



**Recommendation ITU-R M.2085-0**  
(09/2015)

**Technical conditions for the use of wireless  
avionics intra-communication systems  
operating in the aeronautical mobile (R)  
service in the frequency band  
4 200-4 400 MHz**

**M Series**  
**Mobile, radiodetermination, amateur  
and related satellite services**

## Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

## Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Annex 1 of Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

### Series of ITU-R Recommendations

(Also available online at <http://www.itu.int/publ/R-REC/en>)

Series	Title
<b>BO</b>	Satellite delivery
<b>BR</b>	Recording for production, archival and play-out; film for television
<b>BS</b>	Broadcasting service (sound)
<b>BT</b>	Broadcasting service (television)
<b>F</b>	Fixed service
<b>M</b>	<b>Mobile, radiodetermination, amateur and related satellite services</b>
<b>P</b>	Radiowave propagation
<b>RA</b>	Radio astronomy
<b>RS</b>	Remote sensing systems
<b>S</b>	Fixed-satellite service
<b>SA</b>	Space applications and meteorology
<b>SF</b>	Frequency sharing and coordination between fixed-satellite and fixed service systems
<b>SM</b>	Spectrum management
<b>SNG</b>	Satellite news gathering
<b>TF</b>	Time signals and frequency standards emissions
<b>V</b>	Vocabulary and related subjects

*Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.*

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RECOMMENDATION ITU-R M.2085-0<sup>1</sup>**Technical conditions for the use of wireless avionics intra-communication systems operating in the aeronautical mobile (R) service in the frequency band 4 200-4 400 MHz**

(2015)

**Scope**

This Recommendation provides technical conditions for the use of the aeronautical mobile (R) service reserved exclusively for wireless avionics intra-communication (WAIC) systems in the frequency band 4 200-4 400 MHz.

**Keywords**

Aeronautical, radionavigation

**Abbreviations/Glossary**

WAIC      Wireless avionics intra-communication

The ITU Radiocommunication Assembly,

*considering*

- a) that the frequency band 4 200-4 400 MHz is also allocated to the aeronautical radionavigation service on a primary basis, reserved exclusively for radio altimeters installed on board aircraft;
- b) that Recommendation ITU-R M.2067-0 provides technical characteristics and protection criteria for wireless avionics intra-communication (WAIC) systems which indicates that only one outside WAIC system transmitter is active in the same frequency range at the same time on a single aircraft;
- c) that Recommendation ITU-R M.2059-0 provides operational and technical characteristics and protection criteria of radio altimeters;
- d) that WAIC systems are operated in a manner that ensures the safe operation of radio altimeters;
- e) that Report ITU-R M.2283 provides descriptions and spectrum requirements of WAIC systems;
- f) that WAIC systems operating inside an aircraft receive the benefits of fuselage attenuation to facilitate sharing with other services;
- g) that WAIC systems operate during all phases of flight, including on the ground,

*recognizing*

- a) that Annex 10 to the Convention on International Civil Aviation contains standards and recommended practices for aeronautical radionavigation and radiocommunication systems used by international civil aviation;

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<sup>1</sup> The Director of the Radiocommunication Bureau is requested to bring this Recommendation to the attention of the International Civil Aviation Organization (ICAO).

b) that compatibility studies in the frequency band 4 200-4 400 MHz between WAIC systems and systems identified in *considering a)* are contained in Report ITU-R M.2319,

*recommends*

that, in order to protect radio altimeters, the maximum equivalent isotropically radiated power density generated by outside WAIC systems of a single aircraft, as referenced in *considering b)*, should not exceed:

- 5 dBm/MHz for systems using high data rate; and
  - 6 dBm/MHz where both high and low data rates are used.
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