Diritto e politica dei trasporti

Rivista semestrale *open access* di dottrina, giurisprudenza e documentazione

Fascicolo 2/2025

Con i contributi di
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ISSN 2612-5056

LUISS

La rivista è promossa dall'Osservatorio sul Trasporto Aereo "Antonio Catricalà" Luiss G. Carli, anno 8, n. 15 (II-2025), ed è registrata presso il Tribunale di Roma al n. 150/2018 del 19 settembre 2018.
The Journal is published by the Air Transport Observatory "Antonio Catricalà" at Luiss G. Carli, and it is registered at the Court of Rome under No. 150/2018 on 19 September 2018.
Direttore responsabile/Editor-in-Chief: Prof. Francesco Gaspari, Università degli Studi "G. Marconi" di Roma e Osservatorio sul Trasporto Aereo "Antonio Catricalà" Luiss G. Carli
http://www.dirittoepoliticadeitrasporti.it/
La rivista è promossa dall'Osservatorio sul Trasporto Aereo "Antonio Catricalà" Luiss G. Carli, anno 8, n. 15 (II-2025)

ISSN 2612-5056
Luiss University Press

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Diritto e politica dei trasporti is an online,open-access, Anvur class A Journal, subject area 12 (Law). It is indexed in DOAJ – Directory of Open Access Journals (https://doaj.org/) and in ERIH PLUS – European Reference Index for the Humanities and Social Sciences (https://kanalregister.hkdir.no).

Grafica e impaginazione: Ente Nazionale Aviazione Civile e Luiss University Press
Pubblicato nel mese di marzo 2026

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Fascicolo 2/2025 anno 8, n. 15

ICAO's Emerging Doctrine on GNSS Interference as an Infraction under Article 54(k) of the Chicago Convention. *The Legal and Institutional Significance of ICAO Assembly Resolutions A42-2 and A42-3**

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Abstract

In October 2025, the 42nd Assembly of the International Civil Aviation Organization (ICAO) adopted two unprecedented resolutions condemning persistent Global Navigation Satellite System (GNSS) interference attributable to the Democratic People's Republic of Korea and the Russian Federation. These resolutions endorse the ICAO Council's prior determination that such conduct constitutes an "infraction" under Article 54(k) of the Convention on International Civil Aviation, thereby elevating GNSS interference from a technical aviation safety concern to a matter of treaty compliance.

This article analyzes the legal foundations, institutional significance, and normative consequences of Assembly Resolutions A42-2 and A42-3. It argues that the Assembly's action constitutes one of the most consequential interpretive developments in international aviation law in recent decades and reflects an emerging doctrine under which State-attributable GNSS jamming and spoofing fall within the substantive obligations imposed by multiple provisions of the Chicago Convention, as dynamically interpreted in light of contemporary navigation technologies.

Evoluzione dottrinale dell'ICAO: le interferenze GNSS considerate come infrazioni ai sensi dell'articolo 54(k) della Convenzione di Chicago. I fondamenti giuridici e il significato istituzionale delle Risoluzioni dell'Assemblea A42-2 e A42-3.

Nell'ottobre 2025, la 42ª Assemblea dell'Organizzazione dell'Aviazione Civile Internazionale (ICAO) ha adottato due risoluzioni senza precedenti che condannano persistenti interferenze con il Sistema

* Article peer-reviewed.

Globale di Navigazione Satellitare (GNSS) attribuibili alla Repubblica Popolare Democratica di Corea e alla Federazione Russa. Avallando la precedente determinazione del Consiglio dell'ICAO secondo cui tali condotte costituiscono una "infrazione" ai sensi dell'articolo 54, lettera k), della Convenzione sull'Aviazione Civile Internazionale, l'Assemblea ha elevato le interferenze GNSS da questione di sicurezza tecnica a problema di conformità al trattato.
Il presente articolo analizza i fondamenti giuridici, il significato istituzionale e le conseguenze normative delle Risoluzioni dell'Assemblea A42-2 e A42-3. L'articolo sostiene che l'azione dell'Assemblea costituisce uno degli sviluppi interpretativi più rilevanti del diritto aeronautico internazionale degli ultimi decenni e riflette una dottrina emergente secondo cui il jamming e lo spoofing GNSS attribuibili a uno Stato rientrano negli obblighi sostanziali imposti da molteplici disposizioni della Convenzione di Chicago, così come dinamicamente interpretata alla luce delle tecnologie di navigazione contemporanee.

Keywords: GNSS interference; infractions under Article 54(k) of the Chicago Convention; ICAO 42nd Assembly Resolutions condemning the Russian Federation and the Democratic People's Republic of Korea; State responsibility and remedies for breach of obligations.

Parole chiave: interferenze GNSS; infrazioni ai sensi dell'articolo 54(k) della Convenzione di Chicago; risoluzioni della 42ª Assemblea dell'OACI che condannano la Federazione Russa e la Repubblica Popolare Democratica di Corea; responsabilità dello Stato e rimedi per la violazione degli obblighi.

Summary – Introduction – Chapter I. The escalation of GNSS interference: from operational hazard to legal problem – Chapter II. The 42nd ICAO Assembly Resolutions A42-2 and 42-3: Structure, institutional significance, and normative consequences – Chapter III. GNSS interference as a breach of the Chicago Convention – Chapter IV. State responsibility, dispute settlement, and diplomatic and regulatory responses beyond ICAO – Conclusion.

Introduction

The modern aviation system heavily relies upon the stability and continuity of radio-frequency signals. Among these, Global Navigation Satellite Systems (GNSS)—including GPS, GLONASS, Galileo, and BeiDou—have become indispensable to civil aviation, forming the backbone of aircraft navigation, performance-based operations, area navigation (RNAV), surveillance functions, and the seamless operation of global air traffic management (ATM). This reliance on stable and continuous radio-frequency signals renders the avoidance of harmful interference of paramount importance.
The International Telecommunication Union (ITU) *Radio Regulations* define "interference" and "harmful interference" as follows:

- Interference: The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.
- Harmful interference: Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with Radio Regulations.[1]

At the same time, the very characteristics that underpin the global accessibility of GNSS—low signal power, open civilian use, and reliance on space-based transmission—also expose these systems to pronounced vulnerabilities to intentional interference.[2] Practices such as jamming and spoofing[3] have increasingly been associated with the activities of State military or intelligence actors.[4]
The *International Civil Aviation Organization* (ICAO) is a permanent intergovernmental organization established by the Convention on International Civil Aviation (the Chicago Convention) to develop the principles and techniques of international air navigation and to foster the planning and development of international air transport to ensure its safe and orderly growth.[6] It is precisely in light of this mandate of ICAO that, in 2025, the Republic of Korea submitted a working paper to the Organization's permanent executive body, the Council, drawing attention to the fact that while isolated incidents of GNSS interference had been recorded for more than a decade, the period between 2022 and 2025 witnessed a pronounced intensification in both the magnitude and the geographic reach of such disruptions.[7] What had once appeared as episodic or localized disturbances

1. International Telecommunication Union, *Radio Regulations* (Geneva, 2020 edition), Chapter I, Nos. 1.166 and 1.169. See also *Global Navigation Satellite System (GNSS) Manual* (ICAO Doc. 9849, Fifth Edition, 2025, hereinafter "*Global Navigation...*"): "*The Radio Regulations make a distinction between interference in general and harmful interference. Within the definition of harmful interference, two separate cases are identified, one which applies to radionavigation and other safety services, and the other to all other radio services. In the former case, endangerment of the functioning is sufficient to identify harmful interference, whereas in the latter case a higher level of disturbance (serious degradation, obstruction or repeated interruption) is required.*" Chapter 3, para 3.2.
2. "*GNSS signals from satellites are very weak at the receiver antenna, so are vulnerable to interference. Services provided by conventional aids can also be disrupted by interference, but GNSS typically serves more aircraft simultaneously and the interference may affect wide geographic areas. GNSS signals are also susceptible to ionospheric effects.*" See *supra*, note 1, "*Global Navigation...*", Chapter 5, 1.1.
3. Federal Aviation Administration: *GPS and GNSS Interference Resource Guide*, Section 1. Introduction, 1.1. Purpose, available at https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afx/afs/afs400/afs410/GNSS/GPS_GNSS_Interference_Resource_Guide.pdf (last accessed 15 January 2026).
4. See Chapter IV, Section c), para 3 ("*Security-oriented responses*"), below.
5. *Convention on International Civil Aviation*, signed on December 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 (hereinafter "*Chicago Convention*").
6. "*Chicago Convention*", *supra* note 5, Preamble and art. 44.
7. C-WP/15690, "*Recurring GNSS Radio Frequency Interference (RFI) on the Korean Peninsula and their Implications*

evolved into sustained, region-wide patterns of interference affecting major international air routes. These developments compelled the International Civil Aviation Organization to confront a question that had not previously been formally addressed within the institutional practice of international air law: when a State's electromagnetic actions systematically degrade GNSS functionality and endanger civil aviation, does such conduct constitute an infraction of the Chicago Convention?

