementation for vessels subject to the International Convention for the Safety of Life at Sea (SOLAS) became effective on 1 February 1999. The transition to GMDSS, however, remains ongoing for the foreseeable future, as there are many vessels not subject to SOLAS that are not yet fitted with GMDSS. To reflect the current status of the transition to the GMDSS, WRC-07 updated the associated regulatory procedures and requirements, including some Article 5 footnotes.

WRC-07 was also asked to consider necessary changes to Appendix 18 in order to enable the use of new technologies by the maritime mobile service (in the VHF maritime mobile band). Some of these changes necessitated additional modifications to Article 5.

Summary of Proposed Changes to the Canadian Table

415-525 kHz

415-495	MARITIME MOBILE 5.79 MOD 5.79A 5.78 5.80 MOD 5.82
495-505	MOBILE (distress and calling) <u>5.82A</u> 5.83 <u>5.82B</u>
505-510	MARITIME MOBILE 5.79
510-525	AERONAUTICAL RADIONAVIGATION MOBILE MOD 5.79A MOD 5.84

2 173.5-2 190.5 kHz

2 173.5-2 190.5	MOBILE (distress and calling) MOD 5.108 5.109 5.110 MOD 5.111
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2 850-3 025 kHz

2 850-3 025	AERONAUTICAL MOBILE (R) MOD 5.111 MOD 5.115
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4 063-4 438 kHz

4 063-4 438

MARITIME MOBILE **MOD 5.79A 5.109 5.110 MOD 5.130**
5.131 5.1325.128 5.129**5 480-5 680 kHz**

5 480-5 680

AERONAUTICAL MOBILE (R)

MOD 5.111 MOD 5.115

5 680-5 730

AERONAUTICAL MOBILE (OR)
MOD 5.111 MOD 5.115 C5**6 200-6 525 kHz**

6 200-6 525

MARITIME MOBILE 5.109 5.110 **MOD 5.130 5.132**

C4

8 195-8 815 kHz

8 195-8 815

MARITIME MOBILE 5.109 5.110 5.132 **MOD 5.145****MOD 5.111****9 995-10 100 kHz**

9 995-10 003

STANDARD FREQUENCY AND TIME SIGNAL
(10 000 kHz)**MOD 5.111**

10 003-10 005

STANDARD FREQUENCY AND TIME SIGNAL
Space Research**MOD 5.111**

10 005-10 100

AERONAUTICAL MOBILE (R)

MOD 5.111

12 230-13 200 kHz

12 230-13 200

MARITIME MOBILE 5.109 5.110 5.132 **MOD 5.145****14 990-15 005 kHz**

14 990-15 005

STANDARD FREQUENCY AND TIME SIGNAL
(15 000 kHz)**MOD 5.111****16 360-17 410 kHz**

16 360-17 410

MARITIME MOBILE 5.109 5.110 5.132 **MOD 5.145****19 990-20 010 kHz**

19 990-19 995

STANDARD FREQUENCY AND TIME SIGNAL
Space Research**MOD 5.111**

19 995-20 010

STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz)

MOD 5.111**117.975-137 MHz**

117.975-137

AERONAUTICAL MOBILE (R)

MOD 5.111 5.198 5.199 MOD 5.200 5.203**150.05-174 MHz**150.05-~~156.4875~~~~7625~~MOBILE
Fixed**MOD 5.226 ~~5.227~~**~~156.4875-156.5625~~MOBILE
Fixed

MARITIME MOBILE (distress and calling via DSC)

MOD 5.111 MOD 5.226 ~~5.227~~ CAxy

156.5625-156.7625	MOBILE Fixed	MOD 5.226 5.227
156.7625-156.8375	MARITIME MOBILE (distress and calling)	MOD 5.111 MOD 5.226
156.8375-174	MOBILE Fixed	MOD 5.226 <u>5.227A</u>

