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Directors of Civil Aviation (NACC/DCA/14)
St. George's, Antigua and Barbuda, 1 to 5 June 2026**

Agenda Item 6: Seamless and Interoperable Air Navigation Services (ANS) that are Fit for the Future

SAFEGUARDING AVIATION RADIO FREQUENCY SPECTRUM FOR GLOBAL SAFETY

(Presented by International Coordinating Council of Aerospace Industries Associations -ICCAIA)

EXECUTIVE SUMMARY

The demand for radio frequency spectrum has grown dramatically in recent decades, driven by expansion across satellite, cellular, space, and other industries. This intensifying competition is placing increasing pressure on aviation safety bands that are critical to safe and reliable operations. At the 2027 World Radiocommunication Conference (WRC-27), where aviation is one of many competing stakeholders, key decisions will shape the future of these bands. It is essential to safeguard and protect aviation safety spectrum and ensure its use remains globally harmonized. This requires a strong, unified aviation position, both in the lead up to and during the WRC-27, to effectively advocate for the spectrum that underpins aviation safety.

Action:	Under Agenda Item 4.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Every Flight is Safe and Secure• Aviation is Environmentally Sustainable• The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All
<i>References:</i>	<ul style="list-style-type: none">• Resolution A42-7: Support of the ICAO policy on radio frequency matters• ICAO SL E 3/5-25/65 – ICAO Position for the International Telecommunication Union (ITU) World Radiocommunication Conference (2027)• Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc 9718)

1. Introduction

1.1 Civil aviation has witnessed significant growth in recent decades, and this trend is expected to amplify in the coming years. In the next two decades, civil aviation traffic is expected to double in size globally. Every day, nearly one hundred thousand flights take off and land safely around the world. Aviation connects people, economies, and cultures and remains the safest form of public transportation. This exceptional level of safety is not accidental. It comes from a globally coordinated safety system that has been built over decades. A key part of that system is the aviation Communication, Navigation and Surveillance (CNS) systems infrastructure that every aircraft depends on, and all these systems rely on one thing: access to safe, interference-free radio frequency spectrum. In essence, radio frequency spectrum is the central nervous system of our aviation system.

1.2 Internationally, the allocation of frequency spectrum to different services is a function of the International Telecommunication Union (ITU). ITU organizes World Radiocommunications Conferences (WRCs) every four years and addresses major frequency spectrum allocation issues. The next WRC, WRC-27, will be held in Shanghai in November 2027, and will have a very busy conference, with multiple agenda items, many of which have the potential to impact aeronautical safety services. It is vitally important to recognize that the process of allocating frequencies does not belong to the civil aviation sector. During a WRC, decisions concerning the allocation of frequencies are made by national radio regulatory authorities and since the scope of ITU is not limited to aviation, the heads of delegations are not from the aviation sector. However, representatives from civil aviation authorities and industry can form part of a national delegation.

1.3 It is important to recall why spectrum issues are so critical to aviation safety. Recent Global Navigation Satellite System (GNSS) interference events clearly demonstrate that radio interference presents a serious threat to aircraft operations. To cite another example, during January 19, 2022, multiple international airlines cancelled flights to the United States due to concerns that 5G deployments near airports could interfere with radio altimeters operating in the 4.2–4.4 GHz band. Despite these existing safety concerns, one of the agenda items during WRC-27 addresses the potential future use of the 4.4–4.8 GHz band for International Mobile Telecommunications (IMT)/5G. This band sits directly above the 4.2–4.4 GHz radio altimeter band, a safety-critical system used for approach and landing, terrain awareness, auto-flight functions, and more. These real-world events illustrate why it is important not only to protect allocations of existing radio frequency spectrum, but also to ensure adjacent-band compatibility.

2. Discussion

2.1 The demand for radio frequency spectrum has changed substantially over the past few decades. The global demand is rapidly growing across many sectors, and this is placing increasing pressure on aviation safety bands. While the demand comes from many industries, mobile cellular services present the most immediate risk to aviation. However, the core issue is a structural imbalance in which fast-moving, well-funded technologies and their growing demand for spectrum outpace the safeguards and timelines required to protect aviation safety systems.

2.2 Aviation safety systems require long development, testing, and certification cycles measured in decades. Our systems operate with near-zero tolerance for interference. Even low-probability disruptions can have serious safety implications. Moreover, aviation changes must be globally harmonized, backward compatible and thoroughly certified. This limits aviation's ability to respond quickly to external spectrum changes. Conversely, telecom systems are not designed to the same safety-critical standards. Mobile cellular technologies are deployed on rapid, commercially driven timelines. This mismatch creates ongoing risk to stable, predictable spectrum used for aviation.