Chapter I. The Escalation of Gnss Interference: from Operational Hazard to Legal Problem

A). GNSS Interference as a Systemic Aviation Safety Threat

By the mid-2020s, the risk environment in which Global Navigation System-dependent civil aviation operates had changed in fundamental ways. The evidence submitted to ICAO demonstrated that GNSS interference had ceased to be sporadic, localized, or plausibly accidental. Instead, it had become persistent, attributable, and geographically expansive, affecting tens of thousands of flights each year. The operational consequences of this development were immediate and significant: airlines being forced to revert to non-precision procedures, to rely more heavily on inertial navigation systems, and to suspend or delay RNAV approaches during periods of intense interference. In several instances, GNSS degradation coincided with adverse meteorological conditions, further amplifying operational risk. This evolution, and the particular conditions under which it occurs, have been closely tracked—particularly at the European level, where GNSS interference continues to significantly affect the Air Traffic Management (ATM) network, especially in regions near zones of conflict.[8] Although no major accident has yet been conclusively attributed to GNSS interference, the combination of sustained spoofing activity and peak traffic density has necessary resulted, as a matter of operational reality, in an unacceptable level of systemic vulnerability: as reliance on GNSS continues to increase across aviation, the risk of intentional interference correspondingly grows,[9] giving rise to a self-reinforcing dynamic.

As noted above, the primary operational concern has been identified as GNSS spoofing, which can induce position jumps and produce secondary operational effects, including false turns and uncoordinated high-rate climbs triggered by erroneous ground proximity warning system alerts.[10]

for the Safety and Security of International Civil Aviation," presented by the Republic of Korea and discussed at the eleventh meeting of the 234th period of sessions of the ICAO Council, on 26 march 2025.

8. European Union Aviation Safety Agency (EASA), Safe*ty Information Bulletin: GNSS Interference and Effects on Air Operations* (SIB No.: 2022-02R3, issued: 05 July 2024).

9. *ICAO*, *Global Navigation...*", *supra*, note 1, Executive Summary.

10. EUROCONTROL, *Impact of GNSS Interference on Civil Aviation Operations in Europe* (Network Manager Report, 2024), page 39 ff. (hereinafter "*EUROCONTROL, Impact of GNSS Interference...*"), page 42.

In response, a range of mitigation measures has been implemented, including regular crisis exercises addressing GNSS interference, as well as tailored workshops and simulation-based training. These initiatives are intended to build operational capacity among aviation personnel—particularly within Air Traffic Services (ATS)—to respond effectively to such disruptions.[11]

B). High-Profile Incidents

Operational concern escalated into geopolitical urgency in 2025 following a series of high-profile incidents involving State aircraft. In September 2025, a Spanish military aircraft transporting Spain's Minister of Defense experienced a GPS disturbance while flying near Kaliningrad in route to Lithuania.[12] In late August and early September 2025, an aircraft carrying the President of the European Commission, Ursula von der Leyen, encountered GPS interference while overflying Bulgaria, thereby requiring reliance on alternative navigation procedures, reportedly including the use of paper charts.[13]

These incidents, together with the broader escalation in both the frequency and the operational significance of GNSS interference, built upon patterns already identified in the working paper submitted by the Republic of Korea, and prompted a series of deliberations within the ICAO Council, culminating in the adoption of a series of decisions and associated actions that are examined in detail in this article.

C). The Korean Peninsula and the Baltic and Eastern European Regions: A Protracted Pattern of Interference

According to the aforementioned working paper submitted by the Republic of Korea to the ICAO Council,[14] the following events unfolded.

1. From 4 March to 13 March 2011, GNSS Radio Frequency Interference (RFI) signals transmitted from a location in the Democratic People's Republic of Korea (DPRK) affected the GNSS

11. "*EUROCONTROL, Impact of GNSS Interference...*", *supra*, note 10, Chapter 3, para 3.7, "*Network crisis management*", pages 38-40.
12. "Spanish defence minister's plane hit by GPS 'disturbance' over Russian enclave", Euronews (Sept. 24, 2025), available at https://www.euronews.com/2025/09/24/spanish-defence-ministers-plane-hit-by-gps-disturbance-near-russian-enclave (last time accessed: 15 January, 2026); "Spanish defence minister's jet suffers GPS disturbance near Russia's Kaliningrad", Reuters (Sept. 24, 2025), available at https://www.reuters.com/world/spanish-defence-ministers-jet-suffers-gps-disturbance-over-russias-kaliningrad-2025-09-24/ (last accessed: 15 January 2026).
13. "*EU says von der Leyen's plane GPS system was jammed, Russian interference suspected*", Reuters (Sept. 1, 2025), available at https://www.reuters.com/world/europe/eu-says-von-der-leyens-plane-gps-system-was-jammed-russian-interference-2025-09-01/ (last accessed: 15 January 2026).
14. C-WP/15690. See *supra*, note 7.

receivers of 106 aircraft of 18 airlines of six States, and one of those aircraft made a missed approach due to the [E]GPWS warning.
2. From 28 April to 13 May 2012, GNSS RFI from the DPRK recurred and affected the GNSS receivers of 1,016 aircraft from 16 States. In particular, four aircraft made a missed approach due to the [E]GPWS warning.
3. From 31 March to 5 April 2016, the incident of GNSS RFIs from the DPRK recurred. In total, 1,007 aircraft of 40 airlines from 14 States reported an unreliable GNSS signal to the air traffic control unit in the Incheon FIR.
4. From 6 March to 2 June 2024, the incident of GNSS RFIs from the DPRK recurred. In total, 530 aircraft of 49 airlines from more than 20 States reported an unreliable GNSS signal to the air traffic control unit in the Incheon FIR.
5. After four months, the longest and largest incident of GNSS RFI from the DPRK recurred (from 2 October 2024 to 14 February 2025, and expected to continue for some time). In total, 4,402 aircraft of 100 airlines from more than 20 States reported an unreliable GNSS signal to the air traffic control unit in the Incheon FIR.
6. The GNSS RFIs in 2011, 2012, 2016, 2024, and 2025 have a transboundary element in the sense that the GNSS RFI signals originated from a location in the DPRK with the effect of affecting the safety of civilian aircraft flying over the northern and northwest areas of the Republic of Korea (ROK).

The Baltic and Eastern European regions were also seriously affected by an unprecedented pattern of GNSS interference, as documented in a working paper submitted to the ICAO Council by six European States in 2025.[15] The paper highlights, *inter alia*, the following incidents and considerations.

1. The Baltic, East and North Europe region is severely affected by GNSS RFI. The attribution of those GNSS RFI to the Russian Federation was notably recognized by the International Telecommunication Union (ITU) at the 98th meeting of its Radio Regulatory Board held on 17-25 March 2025. In addition, data regarding GNSS RFI in the EPWW, EYVL, EVRR, EETT, EFIN and ESAA FIRs that has been collected by the affected States confirm that the GNSS RFI originated from locations in the Russian Federation.
2. In January 2025, GNSS RFI transmitted from locations in the Russian Federation affected 23,438 flights operated by 234 operators.
3. In February 2025, GNSS RFI transmitted from locations in the Russian Federation affected 28,010 flights operated by 258 operators.

15. C-WP/15745, *Recurring GNSS Radio Frequency Interference and their Implications on the Safety and Security of International Civil Aviation*, presented by Estonia, Finland, Latvia, Lithuania, Poland, and Sweden, discussed at the seventh meeting of the 235th period of sessions of the ICAO Council, on 13 June 2025.

4. In March 2025, GNSS RFI transmitted from locations in the Russian Federation affected 29,877 flights operated by 256 operators.
5. In April 2025, GNSS RFI transmitted from locations in the Russian Federation affected 41,282 flights operated by 271 operators.
6. From January to April 2025, aircraft from 365 operators registered in over 45 States have been affected by RFI when flying in the EPWW, EYVL, EVRR, EETT, EFIN and ESAA FIRs.
7. The paper further highlights that GNSS radio-frequency interference may continue to affect flight safety even after aircraft have exited the affected airspace. Indeed, GNSS RFI have a transboundary element in the sense that interference originated from locations in the Russian Federation affect the safety of civilian aircraft flying over European, Asia and Middle East regions. One example is an Air India flight from New Delhi to Amsterdam on November 27th, 2024, which was spoofed twice (near Smolensk and Rostov) before entering European airspace.

