

**ADD EUR/XXXXA24/5**

**DRAFT NEW RESOLUTION [EUR-C10-3] (WRC-19)**

**Studies on frequency-related matters, including possible additional allocations, for the possible introduction of new non-safety aeronautical mobile applications**

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

*considering*

- a) that the number of manned and unmanned aircraft equipped with sensors has grown significantly in the past 20 years;
- b) that the need for bidirectional low to high data rate communications between aeronautical stations and aircraft stations, or between aircraft stations is consequently increasing;
- c) that the considered communication data links implement channel bandwidths from some kHz up to some hundreds of MHz requiring to study frequencies in the VHF range up to 23 GHz;
- d) that these new aeronautical communications are not related to safety of flights;
- e) that there is no clear identification of those frequency bands in which these new aeronautical communication systems may be developed with a sufficient level of confidence for long term investment by industry;
- f) that the decisions of previous conferences have introduced some restrictions to the use and have imposed constraints on the development of these communication systems within several existing mobile allocations traditionally used by the aeronautical mobile applications;
- g) that the existing mobile allocations which can be used by these communication systems have some limitations due to coexistence with other services in the band;
- h) that in Region 1, there are allocations to the mobile except aeronautical mobile service in some frequency bands which are allocated to the mobile service in Regions 2 and 3;
- i) that harmonized worldwide allocation would facilitate the implementation of these new aeronautical communication systems;
- j) the only frequency ranges beyond 400 MHz, worldwide identified for aeronautical mobile applications other than those with the mobile allocation, those en route (R) or for telemetry are beyond 55 GHz as per No. **5.558**;
- k) that an adaptation of the regulatory framework for further visibility, protection and development of non-safety aeronautical mobile applications may be required,

*recognizing*

- a) that the use innovative sharing methods may be considered to ensure the protection of existing services while offering the possibility to have access to new frequency bands;
- b) that the implementation of tuning ranges may allow granting authorization depending on national circumstances and spectrum policies;
- c) that the use of frequencies of Appendix **18** to the Radio Regulation for the maritime VHF communication shall be protected;

d) that new allocations for the aeronautical mobile service in the frequency range 144-174 MHz would extend the existing usage in the frequency band 138-144 MHz and would ensure the possibility to develop systems operating on a wider tuning range providing that the protection of the incumbent services is ensured,

*noting*

a) that the frequency band 144-146 MHz is allocated to the amateur and amateur-satellite on a primary basis in all Regions;

b) that the frequency band 5 000-5 010 MHz is allocated to the radionavigation satellite service (Earth-to-space) on a primary basis;

c) that the frequency band 15.4-15.7 GHz is allocated to the radiolocation, aeronautical radionavigation and, part of, to the fixed-satellite (Earth-to-space) service on a primary basis;

d) that the frequency band 5 000-5 010 MHz is adjacent to the frequency band 5 010-5 030 MHz which is allocated to the radionavigation-satellite (space-to-Earth) (space-to-space) service on a primary basis;

e) that the frequency bands 162.0375-174 MHz, 862-874 MHz and 22-22.21 GHz are allocated on a primary basis to the mobile except aeronautical mobile service;

f) that footnotes **5.312** and **5.323** allocate the 645-960 MHz frequency band or parts thereof to the aeronautical radionavigation service on a primary basis in several countries of Region 1;

g) that the frequency bands 5 000-5 010 MHz, 15.4-15.7 GHz and 144-146 MHz are adjacent respectively to the frequency band 4 990-5 000 MHz, 15.35-15.4 GHz and 150.05-153 MHz which are allocated to the radioastronomy service on a primary basis;

h) that the frequency band 22.01-22.21 GHz is covered by No. **5.149**,

*resolves to invite ITU-R*

1 to study spectrum needs for new non-safety aeronautical mobile applications for air to air, ground to air and air to ground communications of manned and unmanned aircraft systems;

2 to study the frequency bands 162.0375-174 MHz, 862-874 MHz and 22-22.21 GHz already allocated on a primary basis to the mobile except aeronautical mobile service, in order to evaluate the possible revision or deletion of the “except aeronautical mobile” restriction;

3 to study possible new allocations to the aeronautical mobile service in the frequency bands 144-146 MHz, 5 000-5 010 MHz and 15.4-15.7 GHz, while ensuring the continued operation and the protection of existing services in the considered frequency bands and, as appropriate, adjacent frequency bands, and not constraining future development of these services;

4 to review studies in *resolves to invite ITU-R* 1 to 3 and elaborate regulatory measures for the possible introduction of new non-safety aeronautical mobile applications;

5 to complete studies in time for WRC-23,

*invites the 2023 World Radiocommunication Conference*

to review the results of these studies and take appropriate actions,

*invites administrations*

to participate actively in the studies by submitting contributions to ITU-R.