235-273 MHz

235-273	FIXED MOBILE	MOD 5.111 5.199 5.254 MOD 5.256 5.256A C5
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406-406.1 MHz

406-406.1	MOBILE-SATELLITE (Earth-to-space)	MOD 5.266 5.267
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456-459 MHz

456-459	MOBILE <u>5.286AA</u> MOD 5.287 <u>Cxx</u> Fixed	5.288
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460-470 MHz

460-470	MOBILE <u>5.286AA</u> MOD 5.287 <u>Cxx</u> Fixed	5.289
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SUP 5.78 See Section F3

- MOD 5.79A** When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4 209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **339 (Rev. WRC-9707)**). (**WRC 9707**)
- SUP 5.80** See Section F3
- MOD 5.82** In the maritime mobile service, the frequency 490 kHz is ~~from the date of full implementation of the GMDSS (see Resolution 331 (Rev. WRC-97))~~, to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles **31** and **52**. In using the band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. (**WRC-9707**)
- ADD 5.82A** The use of the band 495-505 kHz is limited to radiotelegraphy. (**WRC-07**)
- ADD 5.82B** Administrations authorizing the use of frequencies in the band 495-505 kHz by services other than the maritime mobile service shall ensure that no harmful interference is caused to the maritime mobile service in this band or to the services having allocations in the adjacent bands, noting in particular the conditions of use of the frequencies 490 kHz and 518 kHz, as prescribed in Articles **31** and **52**. (**WRC-07**)
- SUP 5.83** ~~The frequency 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. The conditions for its use are prescribed in Articles **31** and **52**, and in Appendix **13**.~~ (**WRC-07**)
- MOD 5.84** The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **31** and **52** ~~and in Appendix **13**~~. (**WRC-9707**)
- MOD 5.108** The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5-2 190.5 kHz are prescribed in Articles **31** and **52** ~~and in Appendix **13**~~. (**WRC-07**)
- MOD 5.111** The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, ~~156.525 MHz~~, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **31** ~~and in Appendix **13**~~. The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency. (**WRC-07**)
- MOD 5.115** The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **31** ~~and Appendix **13**~~ by stations of the maritime mobile service engaged in coordinated search and rescue operations. (**WRC-07**)

- ADD 5.128** Frequencies in the bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4 063-4 123 kHz, 4 130-4 133 kHz and 4 408-4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. **(WRC-07)**
- SUP 5.129** ~~On condition that harmful interference is not caused to the maritime mobile service, the frequencies in the bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service communicating only within the boundary of the country in which they are located with a mean power not exceeding 50 W.~~ **(WRC-07)**
- MOD 5.130** The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **31** and **52** ~~and in Appendix 13~~. **(WRC-07)**
- MOD 5.145** The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles **31** and **52** ~~and in Appendix 13~~. **(WRC-07)**
- SUP 5.198** See Section A4.
- SUP 5.199** ~~The bands 121.45-121.55 MHz and 242.95-243.05 MHz are also allocated to the mobile-satellite service for the reception on board satellites of emissions from emergency position-indicating radiobeacons transmitting at 121.5 MHz and 243 MHz (see Appendix 13).~~ **(WRC-07)**
- MOD 5.200** In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article **31** ~~and Appendix 13~~ for distress and safety purposes with stations of the aeronautical mobile service. **(WRC-07)**
- SUP 5.203** See Section A4.
- MOD 5.226** The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles **31** and **52**, and in Appendix **18**.
- The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article **31** and Appendix **18**.

In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **18**).

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

However, the frequencies 156.8 MHz and 156.525 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements. (WRC-07)

SUP 5.227* ~~In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling. The conditions for the use of this frequency are prescribed in Articles **31** and **52**, and Appendices **13** and **18**.~~ (WRC-07)

* Footnote **5.227** was modified by WRC-07; however, the Department has opted to suppress the existing No. **5.227** and to maintain primary land mobile service and secondary fixed service allocations in the bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz in accordance with a new Canadian footnote **CAxy**.

