



Draft IATA baseline brief for WRC-2007

September 2004
Version 1.0

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Objective of the IATA baseline brief for WRC 2007.

The objective of the IATA baseline brief for the World Radiocommunication Conference 2007 (WRC-07), Geneva 8 Oct-2 Nov 2007, is to protect the radio spectrum interest of its airline members taking into account the current climate of the industry as well as what will be needed to meet future growth.

The IATA baseline brief for the ITU WRC-2007 was established in coordination with AEA and Developed under the auspices of the IATA Spectrum Protection Steering Group. The IATA Operations Committee approved the brief on October 2004.

The IATA baseline brief supports the ICAO WRC-2007 aviation position as developed through the ICAO States. This document endeavours to provide guidance and encourage IATA members and other interested parties to contribute to and participate in their respective national ITU preparation process.

For the airline industry it is of paramount importance to be involved in the WRC-2007 allocation process to:

- a) To avoid modification of presently installed and operating equipment
- b) To protect the investment in new CNS equipment and
- c) To ensure affordable access to adequate radio spectrum in the long term.
- d) To protect aviation safety of life services from the growing threat from interference.

Introduction to the document

This document addresses the IATA positions on the ITU WRC-2007 agenda items affecting aeronautical spectrum allocation. It provides an introduction to the specific issue of the agenda item concerned and a subsequent IATA position on the item.

Agenda Item 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)

Introduction:

There is a general trend and effort within ITU to delete footnotes in the frequency allocation tables addressing alternative usage of the subject band in the different countries. For aviation there are specifically five bands which the deletion of the specific country footnotes is appropriate: 74.8 - 75.2 MHz band (Marker beacon), 108 - 117.95 MHz band (ILS and VOR); 117.95 - 137 MHz band (VHF Com); 328.6 - 335.4 MHz band (GS), 1 559 – 1 610 MHz (GNSS) and 4200-4400 MHz (Airborne Radio Altimeters).

IATA position:

As airlines operate globally, national differences will reduce the integrity of the bands and the transparency between the various parts of the airspace and increase the risk of harmful interference. States are encouraged to delete their names from the footnotes where allocations are made to non-aeronautical services in global aeronautical allocated bands to make allocations as generic, harmonised and international as possible.

Agenda Item 1.3

In accordance with Resolution 747 (WRC 03) to consider the upgrading of the radiolocation service to primary allocation status in the bands 9000-9200 MHz and 9300-9500 MHz and extending by up to 200 MHz the existing primary allocations to the Earth exploration-satellite service (active) in the band 9500-9800 MHz without placing undue constraints to the services to which the bands are allocated.

Introduction:

The 3 cm bands are used extensively by aeronautical (ground and airborne) radar systems for short-range surveillance and precision object definition up to a 50 km range. In airborne weather radar systems their shorter wavelength is very suitable for the detection of storm clouds, turbulence and windshear. The frequency band 9 345–9 375 MHz has been coordinated with other users within ITU-R as the agreed aeronautical airborne frequencies for this purpose. One of the critical safety functions of airborne weather radar is to give warning of hazardous weather and ensure safe separation of aircraft during hazardous weather conditions. In many countries the carriage of airborne weather radar is a mandatory requirement. This band is also used for surface detection radar.

The continuing aeronautical uses of these bands needs to be assured, as there is no alternative system identified providing similar services.. Any upgrade of the radiolocation service to a primary status should be considered with a footnote indicating that the radiolocation service will not cause harmful interference nor claim protection from the (aeronautical) radionavigation service

IATA position:

The upgrading of the radiolocation service to primary status in the bands 9000-9200 MHz and 9300-9500 MHz can only occur after the relevant ITU studies and recommendations are established to ensure that no harmful interference is caused to the Aeronautical Radionavigation Service and that no protection is required from these radionavigation services.Recommendations.

Agenda Item 1.4

To consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account the results of ITU-R studies in accordance with Resolution 228

Introduction:

Proponents of IMT 2000 are seeking additional allocations for the future development of mobile communication. All bands within 1-3 GHz are prime candidates for these additional allocations.

