

7-III.1.3 The ITU Radio Regulations contain authoritative treaty provisions representing the worldwide agreement on the telecommunications matters within the ITU areas of interest.

7-III.1.4 The ITU deals with all telecommunications matters, both for radio and for line transmission purposes, and is supported by its technical agencies ITU-R and ITU-T for study and research in radio and line transmission, respectively. Their output is normally in the form of Recommendations and for worldwide publication and dissemination. A small proportion of ITU-R documentation is validated to the same treaty status as that in the Radio Regulations by means of a linked reference.

7-III.1.5 This section highlights Regulations of special importance to aviation indicating their context and scope in relation to aeronautical use of the spectrum.

7-III.2 ITU CONSTITUTION AND CONVENTION

7-III.2.1 The ITU is governed by the agreements contained in its Constitution, which defines the objectives, composition and basic structure of the organization. The ITU Convention lays down the personnel procedures, working methods and other matters of a procedural character. The present Constitution and Convention were last amended at the Plenipotentiary Conference in 2006 (Antalya, Turkey) (PP-06). Amendments were introduced as a consequence of extending participation of Observers and Sector Members of the ITU-R Sector to WRCs.

7-III.2.2 Of special importance is Article 50 of the Constitution, which deals with relations with other international organizations, and stipulates that “In furtherance of complete international coordination on matters affecting telecommunication, the Union shall cooperate with international organizations having related interests and activities”.

7-III.2.3 The participation of ICAO in plenipotentiary conferences is regulated in Article 23 of the Convention, which states:

“...

No. 267 1 The following shall be admitted to plenipotentiary conferences:

...

No. 269 d) observers of the following organizations, agencies and entities to participate in an advisory capacity:

...

No. 269D iv) the specialized agencies of the United Nations and the International Atomic Energy Agency;

...”

7-III.2.4 The participation of ICAO in radiocommunication conferences is regulated in Article 24 of the Convention, which states:

“...

No. 276 1 The following shall be admitted to radiocommunication conferences:

...

No. 278 b) observers of organizations and agencies referred to in Nos. 269A to 269D of this Convention, to participate in an advisory capacity;

...”

7-III.2.5 The participation of ICAO in radiocommunication assemblies is regulated in Article 25 of the Convention, which states:

“...

No. 295 1 The following shall be admitted to the assembly or conference:

...

No. 297 c) observers, to participate in an advisory capacity, from:

...

No. 297bis i) the organizations and agencies referred to in Nos. 269A to 269D of this Convention;

...”

7-III.2.6 The *General Rules of Conferences, Assemblies and Meetings of the Union* state in GR 44 that “... observers that may attend conferences in accordance with the relevant provisions of the Convention, shall not be entitled to submit proposals”.

7-III.2.7 The *General Rules of Conferences, Assemblies and Meetings of the Union* (GR 61) indicate that “It shall be the duty of the chairman to protect the right of each delegation to express its opinion freely and fully on the point at issue”. The Annex to the Constitution defines a delegation as “The totality of the delegates ...

sent by the same Member State”. As a result, the right to express an opinion freely and fully is granted by the ITU solely to Member States.

7-III.2.8 The application and a peculiar interpretation of the above provisions at WRC-2000 severely restricted the ability of ICAO to express its view at WRCs. Later during that conference, the restrictions were partly lifted.

7-III.2.9 The Plenipotentiary Conference (Marrakech, Morocco, 2002) (PP-02) considered the situation of observers in ITU conferences and meetings. Particular attention was given to the situation of observers from organizations and agencies within the United Nations system, several of which play an important role in relation to the use of the radiofrequency spectrum and satellite orbits. It was recognized that the current provisions of the Constitution, Convention and General Rules support the furnishing of advice to conferences from these observers on matters within their competence. It was, however, noted that certain misunderstandings arose at WRC-2000 that resulted in a departure from the established practice of previous conferences concerning their participation. There was agreement at PP-02 that such misunderstandings must be avoided in the future.

7-III.2.10 Therefore, “the Plenipotentiary Conference decided to confirm to upcoming radiocommunication conferences that observers referred to in Nos. 259 (269A) and 262 (269D) of the Convention may submit to these conferences information documents relevant to their mandates to be noted by Member States. These information documents will continue to be distributed to the conference as per past practice and shall be referenced for information on the relevant daily agendas. Further, observers referred to in Nos. 259 (269A) and 262 (269D) may, with the authorization of the Chairman and in accordance with the Rules of Procedures (i.e. RP 16 and 17) (GR 44), provide advice on points relevant to their mandates. The information documents and advice shall not include or be treated as proposals. The right to make proposals, either written or oral, to such conferences is clearly reserved to Member States.”

