



ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Twenty-Seventh Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG/27)

5 - 6 November 2024

**Agenda item 3: Implementation of air navigation objectives, targets and indicators, including the priorities set out in the regional air navigation plan**

**Radio frequency interference of GNSS signals in the terminal area of Goma International Airport**

*(Presented by the DRC)*

| <b>SUMMARY</b>   |  |
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| <p>The present note deals with the reporting of repetitive interference to the Global Positioning System (GPS) signals in the Kinshasa Flight Information Region (FIR), specifically in the terminal area of Goma International Airport. The note highlights the involvement of ICAO in resolving this challenge to the safety of air navigation in the portion of the airspace under consideration.</p> |  |
| <p>Action by the Meeting is in <b>paragraph 3</b>.</p>   |  |
| <b>REFERENCE(S)</b>  | <ul style="list-style-type: none"> <li>-Chicago Convention</li> <li>-Annexes 2, 10 (volumes 1, 5 and 6), 11, 17 and 19</li> <li>-Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, Montreal, September 23, 1971</li> <li>-ICAO General Assembly Resolution A41-8, Appendix C</li> <li>-ICAO Fourteenth Air Navigation Conference (AN-Conf/14), Montreal, 26 September – 6 October 2024</li> <li>-Results of the EUR/MID Symposium on Radio Navigation held in Antalya (Turkey) from 6 to 8 February 2024</li> <li>-APIRG Conclusion 24/44</li> </ul> |
| <i>Strategic Objectives</i>  | <p>A-Safety, B-Capacity and Efficiency, and C-Security.</p>  |

## 1 INTRODUCTION

- 1.1 The Kinshasa FIR is a vast airspace in central Africa serving as a corridor for the flow of local and international air traffic.
- 1.2 The upper North-South and East-West routes network crossing Kinshasa FIR consists of RNAV and RNP routes based on the Global Navigation Satellite System (GNSS). Similarly, some instrument approach procedures over Goma are also based on GNSS.
- 1.3 The terminal region of Goma experienced a disruption of air traffic caused by radio frequency interference of GNSS signals.

## 2. DISCUSSION

2.1. On 1 June 2024, the Civil Aviation Authority of the Democratic Republic of the Congo became aware of the first case of safety incident related to GPS signal jamming through a press release dated 29 May 2024 signed by the Head of the Aviation Safety Department of the United Nations Stabilization Mission in Congo (MONUSCO). The interference reported in the statement was detected by the crew at an altitude of 12,500 feet, on heading 330° and at a distance of 26 NM from Goma airport.

2.2. After the first report, flight crews of national and international commercial carriers reported several cases of interference to GPS signals in the terminal area of Goma. The ATS units involved reported the incident accordingly and the CAA/DRC notified ICAO WACAF office of adverse aviation safety trends observed in that portion of the airspace.

2.3. In accordance with safety management standards and recommended practices, the CAA/DRC requested the issuance, by the air navigation service provider, of NOTAMs notifying the degradation of satellite navigation systems in the region and the conduct safety assessments in the TMA. The conduct of safety studies based, on ground-based navigation systems, demonstrated that the risk was maintained at an acceptable level and that there was no need to close the affected portion of the airspace. The avoidance of the use of the on-board GPS in the affected TMA was recommended as a mitigation measure.

2.4. On the other hand, investigations into the source of interference were carried out by the Post and Telecommunications Regulatory Authority (ARPTC); in accordance with Article 10 of the Memorandum of Understanding signed between the ARPTC and the CAA/DRC on frequency interference. The outcome of the investigations indicated that the interference to the GPS signal recorded in the area originated from sources located outside the Democratic Republic of Congo.

2.5. The Democratic Republic of the Congo noted with satisfaction the involvement of the International Civil Aviation Organization, both from the HQ and the two Regional Offices, ESAF and WACAF, in the resolution of these incidents of radio frequency interference (RFI) to GNSS, which have become a major safety concern and constituted a threat to the cybersecurity of civil aviation whenever they are not reported in advance to aircraft operators and ANSPs for appropriate arrangements. This concern was clearly expressed by the 14th ICAO Air Navigation Conference (Montreal, Canada, 26 September – 6 October 2024).

2.6. Despite the reactive and proactive actions taken to resolve the issue of RFI of GNSS, The DRC remains concerned about the possible resurgence of similar incidents in the area and therefore call for the meeting to consider the following actions.

### **3 ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Take note of the information contained in this working paper;
- b) Request the secretariat to increase awareness among Member States on the vulnerability of GNSS and good practices for mitigating the risks associated with interference to GNSS frequencies; and
- c) Strengthen APIRG conclusion 24/44 on the cybersecurity and resilience of CNS/ATM systems by requesting the conduct of an awareness workshop on the promotion of cybersecurity culture.