IATA position:

No sharing of the aviation bands with IMT 2000. However aviation is currently assessing the introduction a new aeronautical communication system and could benefit from the expected spectrum efficient technologies being contemplated for IMT-2000.

Agenda Item 1.5

To consider spectrum requirements and possible additional spectrum allocations for aeronautical telecommand and high-bit rate aeronautical telemetry, in accordance with Resolution 230 (WRC-03))

Introduction:

a) TELEMETRY

The development of modern aircraft requires extensive flight test programmes to demonstrate and certify the airworthiness of the airframe and the installations. A real time data link between the aircraft and the ground control center is essential to analyze test data so the number of flights can be kept to a minimum and test programs can be dynamically adapted. This will result in improved testing capability, ensure significant cost savings and will shorten the aircraft development cycle.

This agenda item seeks to provide for the required air ground telemetry link and initial estimates have indicated that 60 MHz will be required to in the band 3-30 GHz. This 60 MHz will have to be found from one of the following methods:

- review, with a view to upgrading to primary, secondary allocations to the mobile service in the frequency range 3-16 GHz for the implementation of wideband aeronautical telemetry and associated telecommand;
- consider possible additional allocations to the mobile service, including aeronautical mobile, on a primary basis in the frequency range 3-16 GHz for the implementation of wideband aeronautical telemetry and associated telecommand;
- designate existing mobile allocations between 16 and 30 GHz for wideband aeronautical telemetry and associated telecommand,

b) UNMANNED AERIAL VEHICLES

There is a significant amount of development work taking place on Unmanned Aerial Vehicles (UAV). These vehicles operate in civil airspace and must be integrated safely and adhering to the same operational practice through Telemetry and telecommand links between the UAV and

the UAV ground control centre. This agenda item seeks to make provision for the required air ground telemetry/telecommand link.

In order to allow UAVs to be fully and safely integrated into controlled airspace it is essential that suitable safety of life air ground datalinks, within the frequency band 3-30GHz, are provided. The development of telemetry and telecommand links to support UAV operations however must not adversely affect existing and planned aeronautical systems. Moreover the integrity and security of the telecommand links should be such that UAV do not create a safety or security hazard.

IATA position:

IATA supports the continued use and protection of current aeronautical mobile telemetry applications in the band 1 425 – 1 535 MHz and the need to accommodate an additional 60 MHz for wideband telemetry and telecommand.. The development of telemetry links however must not adversely affect existing and planned aeronautical systems.

IATA supports the identification and allocation of suitable spectrum in the band 3-30 GHz, to enable safety and secure UAV operations with high integrity in civil airspace to ensure they do not adversely affect the safety in civil airspace.

Agenda Item 1.6

Introduction:

Resolution 414

To consider allocations for the aeronautical mobile (R) service in parts of the bands between 108-MHZ to 6 GHZ in accordance with Resolution 414

In some regions, the Aeronautical VHF communications band 117.975 – 137 MHz has reached saturation and assignable VHF spectrum for line of sight communications to support safety and regularity of flight has become increasingly limited. Aviation has identified the requirement for additional spectrum suitable to accommodate new aeronautical Air Traffic Control (ATC) functions and Airline Operational Control (AOC) applications, to support evolving air traffic management (ATM) requirements within the framework of the new global Communication, Navigation and Surveillance (CNS) /ATM concept being pursued to sustain air traffic growth. Within this new concept there will be a closer integration between airlines and ATC centers to improve airspace management, which will result in significant additional increase for the typical longer AOC communication messages.

The change in ATM philosophy can only be supported with the introduction of supporting new navigation and surveillance functions; these systems will require use of AM(R)S spectrum between 108 MHz and 6 GHz as the functions are supported by communication data link.

There are new or emerging aviation safety and security requirements to exchange more information with an higher integrity between ground systems and aircraft. . To reduce runway

incursions, high integrity, wireless local area networks combined with connected grids of distributed sensors may enable aeronautical radionavigation and safety communications for the airport area. In addition, emerging security requirements such as downlinks of video and distress signals are under consideration in ICAO. This may result in a requirement for additional spectrum.

The combination of VHF band congestion, growing air traffic and evolving aeronautical applications drive an urgent need for additional AM(R)S allocations. The quantity of spectrum required is currently under study in ICAO.