7-III.2.11 This decision was to be taken into consideration, along with proposals concerning observers made to PP-02, in the work of the Group of Experts established through Resolution 109 by PP-02 on the review and consolidation of the provisions of the Convention concerning observers. It was further decided to instruct the Secretary-General of the ITU to bring this decision to the attention of upcoming radiocommunication conferences, notably WRC-03, for the guidance of its proceedings.

7-III.2.12 The Group of Experts, open to ITU Member States only, reviewed relevant provisions of the basic texts of the ITU concerning observers and prepared a report for consideration by the ITU Council, including recommendations

regarding Sector Member observers to Council. The Council was instructed to report to the next plenipotentiary conference on the implementation of the recommendations of the Group of Experts. This activity, which took into consideration the decision of PP-02 on the participation of the organizations and agencies within the United Nations system as noted above, would include the role and participation of all observers and Sector Members of the ITU.

7-III.2.13 PP-06 further analyzed the role of observers in the ITU and agreed to various suggested modifications regarding observers to the ITU Convention and the General Rules, as well as to a plenipotentiary conference Resolution (COM5/3) on the participation of observers in conferences, assemblies and meetings of the Union. The amendments consolidate the references to observers in the basic texts of the ITU and set out guidelines for the participation of different observers in various types of ITU conferences, assemblies and meetings. The resolution also incorporates the decisions of PP-02 concerning the participation of certain “observers in an advisory capacity” (including of United Nations specialized agencies such as ICAO) in an advisory capacity in WRCs. The resolution stipulates, *inter alia*, that observers in an advisory capacity, such as ICAO:

- 1) are admitted to participate in plenary meetings;
- 2) may, if not otherwise decided by the plenary meeting, be admitted to participate in committees and their subsidiary groups;
- 3) are entitled to receive all documentation;
- 4) may submit information documents. These documents shall be clearly referenced as information documents on the appropriate meeting agendas;
- 5) may request the floor in these meetings in order to provide advice or information on points relevant to their mandates. Such advice shall not include or be treated as proposals;
- 6) are to be given the floor by the chairman after the last Member State or Sector Member on the list of speakers;
- 7) may be asked by the chairman during the course of a meeting to make a statement or to provide relevant information in order to assist the proceedings.

7-III.2.14 Participation of ICAO in the work of the Radiocommunication Sector (ITU-R) is primarily governed by the provisions in Article 19 of the Convention on the participation of entities and organizations other than administrations in the ITU’s activities as well as by Resolution (COM 5/3) on the participation of observers in conferences, assemblies and meetings of the Union as adopted by PP-06.

7-III.2.15 Article 19, subparagraph 6 (No. 236) states that “Any request from an organization referred to in Nos. 269B to 269D of this Convention to participate in

the work of a Sector shall be sent to the Secretary-General, and the organization concerned shall be included in the lists referred to in No. 237 below”. No. 237 indicates that “The Secretary-General shall compile and maintain lists of all entities and organizations referred to in Nos. 229 to 231 and Nos. 269B to 269D of this Convention that are authorized to participate in the work of each Sector”. ICAO, as a specialized agency of the United Nations, is qualified under No. 269D to be added to this list.

7-III.2.16 Under the provisions of Articles 19, 23, 24 and 25 of the Convention and Resolution (COM5/3) of PP-06, the full participation of ICAO in the work of the ITU (plenipotentiary conferences, radiocommunication conferences and assemblies as well as sector meetings), including the submission of contributions and the full participation in the debate, is secured.

7-III.2.17 Important to note here is that the ITU-R sector members are admitted as observers to radiocommunication conferences on the basis of provision No. 280 contained in Article 24 of the Convention, thus identifying a different status between a Sector Member and a specialized agency of the United Nations, such as ICAO. Pursuant to Annex 3 of the PP-06 resolution on observers, ITU-R sector members at radiocommunication conferences are admitted to attend plenary meetings and committees, may be asked by the chairman during the course of a meeting to provide relevant information in order to assist the proceedings or to make a statement, but shall not be authorized to participate in the debates.

7-III.3 RADIO REGULATIONS

7-III.3.1 The Radio Regulations are the principal ITU document (with a treaty status) for radio matters. Parts of the Radio Regulations are discussed, agreed and embodied in the Final Acts of WRCs. WRCs are now held every four years in a rolling sequence in which each conference drafts the agenda for the next, and the provisional agenda for the second sequential WRC. The agenda for a WRC is approved by the ITU Council. The Radio Regulations lay down the framework for international spectrum management and contain the Table of Frequency Allocations, which is effectively the worldwide agreement on the deployment and conditions of use of all radio frequencies in the radio frequency spectrum. ICAO develops its material (e.g. SARPs) for radiocommunication and radionavigation systems within the framework set by the Radio Regulations. Changes to this framework introduced by WRCs can severely impede or disrupt the orderly use of spectrum by aviation and thus affect the safety of aviation. This section of the handbook reproduces Radio Regulations of particular importance to aeronautical services, and presents them with background comments which highlight their context and significance.