ADD 5.227A *Additional allocation:* the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a secondary basis for the reception of automatic identification system (AIS) emissions from stations operating in the maritime-mobile service (see Appendix **18**). (WRC-07)

MOD 5.256 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes ~~(see Appendix **13**)~~. (WRC-07)

SUP 5.256A See Section F3.

MOD 5.266 The use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article **31** and ~~Appendix **13**~~). (WRC-07)

ADD 5.286AA See Section A2.

MOD 5.287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing, also using the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz, may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national

regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (~~see Resolution 341 (WRC-97)~~)-(WRC-9707)

SUP 5.288 See Section F3.

ADD CAxy (CAN-09) *Additional allocation:* the bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz are also allocated to the land mobile service on a primary basis and to the fixed service on a secondary basis. The use of these bands by the land mobile and fixed services shall not cause harmful interference to nor claim protection from the maritime mobile VHF radiocommunication service.

ADD Cxx See Section A2.

Discussion

In view of the transition to the GMDSS and consistent with the intent that the ITU's Radio Regulations reflect current maritime operations, WRC-07 reallocated the 500 kHz Morse code international distress and calling frequency given that it was no longer used for radiotelegraphy (e.g. NAVTEX). Although the band 495-505 kHz was modified to reflect a primary mobile service allocation, the maritime mobile service maintained its priority through footnote **5.82B**.

The review of GMDSS requirements also revealed that the GMDSS digital selective calling (DSC) frequency, 156.525 MHz (channel 70), was not afforded the same international recognition and protection in Article **5** as the pre-GMDSS distress and calling frequency, 156.8 MHz (channel 16). With this in mind, WRC-07 modified the International Table to provide an exclusive maritime mobile service allocation for the DSC frequency similar to the allocation provided for the maritime VHF channel 16 frequency. The impact to incumbent services, however, was minimized by maintaining existing fixed and mobile allocations in the guard bands of the DSC channel through footnotes with appropriate conditions.

Given the status of the transition to the GMDSS, WRC-07 agreed to integrate some non-GMDSS provisions from Appendix **13** into the GMDSS provisions in Chapter **VII** and to suppress Appendix **13**. Consequentially, several Article **5** footnotes were modified to remove references to Appendix **13** and to reflect other required updates and corrections based on the regulatory review of maritime-related provisions.

In the context of introducing new technologies in the VHF maritime mobile band, significant interest was expressed in the development and advancement of satellite-based reception of Automatic Identification System (AIS) signals to permit identification and tracking of vessels at much greater distances than currently possible by terrestrial means. In response, WRC-07 added a secondary mobile satellite service (Earth-to-space) allocation to provide for satellite reception of the AIS signals on the existing AIS 1 and AIS 2 channels, 161.975 MHz and 162.025 MHz respectively.

E3 (AI 1.15) - Secondary Allocation to Amateur Service in the 135.7-137.8 kHz Band

Background

For more than two decades, radio amateurs have been increasingly interested in experimenting with communications at low frequencies, and several countries around the world have granted allocations to the amateur service in the band 135.7-137.8 kHz. Radio amateurs conducting low-frequency experiments in this frequency band have taken measures to avoid interference to the operations of the primary users of the band, and no cases of interference have been reported. The aim of the WRC was to allocate the band 135.7-137.8 kHz to the amateur service on a secondary basis, along with a power limitation to protect the other services using the band.

Summary of Proposed Table Changes

130-160 kHz	
130- 135.7 160	FIXED MARITIME MOBILE 5.64
<u>135.7-137.8</u>	FIXED MARITIME MOBILE <u>Amateur 5.67A</u> 5.64
<u>137.8-160</u>	FIXED MARITIME MOBILE 5.64

ADD 5.67A Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. **5.67**. (WRC-07)

Discussion

There was worldwide consensus at WRC-07 to add a secondary allocation to the amateur service in the band 135.7-137.8 kHz, including a footnote limiting the amateur service maximum radiated power to 1 W e.i.r.p. Canada will align the Canadian Table with the international allocation.

