



ICAO

# INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY



# NACC/WG/FREQ/TF/01

Online\_May 22<sup>nd</sup> 2024

---

Emmanuel Jacques

Task Force rapporteur

# Meeting Agenda

---

01

Review the results of the WRC-23

04

Review of ICAO Annex 10 Vol. VI

02

WRC-27 Agenda review

05

Update of states Points of Contact

03

Decisions and Conclusions related to Frequency management for the NACC region

06

Other Business

01  
WRC-23 in  
numbers

A total of 151 Member States signed the WRC-23 Final Acts

WRC-23 approved 43 new resolutions, revised 56 existing ones, and suppressed 33 resolutions.

Over 3,900 delegates from 163 Member States attended WRC-23, including 88 ministerial-level participants.

Women made up 22 percent of all WRC-23 delegates, an increase from 18 percent at WRC-19 in 2019.

## 01

WRC-23 and  
ICAO Position

Note 1.— WRC-23 Agenda Items **1.6, 1.7, 1.8, 1.9, 1.10 and 9.2** addressed issues where aviation was seeking action by the WRC.

Note 2.— WRC-23 Agenda Items *1.1, 1.2, 1.3, 1.4, 1.11, 1.13, 1.15, 1.16, 1.17, 4, 8, 9.1(a), and 9.1(b)* could potentially affect aviation use of spectrum and hence aviation should participate in studies to ensure there is no undue impact. As a result, they are included in this position.

# 01 WRC-23 outcomes and ICAO Position

Agenda Item	Agenda Items requiring action for WRC-23	Outcomes for WRC-23
1.6	to consider, in accordance with Resolution 772 (WRC 19), regulatory provisions to facilitate radiocommunications for sub-orbital vehicles.	This resolution was approved for deletion and a new resolution was to be proposed which should not affect the operation of satellite launchers operating in the space operation service
1.7	to consider a new aeronautical mobile-satellite (R) service (AMS(R)S) allocation in accordance with Resolution 428 (WRC 19) for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz, while preventing any undue constraints on existing VHF systems operating in the AM(R)S, the ARNS, and in adjacent frequency bands.	Allocation of new frequencies to the aviation industry for aeronautical mobile-satellite services (117.975-137 MHz). The new service will enhance bidirectional communication via geostationary satellite orbit (non-GSO) satellite systems for pilots and air traffic controllers everywhere, especially over oceanic and remote areas.

# 01

## WRC-23 outcomes and ICAO Position

1.8	to consider, on the basis of ITU R studies in accordance with Resolution 171 (WRC 19), appropriate regulatory actions, with a view to reviewing and, if necessary, revising Resolution 155 (Rev.WRC 19) and No. 5.484B to accommodate the use of fixed-satellite service (FSS) networks by control and non-payload communications of unmanned aircraft systems.	Resolution 171 (WRC-19) was agreed to be suppressed: Defer until the 2027 Conference with Parallel studies on potential AMS(R)S frequency spectrum.
1.9	to review Appendix 27 of the Radio Regulations and consider appropriate regulatory actions and updates based on ITU R studies, in order to accommodate digital technologies for commercial aviation safety-of-life applications in existing HF bands allocated to the aeronautical mobile (route) service and ensure coexistence of current HF systems alongside modernized HF systems, in accordance with Resolution 429 (WRC 19).	Resolution 429 was approved to be deleted by the WRC-23. It was proposed adjustments of the Appendix 27 of the RR to make explicit the possibility to use wideband emissions by aggregation of multiple individual channels each of which complies with the provisions of Appendix 27.