Resolution 415

Modernization of Civil Aviation Telecommunications Systems

To study current frequency allocations that will support the modernization of civil aviation telecommunication systems, taking into account Resolution 415

a) VSATs

WRC-03 identified satellite systems as the most appropriate communications services to bring benefits to the civil aviation community as well as enhancing telecommunication systems for developing and sparsely populated countries. Resolution **415 (WRC-03)** details the considerations to be taken into account. The benefits are improved communications capability to support ICAO CNS/ATM through the use of the most appropriate modern and cost effective technology, which will serve the needs of all aeronautical and non-aeronautical users.

A number of countries in Africa, Asia, South America and Eastern Europe have implemented VSAT networks to improve inter-facility communication.

Although improvements have been made to infrastructure, in some places there still exist unacceptable difficulties of inter-operability between systems, system performance shortcomings and interconnection costs (refer to Annex 1).

It is generally accepted that current FSS allocations for VSAT provide sufficient capacity for ground-to-ground aeronautical communications. However, the ITU-R should consider strengthening Resolution **415 (WRC-03)** and **ITU-R recommendations in** order to better reflect in the Radio Regulations the special use by Civil Aviation of those current allocations.

b) MSS frequency requirements

The aviation community has a number of initiatives underway that are investigating future systems and technologies to modernize civil aviation communications, expand CNS/ATM systems and develop applications that will create an overall increase in efficiency of air operations. They include implementation of systems on-board aircraft in different band allocations to serve general aeronautical purposes in addition and support to the safety requirements. The AMSS system operating in the 14-14.5 GHz band (Earth-to-space) is an

example and has a broadband communications capability that has the potential to meet some of non safety needs.

There is, however, no formal corresponding downlink (space-to-Earth) allocation for the AMSS.

IATA position:

Resolution 414

To support additional global allocations to the Aeronautical Mobile (R) Service to meet new global CNS/ATM and AOC requirements to accommodate growing traffic.

To support the outcome of studies that identifies additional bands between 108 MHz to 6 GHz to satisfy long-term global CNS/ATM requirements.

IATA position

Resolution 415

a) Modernization of Civil Aviation Telecommunications Systems

To support studies that identify appropriate regulatory measures that can be used to protect the use of VSAT by Civil aviation to allow the modernisation and future use of aeronautical communications systems for CNS/ATM, especially in developing countries, noting that these VSATs may also support other non-aviation users.

b) MSS frequency requirements

IATA airlines support the allocation of a corresponding downlink in order to allow development of the AMSS systems with some Regulatory certainty.

Agenda Item 1.13

Taking into account Resolutions 729, 351 and 544 to review the allocations to all services in the HF bands between 4 and 10 MHz, excluding those allocations to services in the frequency range 7000-7200 KHZ and those bands whose allotment plans are in Appendix 25, 26, and 27 and whose channelling arrangements are in Appendix 17, taking into account the impact of new modulation techniques, adaptive control techniques and spectrum requirements for HF broadcast)

Introduction:

Within the frequency range 4-10 MHz, various frequencies are allocated to the aeronautical mobile (R) service and the allotment plan is in Appendix 27 to the Radio Regulations. It is of concern to aviation that any new allocation, in particular to the high-powered broadcasting

service, will not cause interference to the aeronautical mobile (R) service. In addition, the introduction of any new modulation technique, in particular digital modulation by the broadcasting service, may cause interference to the aeronautical mobile (R) service if these techniques are applied in bands adjacent or in close proximity of these aeronautical bands.

IATA position

Monitor developments of future allocations and techniques that are considered in the review of the bands between 4-10 MHz and ensure that these will not cause harmful interference or cause infringement on the aeronautical allotment in Appendix 27.

Agenda Item 1.17

To consider the results of ITU-R studies on compatibility between the fixed-satellite service and other services around 1.4GHz in accordance with Resolution 745

Introduction:

This agenda item seeks to complete the studies undertaken in response to agenda item 1.16 of WRC-03 on feeder links for non-geostationary satellite systems. Studies completed to date have shown that there are significant difficulties with an allocation to the fixed-satellite service in this frequency range, in particular if existing (passive) services are to be afforded protection from these feeder links. Of concern to aviation is that the allocation to the aeronautical radionavigation service in Footnotes 5.334 and 5.338 (used for radar systems) are protected from harmful interference. It is also necessary to secure protection from harmful interference of the band 1429-1535 MHz (Footnotes stipulating the use of this band for aeronautical telemetry).