D). Deliberations and Actions of the ICAO Council

1. With respect to the Democratic People's Republic of Korea

The ICAO Council, at its eleventh meeting during the 234th Session, on 26 March 2025, and on the basis of the working paper submitted by the Republic of Korea,[16] considered the issue of *Recurring GNSS Radio Frequency Interference and Its Implications for the Safety and Security of International Civil Aviation*.[17]

Following consideration, the Council:

a) recalled and reaffirmed its serious concerns regarding the harmful impact of GNSS RFI on the safety and security of international civil aviation, which went against the principles enshrined in the Chicago Convention and its Annexes;
b) noted, with grave concern, that despite the Council's previous decisions,[18] these incidents of GNSS RFI originating from the Democratic People's Republic of Korea (DPRK) had continued to recur, jeopardizing the safety of international air navigation in the Incheon FIR;
c) strongly urged the DPRK to fully implement the aforementioned Council decisions;
d) reiterated its call to the DPRK to ensure that similar occurrences did not recur in the future;
e) requested the President of the Council to send a letter to the Minister responsible for civil aviation in the DPRK to communicate that decision;
f) requested the Secretary General to issue a State letter informing Member States of the Council's decision on this subject;

16. C-WP/15690. See *supra*, note 7.
17. C-DEC 234/11 (4/04/25).
18. C-DEC 196/4, 18 June 2012; C-DEC 208/9, 31 May 2016; and C-DEC 232/4, 14 June 2024.

g) considering the serious and continuous risk posed to international civil aviation as a result of these recurring incidents of GNSS RFI originating from the DPRK, agreed to give further consideration to the reporting of this matter in accordance with Article 54(k)[19] of the Chicago Convention to the 42nd Session of the Assembly during the 235th Session;
h) agreed that a press release should be prepared and issued informing of this decision of the Council;
i) considering the implications of the ongoing GNSS RFI in the Incheon FIR for the safety and security of international civil aviation in the region, requested the ICAO Asia Pacific Regional Office to continue its efforts to engage with the Democratic People's Republic of Korea specifically on this issue; and
j) requested that the Council continues to be kept closely apprised of any developments in this regard.

At the same meeting, the Council considered an oral report from the Secretary General on the matter of *Global Navigation Satellite System (GNSS) Radio Frequency Interference*, submitted pursuant to C-DEC 233/7, which provided information on the ongoing risks posed by GNSS radio frequency interference (RFI), as well as on the progress of ICAO's ongoing activities in this area.

Following consideration, the Council:

a) recalling its previous decisions on this matter,[20] noted, with concern, the rising number of GNSS RFI incidents and the resulting increased risk to global flight operations, and in that connection, welcomed the Secretariat's efforts to raise Member States awareness of the serious impact on air navigation systems, and to promote a comprehensive and harmonized approach for identifying and effectively mitigating such interference;
b) recognized that, beyond jeopardizing air navigation safety, GNSS RFI also threatens aviation security, requiring a coordinated and holistic response, and in that regard, emphasized the importance of the One ICAO approach to facilitate cooperation and align efforts across Bureaux on this issue;
c) took note of the ongoing coordination between ICAO, the International Maritime Organization (IMO) and the International Telecommunications Union (ITU), including their joint statement emphasizing the critical need to protect GNSS from harmful interference, as well as the Organization's engagement with the United Nations Secretary-General to support and promote the actions outlined therein;

19. "Article 54. Mandatory functions of Council. *The Council shall: [...] k) Report to the Assembly any infraction of this Convention where a contracting State has failed to take appropriate action within a reasonable time after notice of the infraction.*"
20. C-DEC 232/8 and C-DEC 233/7.

d) encouraged the Secretariat to pursue outreach to Member States and partner organizations to mobilize resources for the development, validation and deployment of the new iPack for the mitigation of GNSS RFI, capacity building and the exchange of best practices for detecting, preventing and reporting GNSS RFI, and in that connection, expressed appreciation to the Government of France for its commitment to contribute to this important initiative;
e) recognized the work of the Air Navigation Commission and its expert groups to address this issue, including the development of new guidance material and the creation of new NOTAM codes for GNSS RFI;
f) underlined the importance of developing and implementing effective mechanisms for detecting, preventing and reporting occurrences of GNSS RFI, as an essential means to mitigate risks posed by such interference, where possible;
g) encouraged Member States to consider, as appropriate and practical, retaining or implementing a Minimum Operational Network (MON) of ground-based navigation and surveillance infrastructure to ensure operational safety as well as sufficient airspace capacity during times of GNSS interference, and to explore equipping aircraft with GNSS-independent systems, where feasible;
h) encouraged further collaboration with industry stakeholders with a view to urgently implementing existing, and developing new, solutions that enhance the resilience of GNSS receivers to jamming and spoofing;
i) recognized that the use of Multiple GNSS constellation, augmented and upgraded to dual frequency, can provide redundancy and additional robustness;
j) requested the Secretariat to prepare a roadmap outlining short-, medium- and long- term actions to address GNSS RFI, including immediate mitigation measures and long-term strategies to build an air transport system resilient to such interference;
k) invited the Secretariat to prepare a working paper for consideration by the 42nd Session of the Assembly outlining the scope, risks, and potential consequences of GNSS RFI, to be presented to the Council during the 235th Session;
l) requested that the Secretariat continue to keep the Council apprised of further developments in this regard, for further action, as may be required; and
m) noted the importance of ensuring that sufficient resources are allocated in the 2026– 2028 Regular Budget to support the Organization's continued efforts to address GNSS RFI, and emphasized that this should be duly considered in the context of the Council's ongoing deliberations on the Budget scenarios.

At its seventh meeting of the 235th session, on 13 June 2025, the Council resumed consideration of the issue of *Recurrence of GNSS RFI on the Korean Peninsula*.[21]

21. C-DEC 235/7 (20/06/25).

Following consideration, the Council:

a) reiterated its grave concern that notwithstanding its previous decisions of 18 June 2012 (C-DEC 196/4, refers), 31 May 2016 (C-DEC 208/9, refers), 14 June 2024 (C-DEC 232/4, refers) and 26 March 2025 (C-DEC 234/11, refers) relating to the incidents of GNSS Radio Frequency Interference (RFI) on the Korean Peninsula originating from the Democratic People's Republic of Korea (DPRK), these incidents had continued to recur in the intervening period and had been ongoing since 2 October 2024, jeopardizing the safety of internation civil aviation in the Incheon Flight Information Region (FIR);
b) noted, that pursuant to C-DEC 234/11, a letter was sent from the President of the Council, dated 6 May 2025, to the minister responsible for civil aviation in the DPRK, communicating the Council's decision of 26 March 2025 and requesting the DPRK to report to the Council, within thirty days, on the appropriate action taken to comply with the Council's decisions and its obligations under the *Convention on International Civil Aviation* (Chicago Convention) and its Annexes;
c) further noted, with regret, that the DPRK had yet to respond to the aforementioned letter, despite the thirty-day timeframe having expired on 5 June 2025, or more generally to any other aspect of this matter;
d) considering the serious and continuing risk posed to international civil aviation as a result of these recurring incidents of GNSS RFI originating from the DPRK, and acknowledging that the DPRK had yet to respond to the Council's repeated requests and decisions or comply with its obligations under the Chicago Convention and its Annexes, agreed to report the matter as an infraction of the Chicago Convention to the 42nd Session of the ICAO Assembly in accordance with Article 54 k) of the Chicago Convention; and
e) requested the Secretariat to prepare a draft Assembly working paper on this matter, for consideration by the Council at a subsequent meeting of the 235th Session.

Also, following consideration, the Council:

a) took note of the information contained in the Secretary General's oral report regarding developments in connection with the infractions of the *Convention on International Civil Aviation* (Chicago Convention) as reported in Assembly Resolutions A41-1, A41-2 and A41-3, since their adoption by the 41st Session of the Assembly in 2022;
b) further noted that there had been no developments or further information received from the Republic of Belarus, the Russian Federation or the Democratic People's Republic of Korea (DPRK) regarding actions taken to address or resolve the infractions identified in the referenced Assembly Resolutions; and
c) requested the Secretariat to prepare draft Assembly working papers to report on the status of developments relating to each of the Assembly Resolutions A41-1, A41-2 and A41-3 for consideration by the Council at a subsequent meeting of the 235th Session.