# 01 WRC-23 outcomes and ICAO Position

1.10	to conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications, in accordance with Resolution 430 (WRC 19).	Allocation of the bands 15.41-15.7 GHz and 22-22.2 GHz in Radio Regulations Region 1 and some Region 3 countries to the aeronautical mobile service for non-safety aeronautical applications. This will enable aircraft, helicopters, and drones to carry sophisticated aeronautical digital equipment for purposes such as surveillance, monitoring, mapping, and filming, and have the capacity to transfer large data from these applications using wideband radio links.
9.2	To consider and approve the report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention: on any difficulties or inconsistencies encountered in the application of the Radio Regulations.	33 resolutions were analyzed and suppressed from the Director report.



# 01

## WRC-23 Final Acts



<https://www.itu.int/pub/R-ACT-WRC.16-2024>

## 02 WRC-27 preliminary Agenda

Note 1.— There are no WRC-27 Agenda Items where aviation is seeking direct action by the WRC.

Note 2.— WRC-27 Agenda Items 1.2, 1.7, 1.9, 1.11, 1.12, 1.13, 1.15, 1.17, 1.18 and 1.19 could potentially affect aviation use of spectrum and hence aviation should participate in studies to ensure there is no undue impact.

## 02 WRC-27 preliminary Agenda

Agenda Item	Topics
1.1	<b>Aeronautical and maritime ESIM:</b> consider the use of frequency bands 47.2-50.2 GHz and 50.4-51.4 GHz (Earth-to-space).
1.2	<b>Uplink FSS earth stations with small antenna sizes:</b> consider possible revisions of sharing conditions in the band 13.75-14 GHz.
1.3	<b>Gateway earth stations:</b> consider studies relating to the use of the band 51.4-52.4 GHz to enable use by gateway earth stations transmitting to NGSO systems in the FSS (Earth-to-space).
1.4	<b>Fixed-satellite and broadcasting-satellite services:</b> consider new primary allocations in Region 3 and equivalent power flux-density limits in Regions 1 and 3.
1.5	<b>NGSO earth stations:</b> consider regulatory measures to limit unauthorized operations in the fixed-satellite and mobile satellite services.
1.6	<b>FSS satellite networks:</b> consider technical and regulatory measures for FSS satellite networks/systems.
1.7	<b>IMT:</b> consider studies on sharing and compatibility and develop technical conditions for the use of IMT in certain frequency bands.

## 02 WRC-27 preliminary Agenda

1.8	<b>Radiolocation service:</b> consider possible additional spectrum allocations to the radiolocation service on a primary basis in the frequency range 231.5-275 GHz and possible new identifications.
1.9	<b>Aeronautical mobile:</b> consider regulatory actions to update Appendix 26 to the Radio Regulations in support of aeronautical mobile (OR) high frequency modernization.
1.10	<b>PFD (Power Flux-Density) and equivalent isotropically radiated power limits:</b> consider developing for inclusion in Article 21 of the Radio Regulations for the fixed-satellite, mobile-satellite and broadcasting-satellite services.
1.11	<b>Space-to-space links:</b> consider the technical and operational issues, and regulatory provisions, for space-to-space links among non-geostationary and geostationary satellites in certain frequency bands.
1.12	<b>Future development of low-data-rate non-geostationary mobile-satellite systems:</b> consider, based on the results of studies, possible allocations to the MSS and possible regulatory actions in certain frequency bands.
1.13	<b>Connectivity between space stations and IMT:</b> consider studies on possible new allocations to the MSS for direct connectivity between space stations and IMT user equipment to complement terrestrial IMT network coverage.

## 02 WRC-27 preliminary Agenda

1.14	<b>Mobile-satellite service:</b> consider possible additional allocations to this service.
1.15	<b>Lunar communications:</b> consider studies on frequency-related matters, including possible new or modified space research service (space-to-space) allocations, for future development of communications on the lunar surface and between lunar orbit and the lunar surface.
1.16	<b>Radio astronomy:</b> consider studies on protecting radio astronomy operating in specific Radio Quiet Zones and, in frequency bands allocated on a primary basis globally, from aggregate radio-frequency interference caused by NGSO systems.
1.17	<b>Space weather sensors:</b> consider regulatory provisions and their protection in the Radio Regulations.
1.18	<b>Earth exploration-satellite and radio astronomy service:</b> consider, based on study results, possible regulatory measures regarding the protection of the EESS (passive) and the radio astronomy service in certain bands.
1.19	<b>EESS (Earth Exploration-Satellite Service):</b> consider possible primary allocations in all Regions.