Section F: Other Modifications to Canadian Table

F1 (AI 1.1) – Requests from Administrations to Delete Their Country Footnotes or to Have Their Country Name Deleted from Footnotes, if no Longer Required, in Accordance with Resolution 26 (Rev. WRC-97)

Resolution 26 (Rev. WRC-97) urges administrations to review footnotes periodically and to propose the deletion of their country footnotes or of their country names from footnotes, as appropriate. In exceptional cases, the Resolution provides that proposals for new footnotes or modifications of existing footnotes can be considered if they concern corrections of obvious omissions, inconsistencies, ambiguities or editorial error. *Resolves 2* to Resolution 26 states that the International Table should include those footnotes that have international implications for the use of radio frequency spectrum.

Also, *further resolves 1* to Resolution 26 permit the consideration of additions or modifications of footnotes, but only when they relate to the Conference agenda or if the Conference decides to include it in its agenda as a result of the consideration of proposals submitted by one or more interested administration(s).

Requests from other countries to modify footnotes currently included in the Canadian Table:

- MOD 5.56** The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, ~~the Czech Rep.~~, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-073)
- MOD 5.286D** *Additional allocation:* in Canada, the United States, ~~Mexico~~ and Panama, the band 454-455 MHz is also allocated to mobile-satellite service (Earth-to-space) on a primary basis. (WRC-9707)
- MOD 5.331** *Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia ~~and Montenegro~~, Slovenia, Somalia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-037)

Requests from Canada to have its name added to some footnotes:

Noting the international implication and recognizing the importance of protecting the services concerned, the Government of Canada submitted the following proposals for inclusion on the Conference agenda. All of these proposals were subsequently adopted by WRC-07.

ADD 5.297 *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica and Mexico, the band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **9.21. (WRC-07)**

Discussion

Footnote No. **5.297** will provide Canada with the flexibility for the possible future introduction of a wide range of applications (including mobile applications). It will also provide Canada with the opportunity to harmonize the use of this band in Region 2.

2 300-2 483.5 MHz

2 300-2 450	FIXED MOBILE MOD 5.384 MOD 5.394 Cyy RADIOLOCATION Amateur 5.150 5.282 MOD 5.393 MOD 5.394 5.396 C12 C13 MOD C13A C17
2 450-2 483.5	FIXED MOBILE RADIOLOCATION 5.150 5.394

MOD 5.393 *Additional allocation:* in Canada, the United States, India and Mexico, the band 2 310-2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev. WRC-03)**, with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. **(WRC-20007)**

MOD 5.394 In the United States, the use of the band 2 300-2 390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band ~~2 300-2 483.500~~ MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. **(WRC-07)**

MOD C13A (CAN-095) *Additional Allocation:* The band 2 320-2 345 MHz is also ~~allocated~~ designated to the broadcasting satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Spectrum utilization policies provide the inter-service relationship with respect to broadcasting service operation.

Discussion

Through the adoption of these modifications to No. **5.393**, there is recognition of Canada's use of the broadcasting-satellite allocation for its satellite radio services (Sirius Canada and XM Canada). Through the adoption of these modifications to No. **5.394** an alignment with Canada's domestic footnote C12 for aeronautical mobile telemetry applications in the 2.3 GHz range is made.