2. With respect to the Russian Federation

At the same meeting of the 235th session, the ICAO Council also considered the matter of a growing and geographically expansive pattern of Global Navigation Satellite System (GNSS) radio-frequency interference affecting large parts of Europe, posing serious risks to the safety and security of international civil aviation within affected FIRs.

Following consideration on the basis of the working paper presented by Estonia, Finland, Latvia, Lithuania, Poland and Sweden,[22] the Council:

a. recalling its recent decision on this serious matter (C-DEC 234/11, refers), reaffirmed its grave concern regarding the harmful impact of GNSS RFI on the safety and security of international civil aviation, which went against the principles enshrined in the *Convention on International Civil Aviation* (Chicago Convention) and its Annexes;
b. noted, with serious concern, the recurring incidents of GNSS RFI originating from the Russian Federation, affecting international air navigation in the Warszawa (EPWW), Vilnius (EYVL), Riga (EVRR), Tallinn (EETT), Helsinki (EFIN), and Sweden (ESAA) Flight Information Regions (FIRs);
c. strongly urged the Russian Federation to strictly comply with its obligations under the Chicago Convention and its Annexes;
d. called on the Russian Federation to ensure that similar occurrences do not recur in the future;
e. considering the implications of the ongoing GNSS RFI in on the safety and security of international civil aviation in the Baltic, and Eastern and Northern European regions, requested the ICAO European and North Atlantic (EUR/NAT) Regional Office to engage collaboratively with the Russian Federation to address this issue;
f. requested the President of the Council to send a letter to the relevant authorities in the Russian Federation to communicate the Council's present decision, and to request the Russian Federation to report to the Council, within thirty days of receipt of said letter, on the appropriate action taken to comply with the Council's decision and its obligations under the Chicago Convention and its Annexes;
g. requested the Secretary General to issue a State letter informing Member States of the Council's decision on this subject;
h. considering the serious and continuous risk posed to international civil aviation by the recurring incidents of GNSS RFI originating from the Russian Federation, agreed to remain seized of the matter and to continue cooperation with the International Telecommunications Union (ITU) for the benefit of the international civil aviation system; and
i. agreed to give further consideration to reporting this matter in accordance with Article 54(k) of the Chicago Convention to the 42nd Session of the Assembly at a subsequent meeting during the 235th Session.

22. See *supra*, note 15.

At its seventeenth meeting of the 235th Session, held on 2 September 2025, the Council continued its consideration of the matter.[23] On the basis of an oral report by the Secretary General and following deliberation, the Council:

a) reiterated its serious concern relating to the recurring incidents of GNSS Radio Frequency Interference (RFI) in the Baltic, Eastern and Northern European regions originating from the territory of the Russian Federation, which jeopardized the safety of international civil aviation in the Warszawa (EPWW), Vilnius (EYVL), Riga (EVRR), Tallinn (EETT), Helsinki (EFIN), and Sweden (ESAA) Flight Information Regions (FIRs);
b) noted that pursuant to C-DEC 235/7 a letter was sent from the President of the Council, dated 4 July 2025, to the Representative of the Russian Federation to ICAO, communicating the Council's decision of 13 June 2025 and requesting the Russian Federation to report to the Council, within thirty days, on the appropriate action taken to comply with the Council's decisions and its obligations under the *Convention on International Civil Aviation* (Chicago Convention) and its Annexes;
c) further noted, with regret, that the Russian Federation had yet to respond to the aforementioned letter, despite the thirty-day timeframe having expired on 6 August 2025, or more generally to any other aspect of this matter;
d) considering the serious and continuing risk posed to international civil aviation as a result of these recurring incidents of GNSS RFI originating from the territory of the Russian Federation, and acknowledging that the Russian Federation had yet to respond to the Council's decision or comply with its obligations under the Chicago Convention and its Annexes, agreed to report the matter as an infraction of the Chicago Convention to the 42nd Session of the ICAO Assembly in accordance with Article 54 k) of the Chicago Convention; and
e) requested the Secretariat to prepare a draft Assembly working paper on this matter, for consideration by the Council at a subsequent meeting of the 235th Session.

E). From Accumulated Evidence to Legal Characterization

By mid-2025, and on the basis of the accumulated institutional record, ICAO was in possession of an evidentiary foundation of an unprecedented scope and consistency. That record demonstrated not only that incidents of Global Navigation System interference had become persistent rather than episodic, but also that such interference was attributable to identifiable State sources. It further established that these activities posed a direct and ongoing threat to the safety of international civil aviation and that they had continued notwithstanding repeated warnings, diplomatic representations, and requests for corrective action addressed through ICAO channels. At the same time, the expanding geographic reach, operational impact, and regularity of the interference generated

23. C-DEC 235/17 (4/9/25).

mounting pressure from affected States for an institutional response that would extend beyond technical mitigation measures and routine safety management, and that would engage more directly with questions of responsibility, compliance, and collective action within the ICAO framework.
Against this background, the Council concluded that the continued GNSS interference attributable to both the Democratic People's Republic of Korea and the Russian Federation could no longer be regarded as isolated or incidental, but instead constituted conduct incompatible with the principles and rules of the Chicago Convention. In light of its persistence, attribution, and direct implications for the safety and security of international civil aviation, the Council considered that such conduct warranted escalation beyond routine Council oversight. Accordingly, it determined that the matter merited formal consideration by the Assembly, in accordance with the Convention's established reporting framework.[24]

Chapter II. The 42nd ICAO Assembly Resolutions A42-2 And 42-3: Legal Structure, Institutional Significance, and Normative Consequences

As a result of the considerations and decisions taken in the course of its deliberations, the ICAO Council submitted two working papers to the 42nd Session of the ICAO Assembly, held from 23 September to 3 October 2025, addressing the issue of *Global Navigation Satellite System interference* attributable to the Democratic People's Republic of Korea and the Russian Federation.[25]
These working papers recall that, pursuant to Article 54(k) of the Convention on International Civil Aviation, the Council is required to report to the Assembly any infraction of the Convention where a Contracting State has failed to take appropriate action within a reasonable time after notice of the infraction.
In the papers, the Council also observed that the Convention does not define the term "infraction" as used in Article 54. Nevertheless, it noted that ICAO practice has previously interpreted the concept broadly, such that any action that may be considered an infraction, breach, violation, or infringement of the Convention is potentially subject to Council action under Article 54(k). In this respect, the Council recalled that, on prior occasions, it had determined that an infraction or violation of the principles or rules of the Convention had occurred. The Council further recalled its agreement in 1999, reached during its 158th Session, that—consistent with past practice—it may wish to consider taking the action specified in Article 54(k) only where important considerations are at issue.[26]

24. C-DEC 235/7 and C-DEC 235/17.
25. A42-WP/44 EX/20 (4/7/25) and A42-WP/553 EX/249 (10/9/25), respectively.
26. See Chapter II, section 3) point 1) below (*"Infraction" under Article 54(k): Prior ICAO Deliberations and Institutional Practice*), for a detailed examination of ICAO practice concerning the interpretation of the term "infraction" under Article 54(k), including prior Council determinations and the Council's 1999 agreement regarding the circumstances in which action under that provision may be appropriate.

The working papers further emphasized that, in making a determination under Article 54(k), the Council is required to observe due process and elementary principles of justice. At a minimum, this entails affording the States concerned an adequate opportunity to be heard by the Council, in accordance with Article 53 of the Convention[27] and Rule 31 of the Rules of Procedure for the Council (ICAO Doc 7559/11).[28] It also requires that the States concerned be notified of the infraction and be afforded a reasonable period within which to take appropriate corrective action.
Against this legal and procedural background, and taking into account both its calls upon the Democratic People's Republic of Korea and the Russian Federation and the failure of those States to implement the Council's determinations and to comply with their obligations under the Convention, the Council proceeded on the basis that the requisite conditions under Article 54(k) had been met. It therefore decided that the actions of the Democratic People's Republic of Korea and the Russian Federation qualified as infractions of the Chicago Convention to be reported to the Assembly.

A). Deliberations of the Executive Commission on the matter of GNSS Radio Frequency Interference

As reflected in the report submitted to the Plenary of the 42nd Session of the ICAO Assembly,[29] the Executive Commission of the Assembly, under Agenda Item 22, examined the item entitled *Matters Concerning Infractions of the Convention on International Civil Aviation by Contracting States: Global Navigation Satellite System (GNSS) Radio Frequency Interference (RFI)*, as follows.