## 02 WRC-27 preparation process



### WRC-23 preparation milestones



CPM27-1 already occurred on the  
December 18<sup>th</sup> 2023.

03

Decisions and  
Conclusions  
related to  
Frequency  
management  
for the NACC  
region

Workshop on Regional  
Frequencies Management  
for the 2023 World  
Radiocommunication  
Conference (WRC-23) and  
the Frequency Finder  
Application

*Lima \_ May 29 th to June 2nd, 2023*

## 03

Decisions and  
Conclusions  
related to  
Frequency  
management  
for the NACC  
region

- ***Under this workshop it was provided information about how to use the Frequency Finder for allocation of the frequencies.***
- ***Documentation under the following link:***
- ***<https://www.icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2023-RLA06901-FREQUENCYFINDER&t=1>***
- ***Action: States must designate personal to work and review the information.***



# 03

## Decisions and Conclusions related to Frequency management for the NACC region

<b>CONCLUSION</b>		<b>USE OF THE FREQUENCY FINDER 2023 APPLICATION AS A MANAGEMENT TOOL FOR VHF NAV AND VHF COM FREQUENCIES USED IN THE AERONAUTICAL CONTEXT</b>	
<b>GREPECAS/21/12</b>			
<b>What:</b> That States/Territories, a) transition the Frequency Finder 2023 runtime application (or subsequent versions) as the basic tool for the management of VHF NAV and VHF COM frequencies in the aeronautical context. b) assign "FF Focal Points" to coordinate internally the updating of information to subsequently submit these updates to the corresponding Regional Offices; and c) forward any proposed changes, via e-mail, by March 2024 to the ICAO ROs, who will upload it to the global database.		<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Interregional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical/Operational	
<b>Why:</b> To have a more efficient management of the frequencies used in the aeronautical context, using an updated computerized tool, more effective than the methods previously used (COM2 and COM 3 Lists).			
<b>When:</b> All for March 2024		<b>Status:</b> <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Not valid / <input type="checkbox"/> Completed	
<b>Who:</b> <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Other:			