## **Proposals on an agenda item for WRC-23**

**Subject: Studies on frequency-related matters, including possible additional allocations, for the possible introduction of new non-safety aeronautical mobile applications**

**Origin: CEPT**

---

***Proposal:***

In accordance with Resolution [EUR-C10-3] (WRC-19), to review studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for the possible introduction of new non-safety aeronautical mobile applications.

- Spectrum needs for new non-safety aeronautical mobile applications for air to air, ground to air and air to ground communications of manned and unmanned aircraft systems.
  - Studies within the frequency bands already allocated on a primary basis to the mobile except aeronautical mobile service above 146 MHz and up to 23 GHz in order to evaluate the possible revision or deletion of the “except aeronautical mobile” restriction. The following frequency bands are proposed to be studied: 162.0375-174 MHz, 862-874 MHz and 22-22.21 GHz.
  - Study possible new allocations to the aeronautical mobile service in the frequency bands 144-146 MHz, 5000-5010 MHz and 15.4-15.7 GHz, while ensuring the continued operations and the protection of existing services in those frequency bands and, as appropriate, adjacent frequency bands, and not constraining future development of these services.
-

---

***Background/reason:***

The number of manned and unmanned aircraft equipped with sensors has grown significantly in the past 20 years together with the need of bidirectional low to high data rate communications.

One can mention the following applications: fire surveillance, border surveillance, air quality and environment monitoring, traffic monitoring, disaster monitoring, terrain modelling, imagery (visible, infrared, radar, meteo), video monitoring. Such applications require communications identification, sensor control or synchronization and for access to ground databases.

Consequently the need of non-safety data communications between various types of aeronautical platforms exponentially increases.

At the same time, there is no clear identification of those frequency bands in which non-safety aeronautical mobile applications may be developed with a sufficient level of confidence for long term use by the industry. In addition, the existing mobile allocations which can be used for non-safety aeronautical mobile applications have some limitations due to coexistence with other services in the frequency band. Furthermore the decisions of previous Conferences have introduced some restrictions to the use and have imposed constraints on the development of wideband aeronautical mobile applications within some existing mobile allocations traditionally used by the aeronautical mobile applications.

In consequence an adaptation of the regulatory framework for further visibility, protection and development of wideband non-safety aeronautical mobile applications is required. Use of innovative sharing methods may be considered to ensure the protection of existing services while offering the possibility to have access to new frequency bands. The sharing methods could consider, for example, to take into account the separation linked to the altitude of the aircraft or power control. In addition, the access may be supported by effective tuning ranges and may be authorized depending on national circumstances and spectrum policies.

Several frequency bands are proposed for investigation within different ranges in order to meet the various operational requirements for new non-safety aeronautical mobile applications. Implementation of separation distances for such aeronautical systems or pfd limits or others regulatory measures may be envisaged.

---

***Radiocommunication services concerned:***

Mobile service and aeronautical mobile service

---

***Indication of possible difficulties:***

Protection of existing services within the frequency bands and adjacent frequency bands allocated to the mobile except aeronautical mobile service.

Protection of existing services within the frequency bands and adjacent frequency bands proposed for a new allocation to the aeronautical mobile service.

---

***Previous/ongoing studies on the issue:***

No recent studies for aeronautical mobile applications, other than those for related to safety.

---

<b><i>Studies to be carried out by:</i></b>	<b><i>with the participation of:</i></b>
ITU-R WP 5B	

---

***ITU-R Study Groups concerned:***

SG 4, 5, 6 and 7

---

---

***ITU resource implications, including financial implications (refer to CV126):***

This proposed agenda item will be studied within the normal ITU-R procedures and planned budget.

---

***Common regional proposal:*** Yes

***Multicountry proposal:*** No

***Number of countries:***

---

***Remarks***