- The Committee reviewed A42-WP/44, presented by the Council, which invited the Assembly to endorse the Council's determination that the recurring incidents of GNSS-RFI on the Korean peninsula originating from the Democratic People's Republic of Korea (DPRK), constitute an infraction of the Chicago Convention by the DPRK, and to adopt the draft Assembly Resolution proposed in Appendix B to the paper. The Committee also reviewed A42-WP/553, presented by the Council, which invited the Assembly to endorse the Council's determination that the recurring incidents of GNSS-RFI in the Baltic, Eastern and Northern European regions originating from the territory of the Russian Federation constitute an infraction of the Chicago Convention by the Russian Federation of the Chicago Convention, and to adopt the draft Assembly Resolution proposed in Appendix B to the paper.[30]

27. "Article 53. Participation without a vote. *Any contracting State may participate, without a vote, in the consideration by the Council and by its committees and commissions of any question which especially affects its interests. No member of the Council shall vote in the consideration by the Council of a dispute to which it is a party.*"
28. "Rule 31. *Any Contracting State may participate, without a vote, in the consideration by the Council and by its Committees and Commissions of any question which especially affects its interests (Article 53 of the Convention). Subject to the approval of the Council, the President may invite such participation when considering that the condition of special interest is fulfilled. If a Contracting State requests permission to participate on the grounds of special interest, the President shall refer the request to the Council for decision.*"
29. A42-WP/694, P/57 (2/10/25).
30. *Ibidem*, para 22.21.

- During the discussions, the majority of the Delegations that took the floor acknowledged and condemned violations of the Chicago Convention by the DPRK and the Russian Federation, expressing strong support for A42-WP/44 and A42-WP/553 and the draft resolutions appended thereto. One Delegation, supported by several others, emphasized that the Council, in presenting A42-WP/44 and A42-WP/553 to the Assembly, followed a rigorous, transparent and structured process, consistent with the principles and procedures set out in the Chicago Convention, taking into account technical and legal advice from the Secretariat. That Delegation further observed that due process was fully respected in the Council's proceedings and that the two States concerned were given full opportunity to explain any actions they had taken to address their violations of the Chicago Convention. Nevertheless, neither the DPRK nor the Russian Federation had responded to ICAO's letters to that effect. In that Delegation's view, the Council's actions taken to fulfill its mandate as set out in the Chicago Convention were not politically motivated.[31]
- Several Delegations who supported A42-WP/44 and A42-WP/553 expressed serious concern about the negative impacts of GNSS-RFI on the safety and security of international air navigation.[32]
- In support of the determination of the Council on the infraction identified in A42-WP/553, a few Delegations highlighted that the Radio Regulations Board of the International Telecommunication Union (ITU) had concluded that the incidents of GNSS-RFI referenced in the paper had been geo-located as originating from within the territory of the Russian Federation.
- While acknowledging the seriousness of GNSS-RFI and its negative impacts on the safety and security of international civil aviation, one Delegation, supported by two others, emphasized the need to adopt a broader perspective with a view to considering such incidents wherever they occur, while bearing in mind that ICAO's primary role is to foster cooperation and mutual understanding among Member States. These Delegations called upon all States to enhance technical cooperation, strengthen coordination with industry partners to improve anti-jamming and anti-spoofing capabilities of airborne navigation systems, and to work together to establish a minimal operational network for GNSS.[33]
- A few Delegations strongly opposed A42-WP/44 and A42-WP/553, noting that the actions recommended therein were unfounded, selectively target certain States, undermine cooperation, and politicize ICAO's technical work. In the case of A42-WP/44, one Delegation asserted that the allegations presented therein were a political fabrication by the Republic of Korea and its allies, made without scientific evidence and aimed at tarnishing the international image of the DPRK. In the case of A42-WP/553, another Delegation stated that any incidents of GNSS-RFI that may have originated from the territory of the Russian Federation were the result of national security measures taken against Ukrainian unmanned aircraft. At the same time, it was asserted that the Russian Federation took all measures to limit the impact of such incidents

31. *Ibidem*, para 22.22.
32. *Ibidem*, para 22.23.
33. *Ibidem*, para 22.24.

of GNSS-RFI on civil aviation receivers. The Delegation emphasized its openness to cooperation, noting that as a State provider of the GLONASS system free of charge to the global aviation community, it firmly rejects the accusatory rhetoric presented in A42-WP/553 in regard to the functioning of GNSS.[34]

- One Delegation requested a vote by secret ballot on the draft Assembly resolution appended to A42-WP/553 in accordance with Rule 47 of the Assembly Rules. A total of 153 votes were cast, with 89 votes in favor, 19 against, 42 abstentions, 1 invalid vote and 2 blank ballots. Based on the outcome of the secret ballot vote, the Chairperson concluded that a clear majority of the Committee had expressed its support to recommend to the Plenary to adopt the draft Assembly Resolution appended to A42-WP/553.[35]
- With regard to A42-WP/44, the Chairperson noted that a majority of Delegations that took the floor expressed their support for the draft Assembly Resolution appended to the Working Paper and, based on the foregoing, concluded that the Committee had agreed to recommend to the Plenary to adopt the draft Assembly Resolution proposed in Appendix B to A42-WP/44.[36]

B). The Assembly's Endorsement. Structure and Content of the Assembly's Resolutions

On the basis of the deliberative process described above, and following the plenary decision, the ICAO Assembly adopted two substantively parallel resolutions:

1) Resolution A42-2 (AR42-2):[37] Infraction of the Convention on International Civil Aviation by the Russian Federation;
2) Resolution A42-3 (AR42-3):[38] Infraction of the Convention on International Civil Aviation by the Democratic People's Republic of Korea

Both resolutions follow the same structure, comprising preambular recitals and operative clauses, as outlined below.[39]

1. The Text of the Resolutions: Preambles

The preambles of Resolution A42-2 and Resolution A42-3 articulate a carefully layered legal and institutional narrative through which the Assembly frames recurring GNSS radio frequency

34. *Ibidem*, para 22.25.
35. *Ibidem*, para 22.26.
36. *Ibidem*, para 22.27.
37. The title and resolution number are cited as they appear in the Provisional Edition (October 2025) of the Resolutions adopted by the ICAO Assembly at its 42nd Session.
38. The title and resolution number are cited as they appear in the Provisional Edition (October 2025) of the Resolutions adopted by the ICAO Assembly at its 42nd Session.
39. For the sake of brevity, the corresponding sections of both resolutions are here presented together, as they contain substantial overlapping text. Where differences arise, these are expressly indicated.

interference. What follows is a synthesized summary and brief commentary on the principal elements of those preambles.

- The preambles open by situating the issue before the Assembly as one involving persistent GNSS interference affecting the Baltic, Eastern, and Northern European regions, as well as the Korean Peninsula, and by establishing that such interference originates from the territories of the Russian Federation and the Democratic People's Republic of Korea, respectively.
- The preambles then anchor the discussion in first principles, recalling that the safety of international civil aviation constitutes the primary aim and objective of both the Chicago Convention and ICAO itself. This foundational reminder establishes the normative lens through which all subsequent considerations are to be viewed.
- Building on that foundation, the preambles recall Resolution A41-8, Appendix C, on ensuring the resilience of ICAO CNS/ATM systems and services, which recognized that GNSS should be free from harmful interference and urged States to refrain from jamming or spoofing affecting civil aviation. In doing so, the Assembly links the present case to an existing body of Assembly guidance and reinforces the continuity of ICAO policy.
- The text then deepens the analysis by emphasizing the paramount importance of preserving the safety and security of international civil aviation, not merely as abstract objectives but as legally protected interests enshrined in the Convention and its Annexes. This framing elevates GNSS interference from an operational nuisance to a potential breach of binding international obligations.
- The preambles further proceed to document the institutional response of the ICAO Council, noting its decision of 26 March 2025, in which the Council reaffirmed its serious concern regarding the harmful impact of GNSS radio frequency interference (GNSS-RFI) on the safety and security of international civil aviation, conduct considered to be contrary to the principles enshrined in the Chicago Convention.
- In Resolution A42-2, this concern is reinforced by reference to the Council's decision of 13 June 2025,[40] which expressed grave concern over recurring GNSS interference originating from the Russian Federation and explicitly identified the affected Flight Information Regions across several European States.
- In Resolution A42-3, a strong emphasis on recurrence and persistence is apparent. The preamble notes that, on 13 June 2025, the Council reiterated its grave concern that GNSS interference had continued despite a long sequence of prior Council decisions dating back to 2012, 2016, and 2024. This historical layering is crucial in that it establishes the interference as not episodic, but rather as part of a sustained pattern of conduct. The preamble further specifies that the interference has been ongoing since 2 October 2024 and has directly jeopardized the safety of international civil aviation within the Incheon Flight Information Region, thereby grounding the legal assessment in concrete operational consequences.