# 03

## Decisions and Conclusions related to Frequency management for the NACC region

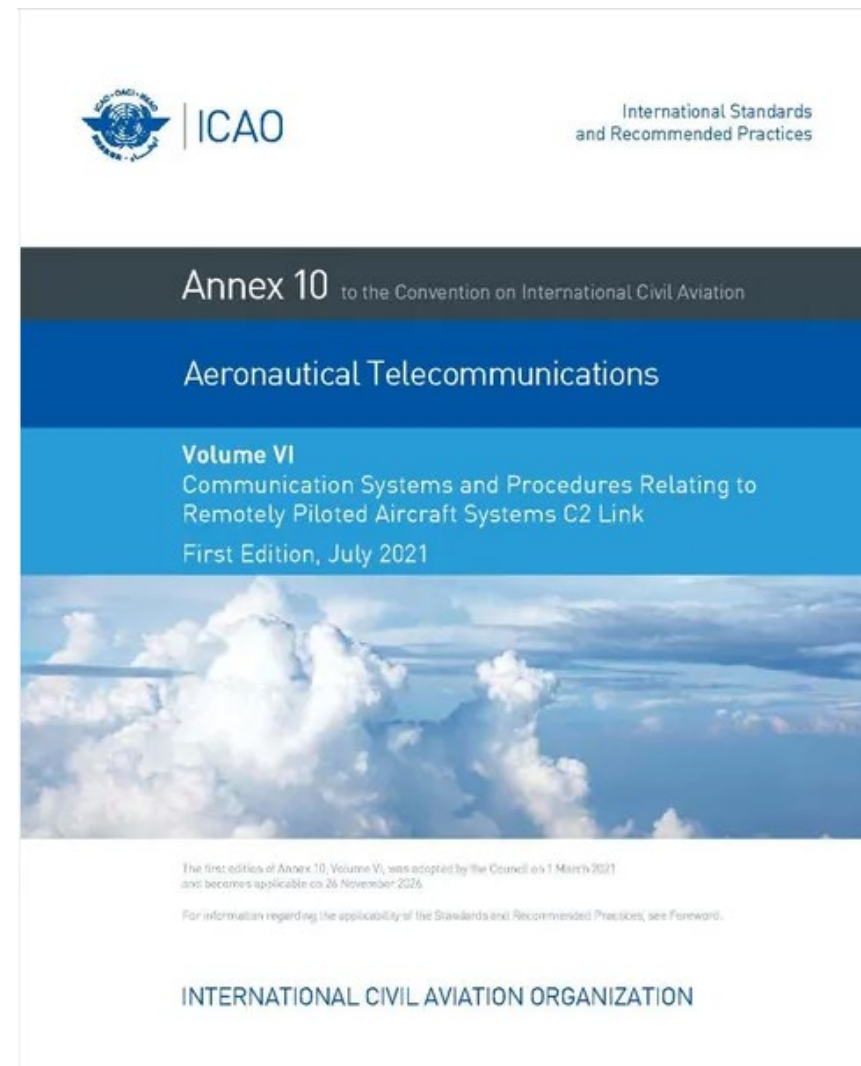
Under GREPECAS/21, the following conclusion was made:

CONCLUSION GREPECAS/21/10	STRENGTHENING OF FREQUENCY MANAGEMENT FOR THE USE OF AIR NAVIGATION SERVICES	
<p><b>What:</b></p> <p>That, to increase States' support to the activities of the Aeronautical Frequency Management Project; and expand the Project scope with the activity on specifying an application (software) for technical/operational management and planning of the assignment of aeronautical frequencies for the CAR/SAM Regions; the GREPECAS Aeronautical Frequency Management Project amend its scope to include the study for alternatives, evaluation of costs, and proposing the minimum software implementation requirements, for its presentation at the GREPECAS/22 meeting.</p>	<p><b>Expected impact:</b></p> <p><input type="checkbox"/> Political / Global  <input checked="" type="checkbox"/> Inter-regional  <input checked="" type="checkbox"/> Economic  <input type="checkbox"/> Environmental  <input checked="" type="checkbox"/> Operational/Technical</p>	
<p><b>Why:</b></p> <p>To strengthen the importance of aeronautical frequency management and for CAR/SAM States to have standardized and regionally harmonized management mechanisms</p>		
<p><b>When:</b> GREPECAS/23</p>	<p><b>Status:</b> <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed</p>	
<p><b>Who:</b> <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO <input checked="" type="checkbox"/> Other:</p>	<p>GREPECAS Aeronautical FREQ Management Project</p>	

# 04

## Review of ICAO Annex 10 Vol. VI

Annex 10, Volume VI, to be integrated into the infrastructure requirements for unmanned aircraft, but their communications shall be part of the CNS infrastructure



# 04

## Review of ICAO Annex 10 Vol. VI

- The proposal covers the "C2 Liaison Procedures" and "C2 Liaison Systems" and will be applicable as of November 26, 2026.
- The C2 link is the logical connection, regardless of the physical means by which it is achieved, used for the exchange of information between the remotely piloted station (RPS) and the remotely piloted aircraft (RPA).
- The integration of unmanned aircraft with conventional air traffic control operations will require an integration of all standards applied for civil traffic and the interrelation between all areas of air navigation, especially CNS/ATM
- It is necessary for the region to analyze the information proposed in the new version of Annex 10, Volume VI, since unmanned aircraft will be increasingly integrated into current operations in the short term and it is necessary to identify the regional projects needed to achieve the integration of these operations in a harmonized manner, adopting the necessary operational safety requirements.