F2 Other Footnote Edits

MOD 5.149 In making assignments to stations of other services to which the bands:

13 360-13 410 kHz,	4 990-5 000 MHz,	94.1-100 GHz
25 550-25 670 kHz,	6 650-6 675.2 MHz,	102-109.5 GHz,
37.5-38.25 MHz,	10.6-10.68 GHz,	111.8-114.25 GHz
73-74.6 MHz in Regions 1 and 3,	14.47-14.5 GHz,	128.33-128.59 GHz,
150.05-153 MHz in Region 1,	22.01-22.21 GHz,	129.23-129.49 GHz,
322-328.6 MHz,	22.21-22.5 GHz,	130-134 GHz,
406.1-410 MHz,	22.81-22.86 GHz,	136-148.5 GHz,
608-614 MHz in Regions 1 and 3,	23.07-23.12 GHz,	151.5-158.5 GHz,
1 330-1 400 MHz,	31.2-31.3 GHz,	168.59-168.93 GHz,
1 610.6-1 613.8 MHz,	31.5-31.8 GHz in Regions 1 and 3,	171.11-171.45 GHz,
1 660-1 670 MHz,	36.43-36.5 GHz,	172.31-172.65 GHz,
1 718.8-1 722.2 MHz,	42.5-43.5 GHz,	173.52-173.85 GHz,
2 655-2 690 MHz,	42.77-42.87 GHz,	195.75-196.15 GHz,
3 260-3 267 MHz	43.07-43.17 GHz,	209-226 GHz,
3 332-3 339 MHz,	43.37-43.47 GHz,	241-250 GHz,
3 345.8-3 352.5 MHz,	48.94-49.04 GHz,	252-275 GHz
4 825-4 835 MHz,	76-86 GHz,	
4 950-4 990 MHz,	92-94 GHz,	

are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **4.5** and **4.6** and Article **29**). **(WRC-07)**

MOD 5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in the relevant ITU-R Recommendation Table 1 of Recommendation ITU-R RA.769-1. **(WRC-907)**

- MOD 5.328A** Stations in the radionavigation-satellite service in the band 1 164-1 215 MHz shall operate in accordance with the provisions of Resolution **609 (Rev. WRC-037)** and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1 215 MHz. No. **5.43A** does not apply. The provisions of No. **21.18** shall apply. **(WRC-037)**
- MOD 5.328B** The use of the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. **9.12**, **9.12A** and **9.13**. Resolution **610 (WRC-03)** shall also apply ~~(WRC-03); however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution 610 (WRC-03) shall only apply to transmitting space stations.~~ In accordance with No. **5.329A**, for systems and networks in the radionavigation satellite service (space-to-space) in the bands 1 215-1 300 MHz and 1 559-1 610 MHz, the provisions of Nos. **9.7**, **9.12**, **9.12A** and **9.13** shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). **(WRC-07)**
- MOD 5.329A** Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215-1 300 MHz and 1 559-1 610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionavigation-satellite service (space-to-Earth) other systems or on other services operating in accordance with the Table. **(WRC-20007)**
- MOD 5.380A** In the band 1 670-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified ~~in accordance with Resolution 670 (WRC-03)~~ notified before 1 January 2004. Any new assignment to these earth stations in this band shall also be protected from harmful interference from stations in the mobile-satellite service. **(WRC-037)**
- MOD 5.389A** The use of the bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev. WRC-952000)**.^{*} ~~The use of these bands shall not commence before 1 January 2000; however the use of the band 1 980-1 990 MHz in Region 2 shall not commence before 1 January 2005.~~ **(WRC-07)**
- MOD 5.389C** The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the mobile-satellite service ~~shall not commence before 1 January 2002~~ and is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev. WRC-952000)**^{*}. **(WRC-907)**
- SUP 5.390** ~~In Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Suriname and Uruguay, the use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite services shall not cause harmful interference to stations in the fixed and mobile services before 1 January 2005. After this date, the use of these bands is subject to coordination under~~

* ~~————— Note by the Secretariat: This Resolution was revised by WRC 2000.~~

~~No. 9.11A and to the provisions of Resolution 716 (WRC-95). (WRC-2000)
(WRC-07)~~