40. C-DEC 235/7, see *supra*, note 21.

- Crucially, both preambles record that the Russian Federation and the Democratic People's Republic of Korea were formally notified that such recurring GNSS interference was incompatible with their obligations under the Chicago Convention, yet both States failed to respond to the Council's requests to implement corrective measures. This element of notice and non-response performs a key due-process function, demonstrating that the Assembly's action is neither abrupt nor arbitrary, but rather the culmination of prior engagement and unheeded warnings.
- The preambles conclude by recalling that, in light of this failure, the Council decided to submit these matters to the Assembly pursuant to Article 54(k) of the Chicago Convention.

Read together, both preambles function as more than a recital of facts. They operate as a legal bridge between technical disruption and institutional accountability, tracing a clear progression from safety principles, through Council findings and State notification, to Assembly consideration. In doing so, they lay the normative and procedural groundwork for the Assembly's subsequent determination that the conduct in question constitutes an infraction of the Chicago Convention and pave the way for the adoption of the respective operative clauses, to which the analysis now turns.

2. The Text of the Resolutions: Operative Clauses

The resolutory parts of Resolution A42-2 and Resolution A42-3 signal the culmination of the institutional and legal process outlined in the preambles, as well as the formal crystallization of the Assembly's response to the matters submitted by the Council under Article 54(k). They transform the concerns and findings developed in the preambles into binding institutional positions and directives. Through these sections, the Assembly moves decisively from diagnosis to action, asserting its collective authority in response to conduct deemed incompatible with the Convention's core principles. What follows is a synthesized summary and brief commentary on the principal elements of those operative clauses.

- At the outset, the operative clauses of both resolutions explicitly endorse the Council's determination that the recurring GNSS radio frequency interference affecting the Baltic, Eastern, and Northern European regions and the Korean Peninsula, and originating from the territories of the Russian Federation and the Democratic People's Republic of Korea, respectively, constitutes conduct contrary to the principles of the Chicago Convention.
  This endorsement is legally paramount. In affirming the Council's assessment, the Assembly confirms the legitimacy of the Council's role in examining factual evidence, engaging the States concerned, and determining whether the threshold of an infraction has been met. In doing so, the Assembly characterizes such conduct as an infraction of the Convention, thereby elevating the issue from a technical or operational disturbance to a breach of binding international obligations and situating the case squarely within the Convention's enforcement and accountability framework, rather than treating it as a purely technical or political dispute.

- The resolutions further express the Assembly's formal condemnation of the Russian Federation and the Democratic People's Republic of Korea in respect of the recurrence of GNSS interference and of the risks such conduct poses to the safety and security of international civil aviation.
  These condemnations, far from being merely declaratory, perform a dual function. Normatively, they articulate the collective judgment of Contracting States that the conduct in question is unacceptable and incompatible with the shared obligations of the international aviation system. Institutionally, they signal that repeated interference with essential navigation infrastructure may attract not only expressions of concern, but explicit censure at the highest level of ICAO governance.
- Beyond the condemnations, the resolutions adopt a forward-looking posture by urgently calling upon the Russian Federation and the Democratic People's Republic of Korea to comply strictly with their obligations under the Convention and to take immediate and effective measures to prevent the recurrence of GNSS interference.
  The emphasis on urgency reflects the Assembly's conviction that the risk is ongoing and that any delay in corrective action could further endanger international civil aviation. The language employed underscores that compliance is not discretionary, but an immediate legal obligation flowing from membership in the Convention.
- Recognizing that condemnation alone may be insufficient, the resolutions further request the Council to remain seized of the matter.
  This provision ensures continuity of oversight and reflects the Assembly's intention that the issue remain subject to active institutional monitoring. In addition, it preserves the Council's role as the body responsible for assessing subsequent developments, evaluating compliance, and determining whether additional action may be required should interference persist.
- In the final clause of both resolutions, the Secretary General is instructed to draw the attention of all Contracting States to them without delay, a directive that serves both transparency and deterrence.
  Through ensuring that all States are formally informed of the Assembly's decision, this measure reinforces collective awareness of the legal consequences associated with GNSS interference and strengthens the normative expectations applicable to all Contracting States.

Considered together, the resolutory parts of Resolution A42-2 and Resolution A42-3 constitute a clear assertion of ICAO's collective authority and compliance-enforcement framework. They confirm that persistent and attributable GNSS interference, when left unaddressed following Council engagement and formal notice, may be elevated to the level of an infraction of the Chicago Convention, thereby warranting condemnation, requiring immediate compliance, and justifying continued institutional supervision. In this respect, these resolutions represent a significant development in ICAO practice, illustrating the Organization's willingness to translate technical disruption into legal accountability within the framework of the Convention.

It is worth noting that, on the same day the Assembly resolutions were adopted, the European Union, acting through its Directorate-General for Mobility and Transport, issued a public statement welcoming ICAO's decision to condemn the Russian Federation for conduct undermining global aviation safety. That position was subsequently reinforced by a statement from the Commissioner for Sustainable Transport and Tourism, Apostolos Tzitzikostas, who stated: *"The interference with GNSS services is completely unacceptable, and I welcome the unequivocal condemnation from ICAO Member States of these serious violations. Such disruptive activities pose a direct threat to aviation safety and security. It is imperative that those responsible are held fully accountable for their actions."*[41]

C). Beyond the Text of the Resolutions

1. "Infraction" under Article 54(k): Prior ICAO Deliberations and Institutional Practice

At the 158th Session of the ICAO Council in 1999, and pursuant to a prior Council's request, the Secretary General submitted working paper C-WP/11186, examining the concept of "infractions" of the Convention and the scope of the Council's authority under Article 54(j)[42] and 54(k)[43] of the Chicago Convention to determine and report such infractions.[44] The principal findings of the paper may be summarized as follows, drawing on the formulation used in the working paper.

- In light of the fact that the Convention does not define the term "infraction," by reference to its legal definition, the principles of treaty interpretation under the Vienna Convention, "... Article 54, paragraph (j) and (k) are to be given their ordinary meaning to include any infraction, breach, violation or infringement of the Chicago Convention." However, Article 69 contains a provision indicating what shall not be considered as an infraction.[45]

41. European Commission, *EU welcomes UN aviation agency's condemnation of Russia for undermining global aviation safety* (Oct. 3, 2025), available at https://transport.ec.europa.eu/news-events/news/eu-welcomes-un-aviation-agencys-condemnation-russia-undermining-global-aviation-safety-2025-10-03_en (last accessed: 15 January 2026).
42. "Article 54. Mandatory functions of Council. *The Council shall: [...] j) Report to contracting States any infraction of this Convention, as well as any failure to carry out recommendations or determinations of the Council.*"
43. See *supra*, note 19.
44. C-WP/11186 (10/11/99).
45. "Article 69. Improvement of air navigation facilities. I*f the Council is of the opinion that the airports or other air navigation facilities, including radio and meteorological services, of a contracting State are not reasonably adequate for the safe, regular, efficient, and economical operation of international air services, present or contemplated, the Council shall consult with the State directly concerned, and other States affected, with a view to finding means by which the situation may be remedied, and may make recommendations for that purpose. No contracting State shall be guilty of an infraction of this Convention if it fails to carry out these recommendations.*"

- The Council is to report not alleged infractions, but actual infractions which have been determined by the Council. In making such a determination, a quasi-judicial process that respects due process and the right of the State concerned to be heard must be followed.
- Once the Council has made a determination in the matter, that determination is binding on all member States of the organization.
- When the Council has determined that an infraction exists, it must report this fact to Contracting States.
- The Council must report the infraction to the Assembly only where a contracting State has failed to take appropriate action within a reasonable time after notice of the infraction; the Council is therefore not obliged under paragraph (k) to report all infractions to the Assembly. Furthermore, only the Council can decide what constitutes a reasonable period of time within which to act, of which the State should be informed.
- Article 54 deals only with infractions of the provisions of the Convention itself but not those of the Annexes, whose status is governed by Articles 37, 38, 90 of the Convention.
- There had been so far no decision of the Council based explicitly on Article 54 (j) and (k).
- However, without referring to these paragraphs, the Council has in certain instances made a determination that an infraction, breach, infringement or violation of principles or of rules of the Convention has taken place, namely in cases of shoot-down or interception of civil aircraft.[46]

The paper further concluded that:

- In a number of instances where the Council has adopted a Resolution or a Declaration (e.g. the shoot-down cases), the Council has in fact applied the Article 54 (j) procedure without expressly making reference to it by communicating to Contracting States such Resolution or Declaration.

