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WORKING PAPER

ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 30 Aviation Safety and Air Navigation Policy
30.3 Relevant Outcomes of the High-level Conference on COVID-19, Safety Stream (HLCC 2021)

COLOMBIAN CIVIL AVIATION AUTHORITY'S ENDORSEMENT OF THE ICAO POSITION ON RELATED MATTERS TO BE CONSIDERED AT THE WORLD RADIOCOMMUNICATION CONFERENCE (2023) (WRC-23) OF THE INTERNATIONAL TELECOMMUNICATION UNION (ITU)

(Presented by Colombia and supported by Argentina, Bolivia, Brazil, Chile, Dominican Republic, Ecuador, Guyana, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of))

This working paper sets out for consideration by the Assembly the endorsement by the Civil Aviation Authority of Colombia, as the State in conjunction with national radio-frequency management bodies, of the ICAO Position on crucially important issues in radio-frequency spectrum use and management matters and their direct effect on safety and air navigation, which are on the agenda of the World Radiocommunication Conference (2023) (WRC-23) of the International Telecommunication Union (ITU).

Action: The Assembly is invited to:

a) suggest that SAM Region States initiate, in conjunction with their national spectrum authorities, the evaluation of the proposal to protect the radio frequency spectrum allocated to the aeronautical service, as set out in the Endorsement of the ICAO Position, so that the Inter-American Telecommunication Commission (CITEL) or ITU-R regional meetings may, through representatives of their civil aviation administration and aviation specialists on their national delegations, participate as much as possible in ITU-R regional activities; and

b) propose that SAM Region States endorse the ICAO Position, as stated in the Appendix, at ITU WRC-23 in order to ensure that world aviation aeronautical systems or services do not suffer any unintended consequences.

Strategic Objectives:	This working paper relates to the *Safety and Air Navigation Capacity and Efficiency* Strategic Objectives.
Financial implications:	No additional resources required.

[1] Spanish version provided by Colombia.

References:	Annex 10 — *Aeronautical Telecommunications*, Volume II *Communication Procedures including those with PANS status* and Volume V — *Aeronautical Radio Frequency Spectrum Utilization* *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation*, Volume I Doc 9718, *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* RAC 210, *Aeronautical Regulations of Colombia*

1. INTRODUCTION

1.1 The radio spectrum is a finite natural resource encompassing all electromagnetic waves with a frequency fixed conventionally below 3000 GHz. It is owned exclusively by States and is thus inalienable and indefeasible public property that it behoves each nation to manage, administer, supervise and control. It is internationally recognized that aeronautical radio services are the main users of radio frequencies, without which aircraft operations could not meet world demand for safe, efficient and profitable transport. In the Colombian State, pursuant to Law 1341 of 2009 instituting principles and concepts for the information society and the organization of information and communication technologies (ITCs), the Ministry of Information and Communication Technology has established the National Spectrum Agency, and radio-frequency spectrum management, planning, allocation and supervision in Colombia are effected within the National Frequency Allocation Framework, thus enabling the country's various radio communication services to operate in frequency bands previously set for each one individually, the goal now being to ensure their operativity, minimize the probability of objectionable interference and permit the coexistence of telecommunication services within the same frequency band, if need be. Colombia's Civil Aviation Authority has participated actively in several regional radio-frequency spectrum workshops held by ICAO, in particular in 2021, and has shared information on the protection of the radio frequency spectrum for air navigation services with the above-mentioned national agencies in panel discussions on the possibility of spectrum delivery in the 5G frequency band.

2. ANALYSIS

2.1 With regard to the location within the spectrum of CNS aeronautical services used by the civil aviation sector, which are distributed in the frequency spectrum of bands LF 5, MF 6, HF 7, VHF 8, UHF 9, SHF 10 and EHF 11, the fixed satellite service which can include feeder links to other space radiocommunication services is outstanding, while special attention is drawn to down link bands, the aeronautical mobile service between aeronautical stations and aircraft stations, mainly in bands adjacent to the onboard radio altimeter band, or between aircraft stations which may include ship stations or rescue devices such as emergency position indicating radio beacons that operate on designated distress or emergency frequencies, aeronautical mobile service reserved for aeronautical communications on flight safety and regularity, primarily on national or international civil aviation routes, and the aeronautical mobile-satellite service in which mobile earth stations are located on board aircraft.

