

## ANNEX 2 TO RESOLUTION 804 (REV.WRC-12)

### Template for the submission of proposals for agenda items

**Subject:**

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

**Origin:** France

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***Proposal:***

In accordance with Resolution [NEW AMS APPLICATIONS] (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 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” restriction. The following bands are proposed to be studied : 162,0375-174,000 MHz, 862-874 MHz, 8400-8500 MHz and 22-22.21 GHz.
  - Study possible new allocations to the aeronautical mobile service on a primary basis in the following bands: 144-146 MHz, 5000-5010 MHz and 15.4-15.7 GHz, while ensuring the protection of existing services in those bands and, as appropriate, adjacent bands, and not constraining future development of these services.
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***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 for flight coordination and 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 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 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, like those mentioned in working document<sup>1</sup> ITU-R SM.[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 aircrafts 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.

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<sup>1</sup>[https://www.itu.int/dms\\_ties/itu-r/md/15/wp1a/c/R15-WP1A-C-0144!N22!MSW-E.docx](https://www.itu.int/dms_ties/itu-r/md/15/wp1a/c/R15-WP1A-C-0144!N22!MSW-E.docx)

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***Radiocommunication services concerned: MS and AMS***

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***Indication of possible difficulties:***

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

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

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***Previous/ongoing studies on the issue:*** no recent studies for aeronautical mobile applications, other than those for related to safety.

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***Studies to be carried out by: ITU-R WP5B***

***with the participation of:***

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***ITU-R Study Groups concerned: SG-5 and SG-4, SG-6, SG-7***

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***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.**

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***Common regional proposal: Yes/No***

***Multicountry proposal: Yes/No***

***Number of countries:***

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***Remarks***

See section 3.2.1.2 in the draft CEPT Brief.

## DRAFT NEW RESOLUTION [NEW AMS APPLICATIONS] (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-Sheik Egypt, 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, including those relating to flight coordination, 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 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 in Region 1, there are only few primary mobile allocations beyond 146 MHz, other than aeronautical mobile en route (R), in which the aeronautical mobile service is considered;
- h) 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;
- i) 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;
- j) that a global allocation in the three regions of the ITU for these new aeronautical communication systems is expected;
- k) 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 N° 5.558;
- l) 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 during the 2016-2018 period, WP1A of the ITU-R has conducted studies on methods for sharing between radiocommunication services;
- b) that the use of such innovative sharing methods may be considered to ensure the protection of existing services while offering the possibility to have access to new frequency bands;
- c) that the implementation of tuning ranges may allow granting authorization depending on national circumstances and spectrum policies;
- d) that the use of frequencies of Appendix 18 to the Radio Regulation for the maritime VHF communication shall be protected;

e) that new allocations for the aeronautical mobile service in the range 144-174 MHz would extend existing the allocation in 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 band 144-146 MHz is allocated to the Amateur and Amateur-Satellite on a primary basis in all Regions and may be considered for possible new allocations to the aeronautical mobile service on a primary basis;

b) that the bands 5000-5010 MHz and 15.4-15.7 GHz may be considered for possible new allocations to the aeronautical mobile service on a primary basis;

c) that the band 5000-5010 MHz is allocated to the RadioNavigation Satellite Service (earth to space) on a primary basis;

d) that the band 5000-5010 MHz is adjacent to the band 5010-5030 MHz which is allocated to the RadioNavigation Satellite Service (space to earth) (space to space) on a primary basis;

e) that the bands 162,0375-174,000 MHz, 862-874 MHz, 8400-8500 MHz and 22-22.21 GHz, that are allocated on a primary basis to the mobile except aeronautical mobile service, may be considered for possible revision or deletion of the “except aeronautical” restriction;

f) that the bands 5000-5010 MHz, 15.4-15.7 GHz and 144-146 MHz are adjacent respectively to the band 4990-5000 MHz, 15.35-15.4 GHz and 150.05-153 MHz which are allocated to the Radioastronomy service on a primary basis;

g) that the band 22.01-22.21 GHz is covered by the note RR 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 some bands already allocated on a primary basis to the mobile except aeronautical mobile service, as listed in the noting e, in order to evaluate the possible revision or deletion of the “except aeronautical” restriction;

3 to study possible new allocations to the aeronautical mobile service, for those bands listed in the noting a and b, while ensuring the protection of existing services in the considered bands and, as appropriate, adjacent bands, and not constraining future development of these services;

4 to review studies in resolve 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,

*further resolves to invite WRC-23*

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.