46. The working paper recalls that:
1) On 4 June 1973, the Council adopted a Resolution in which it referred to an action against Beirut Civil Airport and the shoot-down of a Libyan civilian airliner resulting in the loss of 108 lives. The Council, *inter alia*, recognized "that such attitude is a flagrant violation of the principles enshrined in the Chicago Convention".
2) In respect of the shoot-down of KAL 007 in 1983, on 16 September 1983, an Extraordinary Session of the Council adopted a resolution in which it recognized that such use of armed force against international civil aviation is incompatible with the rules in the Chicago Convention. Again on 6 March 1984, the Council adopted another resolution in which it recognized that such use of armed force is incompatible with the rules in the Convention.
3) In February 1986, the Council considered a request of the Government of Syria concerning the interception and diversion by a military aircraft in international airspace of a Libyan Arab Airlines aircraft operating along international air routes. The Council adopted a resolution on 28 February 1986, by which it considered that this was "an act against international civil aviation in violation of the principles of the Chicago Convention."
4) On 6 March 1996, the Council adopted a resolution in relation to two US – registered private civil aircraft which were shot down in February 1996. The Council reaffirmed that the use of weapons against civil aircraft in flight is incompatible with the rules enshrined in the Chicago Convention.

- Through its Annual Report to the Assembly, it has also applied the Article 54 (k) procedure without express reference.
- Infractions can be of grave consequences; others can be relatively insignificant.
- Each case is unique and must be considered in the light of its particular facts.
- The past practice of the Council has been to determine an infringement of the Convention only in more serious cases. Therefore, in continuity of such practice, the Council may wish to consider taking the action specified in Article 54 (j) and (k) only where important considerations are at issue, including but not limited to those of the type and gravity previously referenced.
- Other possibilities exist for addressing less serious infractions, including the use of the good offices of the President of the Council, guidance issued by the Council, or guidance and assistance provided by the Secretary General. In such instance, this type of action may be sufficient to cause the infraction to be remedied.

At its fourth meeting of the 158th Session, the Council considered working paper C-WP/11186. Following consideration, the Council:

- Noted the paper and, as further guidance, agreed with its conclusions.
- Requested the Secretariat to update the *Repertory-Guide to the Convention on International Civil Aviation* (ICAO Doc 8900), the most recent edition of which at that time dated from September 1977.[47]

As a result, the Council effectively consolidated the analytical framework articulated in working paper C-WP/11186 as part of ICAO's institutional understanding of infractions under Article 54(j) and (k).

2. Analysis of Article 54(k) of the Chicago Convention as a Compliance Mechanism

Although succinctly framed, Article 54(k) of the Convention establishes a distinctive compliance mechanism within ICAO's system of governance. It is not a dispute-settlement provision—those functions being reserved to Articles 84–88 of the Convention—but rather a reporting and accountability device through which the Convention imposes a specific institutional obligation on the ICAO Council: to report to the Assembly any infraction where a Contracting State fails to take appropriate action within a reasonable time after notice thereof.

In this respect, Article 54(k) occupies an intermediate space between technical oversight and formal adjudication. It empowers the Council to make threshold legal assessments concerning compliance with the Convention, while reserving to the Assembly the role of articulating the Organization's collective response. Viewed in this light and following the wording used in C-WP/11186, Article

47. C-DEC 158/4 (19/11/99).

54(k) functions as a quasi-adjudicative compliance pathway, translating institutional findings into expressions of political accountability without recourse to compulsory dispute settlement.

Even notable crises—such as the destruction of Korean Air Lines Flight 007 in 1983 and the downing of Malaysia Airlines Flight 17 in 2014—prompted intense Council engagement and Assembly action, yet did not culminate in formal reporting under Article 54(k).[48] As a result, the mechanism has remained largely dormant in practice.

Against this background, the Council's decision adopted in 2025 to invoke Article 54(k) in response to GNSS interference constitutes a significant development. The Council concluded that sustained jamming and spoofing activities attributable to the Democratic People's Republic of Korea and the Russian Federation amounted to conduct of sufficient gravity to qualify as treaty infractions, and that both States had failed to take "appropriate action" despite repeated notifications. This conclusion rested on an extensive evidentiary record—including ADS-B data, signal geolocation analyses, and operational reports submitted by affected air navigation service providers—combined with documented patterns of non-responsiveness on the part of the Democratic People's Republic of Korea and the Russian Federation.[49]

3. The Rarity and Significance of Formal Assembly Condemnations

The ICAO Assembly has, over time, adopted a measured approach with respect to naming individual Contracting States in resolutions of a condemnatory character. This practice is rooted in a consensus-oriented institutional culture that traditionally favors technical cooperation,

48. It must be noted, however, that on 12 May, 2025, the Council of ICAO voted that the Russian Federation failed to uphold its obligations under international air law in the 2014 downing of Malaysia Airlines Flight MH17. This represents the first time in ICAO's history that its Council has made a determination on the merits of a dispute between Member States under the Organization's dispute settlement mechanism, Chapter XVIII of the Chicago Convention (see Chapter IV, Section B), "*Dispute settlement mechanism under the Chicago convention*" below).

49. It was not until the convening of the 42nd ICAO Assembly that the Democratic People's Republic of Korea formally presented its position, through the submission of Working Paper A42-WP/557, "*A42-WP/44 is the product of prejudice and provocation on the Democratic People's Republic of Korea*", in which categorically rejects allegations that recurring GNSS radio-frequency interference affecting the Republic of Korea (ROK) originated from DPRK territory. The paper characterizes those allegations as politically motivated and lacking objective or scientific evidence, arguing that the DPRK has consistently fulfilled its obligations under the Chicago Convention. It maintains that GNSS interference incidents cited by the ROK since 2011 have been unfairly attributed to the DPRK through what it describes as prejudicial Council actions.

The paper contends that the reported GNSS disruptions are instead the inevitable by-product of extensive ROK–United States military exercises, dense radar and electronic-warfare activity, inadequate radio-frequency management, and the widespread availability of jamming devices within the ROK. It presents technical measurements, media reports, and timelines purportedly correlating interference incidents with military exercises, and concludes by calling on ICAO to reconsider prior Council decisions, to recognize the alleged misattribution of responsibility, and to identify what it describes as the true sources of risk to the safety of international civil aviation.

confidence-building measures, and discreet diplomatic engagement over formal censure. It also reflects ICAO's origins as a functional, technical organization and its long-standing emphasis on maintaining universality and dialogue, even in politically sensitive contexts. As a result, explicit condemnations in Assembly resolutions have been exceptional and generally reserved for circumstances involving egregious and widely acknowledged threats to civil aviation, such as those referenced in C-WP/11186.[50]

Within this framework, Assembly Resolution A42-2 and Assembly Resolution A42-3 constitute a notable departure from established Assembly practice. Framed within the procedural language of Article 54(k), their tone and structure are reminiscent—though not identical—of earlier Assembly responses to major acts of unlawful interference with civil aviation. The express naming and condemnation of both the Russian Federation and the Democratic People's Republic of Korea therefore represent a qualitative evolution in the Assembly's willingness to engage in public attribution when confronted with persistent and demonstrable threats to aviation safety.

This development reflects the seriousness with which GNSS radio frequency interference is now perceived within ICAO. No longer treated merely as a technical anomaly or a collateral by-product of military activity, such interference is increasingly understood as a novel form of transboundary harm, capable of undermining the integrity of global air navigation systems on a sustained basis. The Assembly's language further suggests a growing institutional frustration with interference episodes that have persisted despite repeated Council engagement, offers of technical assistance, and diplomatic démarches. In this sense, the condemnations may be read not only as responses to specific conduct, but also as signals of the constrains of ICAO's traditional tools when faced with deliberate or strategically motivated interference.

4. The Institutional Meaning of "Endorsement" in ICAO Practice

Article 54(k) of the Chicago Convention obliges the Council to report infractions to the Assembly; however, the Convention remains silent as to the legal consequences that may flow from any Assembly "endorsement" of the Council's determination that a given conduct constitutes an infraction. In particular, it offers no explicit guidance as to whether such endorsement entails legal effects beyond mere acknowledgment. In practice, however, it may be inferred that endorsement has acquired a distinct institutional meaning, performing functions that extend well beyond procedural formality.