- MOD 5.403** Subject to agreement obtained under No. **9.21**, the band 2 520-2 535 MHz may also be used ~~(until 1 January 2005 the band 2500-2535 MHz)~~ for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. **9.11A** apply. **(WRC-07)**
- SUP 5.409** ~~Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in the band 2 500-2 690 MHz. (WRC-07)~~
- SUP 5.411** ~~When planning new tropospheric scatter radio-relay links in the band 2 500-2 690 MHz, all possible measures shall be taken to avoid directing the antennae of these links towards the geostationary-satellite orbit. (WRC-07)~~
- MOD 5.517** In Region 2, ~~the allocation to the broadcasting-satellite service in the band 17.3-17.8 GHz shall come into effect on 1 April 2007. After that date, use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not claim protection from and shall not cause harmful interference to nor claim protection from operating systems assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations.~~**(WRC-07).**
- SUP 5.518** ~~Different category of service: in Region 2, the allocation of the band 17.7-17.8 GHz to the mobile service is on a primary basis until 31 March 2007. (WRC-07)~~
- MOD 5.538** *Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of ± 10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. ~~In the band 27.500-27.501 GHz, such space-to-Earth transmissions shall not produce a power flux density in excess of the values specified in Article 21, Table 21-4 on the Earth's surface. (WRC-07)~~
- MOD 5.547** The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolutions **75 (WRC-2000)** and ~~**79 (WRC-2000)**~~). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-42 GHz (see No. **5.516B**), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. **(WRC-037)**
- SUP 5.559A** ~~The band 75.5-76 GHz is also allocated to the amateur and amateur-satellite services on a primary basis until the year 2006. (WRC-2000) (WRC-07)~~

F3 Domestic Proposals to Remove Irrelevant International Footnotes from Table

The Canadian Table contains international footnotes from the International Table that are deemed pertinent and thus adopted in Canada. The following footnotes are currently included in the Canadian Table, but are not relevant to the use of the allocation or band in Canada.

The Department proposes to completely remove these footnotes from the Canadian Table:

- SUP 5.78** ~~Different category of service: in Cuba, the United States of America and Mexico, the allocation of the band 415-435 kHz to the aeronautical radionavigation service is on a primary basis.~~
- SUP 5.80** ~~In Region 2, the use of the band 435-495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.—~~
- SUP 5.118** ~~Additional allocation: in the United States, Mexico, Peru and Uruguay, the band 3-230-3-400 kHz is also allocated to the radiolocation service on a secondary basis. (WRC-03)~~
- SUP 5.153** ~~In Region 3, the stations of those services to which the band 15-995-16-005 kHz is allocated may transmit standard frequency and time signals.~~
- SUP 5.256A** ~~Additional allocation: in China, the Russian Federation, Kazakhstan and Ukraine, the band 258-261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC-03)~~
- SUP 5.286E*** ~~Additional allocation: in Cape Verde, Indonesia, Nepal, Nigeria and Papua New Guinea, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-97)~~

* This footnote has been modified by WRC-07 and reads as follows:

- 5.286E** *Additional allocation:* in Cape Verde, Indonesia, Nepal and Nigeria and Papua New Guinea, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-07)

Even with these modifications, the Department still considers this international footnote irrelevant in the context of the Canadian Table of Frequency Allocation.

- SUP 5.288** ~~In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of~~

the equipment used shall conform to those specified in Recommendation ITU-R M.1174-1. ~~(WRC-03)~~

- SUP 5.348A** ~~In the band 1 518-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. 9.11A for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land-mobile service use for specialized mobile radios or used in conjunction with public-switched telecommunication networks (PSTN) operating within the territory of Japan, shall be 150 dB(W/m²) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix 5. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. 5.43A does not apply. (WRC-03)~~
- SUP 5.362A** ~~In the United States, in the bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability, by preemption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (WRC-97)~~
- SUP 5.416*** ~~The use of the band 2 520-2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21. (WRC-03)~~

* **This footnote has been modified by WRC-07 and reads as follows:**

- 5.416** ~~The use of the band 2 520-2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21. The provisions of No. 9.19 shall be applied by administrations in this band in their bilateral and multilateral negotiations. (WRC-07)~~

Even with these modifications, the Department still considers this international footnote irrelevant in the context of the Canadian Table of Frequency Allocation.