IATA position:

Use of the band around 1.4 GHz by the fixed satellite service for feeder links for non-geostationary satellite systems should not be introduced in any of the aeronautical bands in this frequency range; aeronautical usage needs to be protected from harmful interference.

Agenda Item 1.20

To consider the results of studies and proposals for regulatory measures, if appropriate, regarding the Earth exploration-satellite service (passive) from unwanted emissions of active services in accordance with Resolution 738

Introduction

The Earth exploration-satellite service (passive) operates in the frequency band 1400-1427 MHz and is seeking protection from active services in the adjacent bands.

Of concern to aviation is that the band below 1400 MHz is used by the aeronautical radionavigation service (radar) through Footnotes and their operations should not be unduly constrained. The use of the band above 1427 MHz (1429-1535 MHz) is regulated through Footnotes for aeronautical telemetry and this usage should not be adversely affected by the wish to improve protection to the Earth exploration-satellite service

IATA position:

Protection of the Earth exploration-satellite service in the band 1400-1427 MHz should not impose undue constraints to the use of the adjacent bands by aviation.

Agenda Item 7.1

To consider and approve the Report of the Director of the Radiocommunication Bureau

(believe the discussion was for now IATA will refer to spectrum trading and administered incentive pricing and the European position will add concern about liberalisation. IATA is, of course, welcome to add liberalisation if it wishes)...

Introduction:

This Agenda Item is dealing with the Report of the Director of the Radiocommunication Bureau:

- on the activities of the Radiocommunication Sector since WRC-03;
- on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and
- on action in response to Resolution **80 (Rev.WRC-2000)**;

The need to accommodate new users and new services within already congested spectrum is pressuring radio administrations to introduce new spectrum management measures such as spectrum trading and spectrum pricing. While this might be appropriate for commercially exploited spectrum, it is not being considered for public safety users such as aviation. There could be possible implications, however, to aviation if trading or liberalisation of spectrum use meant more interference to aeronautical services.. Aviation will not compromise on safety, so any unexpected interference would result in aviation taking whatever steps necessary to deal with the interference while ensuring safety – resulting in possible delays and economic penalties.

Spectrum pricing or other new forms of payment for spectrum use could ultimately cause increased charges to the airlines and such initiatives must be followed closely.

It is fully recognized that aviation has to make its contribution to accommodate new users and it this contribution could be made through increased flexibility of use of aeronautical spectrum allocations through eliminating the boundaries between the various aeronautical service definition in ITU regulations.

IATA position:

Aeronautical radio safety spectrum should not be subject to spectrum trading or spectrum pricing. The alternative to obtain increased efficiency in safety services is to provide a more flexible and efficient use of the aeronautical allocated bands.

Agenda Item 7.2

To recommend to the Council items for inclusion in the agenda for the next WRC and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 802

Introduction:

This agenda item addresses the preliminary agenda for WRC-10, which will be developed by WRC-07. Items of aeronautical interest that should appear in the WRC-10 include:

- a) Deletion of country footnotes in aeronautical bands
- b) Review of results of studies conducted in accordance with Resolution 222 (WRC-2000)

Resolution 222, *inter alia*, calls for ITU-R studies to ensure spectrum availability and protection for the aeronautical mobile-satellite (R) service in the 1.5–1.6 GHz band. The result of such studies should be reviewed by WRC-10 with a view to assessing the need of changes to the Radio Regulations to satisfy AMS(R)S spectrum requirements in the band. Participation by aviation experts to the relevant ITU-R studies is required.

- c) Wireless interactive multimedia. These systems, most likely to be used on an un-licensed basis and on yet undetermined frequencies need to ensure protection to aeronautical services and systems.

IATA position:

To support the inclusion in the agenda of WRC-10 of an item addressing the review of results of studies conducted in accordance with Resolution 222 (WRC-2000).