2.2 The main threats to aviation, should ICAO's spectrum goals not be met satisfactorily, include the likelihood of hazardous interference with radionavigation systems and vital aeronautical radiocommunications. This could have many consequences and could directly and seriously affect the safety and efficiency of flight operations. Long-term planning and commitment are required if future aviation frequency spectrum needs are to be met. In order to respond proactively to growing pressure from other sectors that rely on the frequency spectrum, it is indispensable for authorities in charge of aviation regulation and the aeronautical industry to participate actively in national and international

WRC-23 preparatory bodies. The purpose of the ICAO Position is to protect the aeronautical spectrum for all radiocommunication and radionavigation systems that use facilities on land and aboard aircraft.

3. CONCLUSION

3.1 The main threats to aviation, should ICAO's spectrum goals not be met satisfactorily include the likelihood of hazardous interference with radionavigation systems and vital aeronautical radiocommunications. This could have serious consequences for the safety and efficiency of flight operations.

3.2 Long-term planning and commitment are required if future aviation frequency spectrum needs are to be met. In order to respond proactively to growing pressure from other sectors that rely on the frequency spectrum, it is indispensable, for the reasons given above, to roll out a regional collaboration initiative to enable a strategic group of State experts in conjunction with States' radio-frequency spectrum management authorities, air navigation authorities, service providers tasked with aviation, and the aeronautical industry to participate actively in national and international WRC-23 preparatory bodies.

3.3 Technical tests should be conducted jointly with the industry in the telecommunication sector in various SAM Region States, primarily in the vicinity of aeronautical stations and airports, to prevent and mitigate possible adverse effects, and the "guard band" of the new generations of the latest 5G mobile telephony stations should be introduced to protect the requirements of the aviation industry.

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APPENDIX

Regulatory provisions to facilitate radiocommunications for sub-orbital vehicles (agenda item 1.6)

- New allocation to the aeronautical mobile-satellite (R) service (AMS(R)S) of aeronautical VHF communications in the frequency band 117.975–137 MHz, while preventing any undue constraints on existing metric wave systems operating in this band (agenda item 1.7).

- Appropriate regulatory action with a view to reviewing and, if necessary, revising Resolution 155 to allow RPAS C2 links to use fixed satellite service (FSS) networks (agenda item 1.8).

- Review of Appendix 27 to the Radiocommunication Regulations and consideration of appropriate regulatory measures in order to accommodate digital technologies for aviation safety-of-life applications in existing aeronautical HF bands (agenda item 1.9).

- Studies on spectrum needs and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications (agenda item 1.10).

- Review of difficulties or inconsistencies encountered in the application of the Radiocommunication Regulations (agenda item 9.2).

- Possible measures for the protection of stations of the aeronautical and maritime mobile services in 4 800–4 990 MHz located in international waters and airspace from other stations located within national territories (agenda item 1.1).

- Identification of the frequency bands 3 300–3 400 MHz, 3 600–3 800 MHz, 6 425–7 025 MHz, 7 025–7 125 MHz and 10.0–10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis (agenda item 1.2).

- Primary mobile service allocation of the frequency band 3 600–3 800 MHz to the mobile service in IUT Region 1 (agenda item 1.3).

- Use of high-altitude platform stations as IMT base stations in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT at the global or regional level (agenda item 1.4).

- Possible regulatory measures to facilitate the modernization of the Global Maritime Distress and Safety System (GMDSS) and the implementation of e-navigation (agenda item 1.11).

- Possible upgrade to primary status of the allocation for the frequency band 14.8–15.35 GHz to the space research service (agenda item 1.13).

- Harmonization of the use of the frequency band 12.75–13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed satellite service (agenda item 1.15).

- Technical, operational and regulatory measures to facilitate the use of the frequency bands 17.7–18.6 GHz, 18.8–19.3 GHz and 19.7–20.2 GHz (space-to-Earth) and 27.5–29.1 GHz and 29.5–30 GHz (Earth-to-space) by non-geostationary earth stations in motion in the fixed satellite service, while ensuring due protection of existing services in those frequency bands (agenda item 1.16).

- Appropriate regulatory measures for the establishment of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation, where appropriate (agenda item 1.17).

- Review of the Resolutions and Recommendations of past WRCs with a view to their possible revision, replacement or abrogation (agenda item 4).

- Review of the amateur service and the amateur-satellite service allocations in the frequency bands 1 240–1 300 MHz to determine whether additional measures are required to ensure protection of the radionavigation-satellite (space-to-Earth) service operating in the same band (agenda item 9.1b).

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