2.3 There are other mismatches between the aviation sector and other industries. The mobile industries have spent billions of dollars for frequency spectrum, and considerable resources in lobbying. In turn, this places considerable pressure on regulators to enable rapid deployment of these technologies. These pressures can outpace the careful coordination aviation requires. For example, governments are under pressure to accelerate 5G rollout and prepare for 6G, maintain global competitiveness and generate revenue from spectrum allocation. In addition, Governments often are not fully informed of the consequences of quickly repurposing spectrum.

2.4 It is essential that aviation have a consistent and globally harmonized voice during the lead up to a World Radiocommunications Conference and during the Conference. This is where ICAO plays a central role. Aviation is a globally harmonized industry. During critical phases of flight, and the entire flight, the onboard CNS systems cannot be turned off, reconfigured, or restricted based on national boundaries. During the lead up to a WRC, ICAO develops an official position on each of the agenda items to be decided at the conference that impact aviation. This multi-year process is led by the ICAO Frequency Spectrum Management Panel (FSMP). The ICAO position aims to protect safety and meet the envisioned operational needs of our industry. The primary driver of the policy is the safety case, but it also includes efficiency, innovation, and sustainability cases.

2.5 While the aviation sector may not have the lobbying resources of other industries; we do have one central and fundamental argument. In all of our engagements we should emphasize the critical importance of aviation radio frequency spectrum to public and aviation safety. This point may be obvious to us, but it may not be obvious to many WRC State delegates that are not familiar with our needs and who directly participate in the decision-making process during the WRC deliberations.

2.6 ICCAIA recommends that CAA advocacy, on behalf of aviation, should begin as soon as possible at a national level. To gain a better insight into the ICAO global position, there are regular workshops and meetings conducted on a regional basis through the ICAO Regional Offices. These workshops and meetings provide an excellent opportunity for CAA staff to gain an in depth understanding of the ICAO Position for WRC-27. The ICAO position was published during 2025 in a State Letter and is available at <https://www.icao.int/sites/default/files/FSMP/065e.pdf>.

2.7 Prior to each WRC each country develops its own position taking into consideration the national needs across sectors. Ideally, the aviation sector should contribute to the formulation of those policies by participating in this process and contributing expertise on the aviation safety needs for radio frequency spectrum. Regular engagement with the appropriate departments or ministries (“radio regulatory authorities”) is important to ensure that there is a common understanding of the aviation sector’s need and, most importantly, that we form the collaborative relationships needed to carry this message forward. The 42nd Assembly of ICAO adopted a revised Assembly Resolution in 2025 that encourages “Member States to foster an environment that enables national radio regulatory authorities to work in close coordination with civil aviation authorities, thereby ensuring that aviation interests are properly reflected in national spectrum policies and State positions in preparation for and during ITU WRCs” (Assembly Resolution A42-7 refers).

2.8 It is also important that representatives from each CAA and other civil aviation stakeholders are included in national delegations to the WRC. WRCs are dynamic and there are often questions or debates that arise where subject matter expertise is needed. Expertise and insights from aviation representatives may be needed during discussions and could change the direction of decisions that affect our industry.

3. **Conclusion**

3.1 Radio frequency spectrum is the central nervous system of our aviation system. The implementation of CNS systems and the safety of international civil aviation could be seriously jeopardized unless requirements for appropriate aviation safety spectrum allocations are satisfied and the continued protection of those allocations is achieved. As competition for radio frequency spectrum intensifies it will be essential that the aviation sector has a strong voice in the decisions made during the upcoming WRC-27. The aviation sector will need to engage with this process as early as possible at a national level by contributing to the formulation of national policies and, to the extent possible, providing aviation subject matter expertise to the upcoming WRC.

4. Action by the Meeting

4.1 The Meeting is invited to:

- a) note the information outlined in this paper;
- b) encourage civil aviation authorities (CAAs) to gain an in depth understanding of the ICAO Position for WRC-27 and consider participating in upcoming ICAO Regional Workshops to that end;
- c) encourage CAAs to actively engage with their radio regulatory authorities to facilitate incorporation of aviation interests with other national interests, in preparation for and during WRC-27; and
- d) encourage CAAs to provide civil aviation experts to participate in the upcoming WRC-27.