- SUP 5.417A** ~~In applying provision No. 5.418, in Korea (Rep. of) and Japan, *resolves 3* of Resolution 528 (Rev. WRC-03) is relaxed to allow the broadcasting-satellite service (sound) and the complementary terrestrial broadcasting service to additionally operate on a primary basis in the band 2 605-2 630 MHz. This use is limited to systems intended for national coverage. An administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416. The provisions of No. 5.416 and Table 21-4 of Article 21 do not apply. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) in the band 2 605-2 630 MHz is subject to the provisions of Resolution 539 (Rev. WRC-03). The power flux density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2 605-2 630 MHz for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, for all conditions and for all methods of modulation, shall not exceed the following limits:~~

$$\begin{aligned}
 & -130 \text{ dB(W/(m}^2 \cdot \text{MHz))} && \text{for } 0^\circ \leq \theta \leq 5^\circ \\
 & -130 + 0.4 (\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))} && \text{for } 5^\circ < \theta \leq 25^\circ \\
 & -122 \text{ dB(W/(m}^2 \cdot \text{MHz))} && \text{for } 25^\circ < \theta \leq 90^\circ
 \end{aligned}$$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. In the case of the broadcasting-satellite service (sound) networks of Korea (Rep. of), as an exception to the limits above, the PFD value of $-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ shall be used as a threshold for coordination under No. **9.11** in an area of 1 000 km around the territory of the administration notifying the BSS (sound) system, for angles of arrival greater than 35° . (**WRC-03**)

SUP 5.418*

Additional allocation: in Korea (Rep. of), India, Japan, Pakistan and Thailand, the band 2 535–2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-03)**. The provisions of No. **5.416** and Table **21-4** of Article **21**, do not apply to this additional allocation. Use of non-geostationary satellite systems in the broadcasting-satellite service (sound) is subject to Resolution **539 (Rev.WRC-03)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix **4** coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2 630–2 655 MHz, and for which complete Appendix **4** coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

$$\begin{aligned}
 & -130 \text{ dB(W/(m}^2 \cdot \text{MHz))} && \text{for } 0^\circ \leq \theta \leq 5^\circ \\
 & -130 + 0.4 (\theta - 5) \text{ dB(W/(m}^2 \cdot \text{MHz))} && \text{for } 5^\circ \leq \theta \leq 25^\circ \\
 & -122 \text{ dB(W/(m}^2 \cdot \text{MHz))} && \text{for } 25^\circ \leq \theta \leq 90^\circ
 \end{aligned}$$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of $-122 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ shall be used as a threshold for coordination under No. **9.11** in an area of 1 500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system. In addition, the pfd value shall not exceed $-100 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ anywhere on the territory of the Russian Federation.

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. **5.416** for systems for which complete Appendix **4** coordination information has been received after 1 June 2005. (**WRC-03**)

* This footnote has been modified by WRC-07 and reads as follows:

5.418 *Additional allocation:* in Korea (Rep. of), India, Japan, Pakistan and Thailand, the band 2 535-2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-03)**. The provisions of No. **5.416** and Table **21-4** of Article **21**, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution **539 (Rev.WRC-03)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix **4** coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2 630-2 655 MHz, and for which complete Appendix **4** coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

-130 dB(W/(m ² •MHz))	for 0° ≤ θ ≤ 5°
-130 + 0.4 (θ - 5) dB(W/(m ² •MHz))	for 5° ≤ θ ≤ 25°
-122 dB(W/(m ² •MHz))	for 25° ≤ θ ≤ 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of -122 dB(W/(m² MHz)) shall be used as a threshold for coordination under No. **9.11** in an area of 1 500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system. ~~In addition, the pfd value shall not exceed -100 dB(W/(m²•MHz)) anywhere on the territory of the Russian Federation.~~

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. **5.416** for systems for which complete Appendix **4** coordination information has been received after 1 June 2005. (WRC-07~~3~~)

Even with these modifications, the Department still considers this international footnote irrelevant in the context of the Canadian Table of Frequency Allocation.