7-III.3.1.1 Chapter I (Articles 1 to 3) — Terminology and technical characteristics

The three Articles in this chapter contain fundamental material addressing terminology and technical conditions relating to all of the radio services. The chapter defines the interpretations to be placed on the terms and definitions used later in the Regulations to prescribe allocations and their conditions of use. It is designed as follows:

- Article 1 contains terms and definitions;
- Article 2 deals with nomenclature; and
- Article 3 focuses on the technical characteristics of stations.

7-III.3.1.2 Article 1 — Terms and definitions

The terms and definitions of importance to aeronautical services are in Attachment A to this handbook. The following should be noted:

- a) the hierarchical structure of radio services (see Figure 3-3) which is repeated in the definitions for stations;
- b) the carefully worded definition for radionavigation, in particular the reference to “obstruction warning”. The latter is interpretable to apply to primary and secondary radar used for air traffic purposes, airborne weather radar, radio altimeters, ground proximity warning systems, etc., since they support the safe navigation of aircraft;
- c) the definition for a safety service (RR 1.59) noting that a service can temporarily become such during periods when the communications fulfil the criteria of safeguarding of human life and property. All air traffic communications and radionavigation used in civil aviation fall under this classification;
- d) the various definitions relating to interference (RR 1.166 to RR 1.169) noting that interference is only “harmful” when it is serious or where it endangers the functioning of a radionavigation service or other safety service;
- e) the definition of public correspondence (RR 1.116) which is based on the concept of availability to the public of the service of transmission. This definition also appears in the ITU Convention. Air traffic communications do not fall within the classification of public correspondence;

- f) the definition of an administration (RR 1.2) which is broad in scope covering any national entity in which the responsibility for discharging ITU obligations is vested. This definition is notable for its imprecision which constantly leads to problems in interpretation; and
- g) the highly important definitions for allocation, allotment and assignment at RR 1.16, RR 1.17 and RR 1.18, together with the Table at RR 5.1 reproduced below:

<i>Term</i>	<i>Frequency distribution to</i>
Allocation	Service
Allotment	Area
Assignment	Station

The first two, “allocation” and “allotment”, are for determination by an ITU conference. Article 5 contains the agreed allocations for the total spectrum. The concept of allotment is only applied in a few instances by ITU, of which Appendix 27, the HF Allotment Plan for the aeronautical mobile (R) service, is a notable example. The third, “assignment”, is a matter for national administrations and results in the issue of a licence to an operator to authorize the operation or reception of a radio station.

7-III.3.1.3 Service merging

The subject of service merging was proposed by the Voluntary Group of Experts (VGE) in the early nineties (Recommendation 1/7) as a flexible means of allocation in some circumstances. The ICAO position, which was developed at the Special COM/OPS/95, in regard to general application of service merging and in the specific case of mobile-satellite service (*Report of the Special Communications/Operations Divisional Meeting (1995)* (Doc 9650), pages 7B-7 and 7B-22) states:

General statement

“3.2.7.2 ICAO position

- a) The merging of all MOBILE and MOBILE-SATELLITE services under a generic title is not acceptable. The aeronautical allocations must be exclusive to satisfy stringent safety, integrity, availability and capacity

requirements. The AM(R)S and AMS(R)S are services with a high content of safety of life, whereas the other two (maritime and land mobile) are primarily for public correspondence (see also section 6); and

- b) RADIO NAVIGATION cannot be merged with RADIO LOCATION under the service designation of RADIO DETERMINATION. RADIO NAVIGATION is a safety service, and as such requires special measures for protection against harmful interference, as indicated in RR 953. Such merging of (aeronautical) radio navigation may result in the loss of it being recognized as a safety service and the loss of its special status in regard to interference. Furthermore, aeronautical radio navigation allocations must be exclusive for the same reasons as for the AM(R)S and AMS(R)S.”

Generic mobile satellite allocation

“6.4 ICAO position

6.4.1 At this point in time the envelope and content of any proposal for a generic mobile-satellite allocation and its associated safety service protection mechanism are not of sufficient maturity for general international application. Many difficulties may be predicted such as the availability of sufficient frequencies for services with longer evolution timescales and plans, the problems of establishing levels and regulating interference in a multi-provider, multi-national environment, and in cross border coordination and control. The intangible benefit of greater flexibility of allocation has not been sufficiently demonstrated to aviation to permit departure from its present manageable, highly controlled and predictable situation, in the AMS(R)S allocations.