## 04

## Review of ICAO Annex 10 Vol. VI

The meeting is invited to create an adhoc group within the **FREQ/TF** to assess **Annex 10 vol. VI** and evaluate its:

- **Safety implications**
- **Economic impact**
- **Impact on aviation safety**
- **Environmental impacts**
- **Efficiency impact**

# 05 Update of states Points of Contact

STATE	Organisation	POC	email	COM list 1	COM List 2	COM List 3
Aruba	ANSA	Joselito Correia de Andrade	<a href="mailto:Joselito.correideandrade@ansa.aw">Joselito.correideandrade@ansa.aw</a>	N/A	Updated	Updated
Cayman	Cayman Islands Airport Authority	Cleavy A. Scott	<a href="mailto:Cleavy.Scott@caymanairports.com">Cleavy.Scott@caymanairports.com</a>	Updated	Updated	Updated
COCESNA	COCESNA	Manuel Flores	<a href="mailto:manuel.flores@cocesna.org">manuel.flores@cocesna.org</a>	Updated	Updated	Updated
Cuba	IACC	Lizet Toirac González	<a href="mailto:lizet.toirac@iacc.avianet.cu">lizet.toirac@iacc.avianet.cu</a>	Updated	Updated	Updated
Curacao	DC-ANSP	Stephen (Steve) Hunt	<a href="mailto:s.hunt@dc-ansp.org">s.hunt@dc-ansp.org</a>	No Changes	No Changes	Updated
Dom Rep	IDAC	Elvis A. Collado	<a href="mailto:ecollado@idac.gov.do">ecollado@idac.gov.do</a>	No changes	No changes	Updated
Freeport	BANSB	Calvin McIntosh	<a href="mailto:calvin.mcintosh@bansbahamas.com">calvin.mcintosh@bansbahamas.com</a>	Updated	Updated	Updated
Haiti	OFNAC	Nadia Leopold	<a href="mailto:nleopold@hotmail.com">nleopold@hotmail.com</a>	N/A	Updated	Updated
Jamaica	JCAA	Derrick Grant	<a href="mailto:derrick.grant@jcaa.gov.jm">derrick.grant@jcaa.gov.jm</a>	Updated	Updated	Updated
Mexico	SCT	Daniel Castañeda Cruz	<a href="mailto:dcastane@sct.gob.mx">dcastane@sct.gob.mx</a>	Updated	Updated	Updated
Nassau	BANSB	Earl A. Rahming Elton Joseph	<a href="mailto:earl.rahming@bansdbahamas.com">earl.rahming@bansdbahamas.com</a> <a href="mailto:elton.joseph@bansbahamas.com">elton.joseph@bansbahamas.com</a>	Updated	Updated	Updated
Panama	AACP	Daniel De Avila	<a href="mailto:daniel.deavila@aeronautica.gob.pa">daniel.deavila@aeronautica.gob.pa</a>			
Puerto Rico	FAA					
St Maarten	SXM	Richard Hazel	<a href="mailto:rhazel@sxmairport.com">rhazel@sxmairport.com</a>	N/A	Updated	Updated

## 06 Other business

### Draft Global Concept for Integrated CNS and Spectrum (ICNSS)

- Introduced, through A41-WP/58, At 41st ICAO Assembly.
- The ICNSS project focusses on identifying a new and streamlined framework for CNS standardization and better decision-making processes to achieve consensus and accelerate the development and rollout of state-of-the-art aeronautical CNS services.

[https://www.icao.int/Meetings/a41/Documents/WP/wp\\_058\\_en.pdf](https://www.icao.int/Meetings/a41/Documents/WP/wp_058_en.pdf)



---

Thank You!