SUP 5.428* ~~*Additional allocation:* in Azerbaijan, Cuba, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-03)~~

* This footnote has been modified by WRC-07 and reads as follows:

5.428 *Additional allocation:* in Azerbaijan, ~~Cuba~~, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

Even with these modifications, the Department still considers this international footnote irrelevant in the context of the Canadian Table of Frequency Allocation.

- SUP 5.459** ~~Additional allocation: in Russian Federation, the frequency bands 7 100-7 155 MHz and 7 190-7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. (**WRC-97**)~~
- SUP 5.486** ~~Different category of service: in Mexico and the United States, the allocation of the band 11.7-12.1 GHz to the fixed service is on a secondary basis (see No. **5.32**).~~
- SUP 5.511D** ~~Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.63-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux density limits at the Earth's surface of 146 dB (W/m²-MHz) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed 146 dB (W/m²-MHz) for any angle of arrival, it shall coordinate under No. **9.11A** with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. **4.10** applies). (**WRC-97**)~~
- SUP 5.542**^{*} ~~*Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (**WRC-2000**)~~

*** This footnote has been modified by WRC-07 and reads as follows:**

- 5.542** *Additional allocation:* in Algeria, Saudi Arabia, Bahrain, ~~Bangladesh~~, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (**WRC-07**)

Even with these modifications, the Department still considers this international footnote irrelevant in the context of the Canadian Table of Frequency Allocation.

- SUP 5.547B** ~~*Alternative allocation:* in the United States, the band 31.8-32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (**WRC-97**)~~

- SUP 5.547C** *Alternative allocation:* in the United States, the band ~~32-32.3 GHz~~ is allocated to the ~~radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-03)~~
- SUP 5.547D** *Alternative allocation:* in the United States, the band ~~32.3-33 GHz~~ is allocated to the ~~inter-satellite and radionavigation services on a primary basis. (WRC-97)~~
- SUP 5.547E** *Alternative allocation:* in the United States, the band ~~33-33.4 GHz~~ is allocated to the ~~radionavigation service on a primary basis. (WRC-97)~~

Appendix A: Acronyms

AIS	Automatic Identification System
AMT	Aeronautical Mobile Telemetry
AM(R)S	Aeronautical Mobile (route) Service
BSS	Broadcasting-Satellite Service
CEPT	European Conference of Postal and Telecommunications Administrations
CITEL	Inter-American Telecommunications Commission
DSC	digital selective calling
EESS	Earth Exploration-Satellite Service
eirp	equivalent isotropically radiated power
FS	Fixed Service
FSS	Fixed-Satellite Service
GMDSS	Global Maritime Distress and Safety System
GSO	geostationary-satellite orbit
HAPS	High Altitude Platform Station
HF	high frequency
HDFSS	High-Density applications in the Fixed-Satellite Service
ICAO	International Civil Aviation Organization
IMT	International Mobile Telecommunications
ITU	International Telecommunication Union
ITU-R	International Telecommunication Union – Radiocommunication Sector
LF	low frequency
MetSat	Meteorological Satellite Service
MF	medium frequency
MLS	microwave landing systems
MS	Mobile Service
MSS	Mobile-Satellite Service
NAVTEX	navigational telex
PFD	power flux density
RR	Radio Regulations
SAR	synthetic aperture radar
SOLAS	International Convention for the Safety of Life at Sea
SRS	Space Research Service
UTC	coordinated universal time
VHF	very high frequency
WRC-XX	World Radiocommunication Conference (XX = year of conference)