6.4.2 The recommendation which flows from the above analysis and other secondary considerations is that aviation services should not, with the present lack of clarity, accept the re-designation of the present AMS(R)S bands to the generic allocation of MSS or any form of dynamic simultaneous operation with other mobile-satellite services. Further study of technical, operational and regulatory aspects is necessary before different approaches can be considered to be acceptable without compromising safety and regularity of flight.”

The ITU Recommendation 34 (WRC-95) also puts forward the idea to allocate frequency bands to the most broadly defined services for consideration by administrations (*Recommends 1*) and calls on ITU-R, in conjunction with ICAO and IMO, to undertake studies of the possibilities (*Recommends Administrations 2*). Later conferences, in particular WRC-97 and WRC-2000, renewed the task of studies on this important subject.

7-III.3.1.4 WRC-97 and WRC-2000

Based on proposals from administrations from Europe (CEPT) and the Asia-Pacific area (APT), WRC-97 agreed to convert all spectrum in the bands 1 525–1 559 MHz and 1 626.5–1 660.5 MHz into an allocation to the mobile-satellite service. These bands are now available, primarily on a first-come, first-served basis, to all space system providers and service operators, and with services available to all mobile users, land, sea or air, as commercially practicable. The sub-bands 1 545–1 555 MHz and 1 646.5–1 656.5 MHz were originally allocated to the AMS(R)S on an exclusive basis and were the key elements of the CNS/ATM system in relation to the implementation of long-distance communications for voice and data. The strong reservations of international civil aviation were not sufficient to stop this conversion process for the AMS(R)S allocations at 1 545–1 555 MHz and 1 646.5–1 656.5 MHz, and a new Footnote 5.357A was agreed which was intended to preserve a measure of assurance that sufficient frequencies for AMS(R)S needs would be available, as well as the requirement for a dynamic priority for ATC messages in a common system. In addition, Resolution 218 (WRC-97) requested ITU-R to study the feasibility of prioritization, real-time pre-emptive access and, if necessary, the interoperability between the mobile services. A report was made to WRC-2000. Responding to strong aviation pressures, WRC-2000 amended Footnote 5.357A with a link to Resolution 222 to provide better assurance that the expanding needs of the AMS(R)S will be met in the future, if necessary by the release of frequencies from other mobile-satellite services.

This situation of generic allocations to the mobile-satellite services could have profound adverse effects on the provision and operation of satellite communications for ATC purposes in the years ahead. Apart from the practicability of non-aeronautical satellite systems to give priority to ATC satellite communications in a multi-user service, it is by no means certain whether aviation's growing needs for interference-free communications satisfying the integrity, reliability and availability requirements developed by the ACP and incorporated in Annex 10 can be met in the long term. Controlled evaluations and operational trials, with the results discussed in both ICAO and ITU-R, are necessary prerequisites to providing the short-term guarantees that are necessary. The aspect of long-term availability of sufficient frequencies is a more difficult question, which will call for new and corroborated estimates of future demand for ATC and AOC and an assessment of the available spectrum, taking into account the predicted total mobile-satellite situation at some point in the future. Aeronautical public correspondence (AAC and APC) would have access to the full mobile-satellite allocation available.

It is not probable that the allocation to the generic mobile service, as agreed at WRC-97, can be easily changed into an exclusive aeronautical allocation, and the likelihood is that all of the spectrum in the generic mobile-satellite frequency band

(33 MHz in each direction) will be rapidly implemented and shared between many non-aeronautical space system providers. A new strategy for the future is a priority subject for discussion, as is the careful monitoring and study of the practical situation as it unfolds.

7-III.3.1.5 Articles 2 and 3

Article 2: Nomenclature

This Article defines the convention for the description of frequency bands and other associated information.

Article 3: Technical characteristics of stations

This Article contains important guidelines which have to be observed in the engineering and design of radio stations. Of particular interest to aviation is RR 3.3 which places an obligation on services to take account of the services in adjacent bands. The full text of this Regulation is:

3.3 Transmitting and receiving equipment intended to be used in a given part of the frequency spectrum should be designed to take into account the technical characteristics of transmitting and receiving equipment likely to be employed in neighbouring and other parts of the spectrum, provided that all technically and economically justifiable measures have been taken to reduce the level of unwanted emissions from the latter transmitting equipment and to reduce the susceptibility to interference of the latter receiving equipment.

Aircraft receiving equipment is vulnerable to interference over a large geographic area and the requirement placed on transmitters in this Regulation is a beneficial statement of good practice. Conversely, aircraft receivers should be designed with good interference rejection characteristics as a prior condition of seeking emission control from other radio services. Radio Regulation 3.13 has a similar message which qualifies RR 3.3 and introduces a proximity condition implying that very close operation is a special case.