- At a first level of analysis, endorsement may be understood as transforming the Council's determinations into expressions of collective institutional will. While the Council's findings carry considerable authority—as the product of a smaller, continuously sitting body endowed with extensive powers, including the settlement of differences between States—endorsement by the Assembly, ICAO's highest governing organ, signals the agreement, or at least

50. See *supra*, note 46.

the acceptance, of the Organization's global membership. This transition from Council determination to Assembly endorsement substantially enhances the political and normative weight of the finding, particularly in circumstances where consensus has been achieved across diverse regional and political groupings.

- Endorsement may also be seen as playing a critical role in the internalization and diffusion of norms within the ICAO system. Although Assembly resolutions are not legally binding as such, they are widely regarded as authoritative expressions of ICAO's collective understanding of the Chicago Convention and its application. In practice, such resolutions inform State *behavior in multiple ways, as they may, inter* alia, shape regulatory implementation, influence compliance assessments by oversight bodies, guide the drafting of national aviation legislation, and provide reference points in diplomatic exchanges. In some contexts, they may also be invoked indirectly in dispute settlement, arbitration, or litigation as evidence of an evolving interpretative consensus.
- It may therefore be concluded that, through endorsement, the Assembly elevates the Council's conclusion—that State-attributable, recurring GNSS interference may constitute an infraction of the Chicago Convention—into the interpretive acquis of ICAO.

This body of institutional understanding and practice represents the shared framework through which the Convention's provisions are adapted to contemporary technological and security realities. Through endorsing the Council's determinations, the Assembly confirms that the Convention's safety obligations extend to the protection of satellite-based navigation systems, and that persistent interference with such systems may trigger the Convention's accountability mechanisms.

In this way, Resolutions A42-2 and A42-3 do more than address individual cases. They contribute to the gradual crystallization of a normative and interpretative framework within ICAO, one in which emerging forms of interference with critical aviation infrastructure are clearly situated within the Convention's legal regime and made subject to collective institutional response.

Chapter III. Gnss Interference as a Breach of the Chicago Convention

The endorsement by the ICAO Assembly of the Council's determination that GNSS interference constitutes an "infraction" within the meaning of Article 54(k) raises fundamental questions regarding the substantive obligations of States under the Chicago Convention. Although the Convention was concluded in 1944—several decades before the emergence of satellite-based navigation—Assembly Resolutions A42-2 and A42-3 interpret its provisions as encompassing legal norms capable of safeguarding the integrity of contemporary navigation systems. The following section examines how GNSS interference is situated within the legal framework of the Convention, how international law accommodates technological evolution in the interpretation

of treaty obligations, and why State-attributable GNSS interference falls within the scope of unlawful interference with international civil aviation, notwithstanding the absence of explicit textual references to satellite-based navigation.

A). GNSS Interference Within the Framework of the Chicago Convention

1. Interpreting the Chicago Convention in Light of "Present-Day Conditions"

International adjudicatory bodies have long accepted that treaties governing technical or regulatory domains must be interpreted in light of evolving technologies and contemporary operational realities. In particular, both the *Permanent Court of International Justice* and the *International Court of Justice* have emphasized that treaty terms– especially those concerned with safety, regulation, and cooperation–are not frozen at the moment of their adoption, but must instead be read in light of "present-day conditions."[51]

The Chicago Convention embodies this evolutionary logic. Articles 12 and 28 expressly establish the obligation of States to conform, to the greatest possible extent, to regulations and standards recommended or established by ICAO *from time to time*, thereby anticipating technological transformation. [52]

The Annexes to the Chicago Convention, technical regulatory instruments adopted and amended by the ICAO Council[53] through which ICAO develops and updates International Standards and Recommended Practices for international civil aviation, are dynamic instruments particularly well suited to incorporating advances in communications, navigation, and surveillance technologies as they emerge.

It must be recalled that Article 37, having enumerated the specific matters on which the Council is to adopt International Standards and Recommended Practices, further includes a residual clause extending that authority to "such other matters concerned with the safety, regularity and

51. *Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276 (1970)*, Advisory Opinion, 1971 I.C.J. Rep. 16, 31 ("an international instrument has to be interpreted and applied within the framework of the entire legal system prevailing at the time of the interpretation"); *Gabčíkovo–Nagymaros Project (Hung./Slovk.)*, Judgment, 1997 I.C.J. Rep. 7, 78 ("new norms and standards" must be taken into consideration when interpreting and applying treaty obligations); *Nationality Decrees Issued in Tunis and Morocco*, Advisory Opinion, 1923 P.C.I.J. (ser. B) No. 4, at 24 (recognizing that treaty interpretation must account for evolving circumstances).

52. "Article 12. *Rules of the air. [...] Each contracting State undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention. [...]". "Article 28. Air navigation facilities and standard systems. Each contracting State undertakes, so far as it may find practicable, to: [...] c) Collaborate in international measures to secure the publication of aeronautical maps and charts in accordance with standards which may be recommended or established from time to time, pursuant to this Convention."*

53. "*Chicago Convention*", *supra*, note 5, art. 54, inc. (l) and (m), and art. 90.

efficiency of air navigation".[54] This deliberately expansive formulation has enabled ICAO to address emerging challenges not envisaged at the time of the Convention's adoption. In addition, Article 54(n) empowers the Council to "consider any matter relating to the Convention which any Contracting State refers to it," thereby reinforcing the Organization's capacity to engage with novel regulatory issues affecting international civil aviation.

Taken together, these provisions have provided the legal foundation for ICAO's assertion of competence in areas that, while absent from the Convention's text, are nonetheless closely connected to the orderly and sustainable development of international air transport.

A clear illustration of this interpretive approach can be found in ICAO's treatment of aviation and climate change. Although the Chicago Convention contains no explicit reference to this matter or environmental protection, ICAO has consistently regarded the regulation of aviation-related emissions as falling within its institutional competence by virtue of the Convention's object, purpose, and dynamic structure.[55] This finds concrete expression in some of ICAO's most ambitious initiatives, including the adoption *of the Carbon Offsetting and Reduction Scheme for International Aviation* (CORSIA) in October 2016 and, more recently, the elaboration and adoption of the *ICAO Strategic Plan 2026–2050: Safe Skies, Sustainable Future*, which elevates the objective of net-zero carbon emissions to one of its foundational pillars.

Viewed against this background, it may reasonably be concluded that ICAO's interpretation that GNSS integrity falls within the scope of Convention obligations and established ICAO practice is doctrinally orthodox rather than innovative. The Convention's structure explicitly authorizes ICAO to integrate new navigation technologies into the existing legal framework without recourse to formal treaty amendment. Global Navigation Satellite System, though unknown at the time of the Convention's adoption in 1944, has since become an essential component of international air navigation and therefore falls squarely within the Convention's evolving normative reach.

2. ICAO's Safety Mandate

The Preamble of the Chicago Convention and, principally, its Article 44 articulate the core objectives of the Convention itself and of ICAO, including the development of international air navigation in a safe and orderly manner and the promotion of flight safety. ICAO practice has long regarded Article 44 as establishing broad normative expectations that guide State conduct, particularly in areas bearing upon systemic aviation safety.[56]

54. "Article 37. *Adoption of international standards and procedures. [...] To this end the International Civil Aviation Organization shall adopt and amend from time to time, as may be necessary, international standards and recommended practices and procedures dealing with: [...] and such other matters concerned with the safety, regularity, and efficiency of air navigation as may from time to time appear appropriate.*"

55. In this regard, ICAO has relied on a number of provisions of the Convention, in particular Articles 44, 37, and 54.

56. "*Chicago Convention*", *supra*, note 5. "Preamble. *[...] the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner*

Persistent GNSS interference is fundamentally incompatible with these objectives. By undermining navigational reliability across multiple regions, such interference directly contravenes the safety-oriented purposes that animate the Convention. Read together, Articles 12, 28, and 44—supplemented by the Annexes and reinforced by consistent ICAO practice—form a coherent legal framework within which State-attributable GNSS interference constitutes a breach of the Chicago Convention.

3. GNSS as a "Navigation Facility" Under Article 28

Against this safety-oriented mandate, the Convention's specific obligations concerning air navigation facilities acquire particular significance. Article 28 obliges each Contracting State to provide, in its territory, the air navigation facilities and services necessary to ensure the safe operation of aircraft. While Global Navigation Satellite System (GNSS) differs in form from traditional ground-based aids to navigation, ICAO and the broader aviation community have consistently treated satellite-based navigation as an integral component of the global air navigation infrastructure. This understanding is reflected in ICAO Annex 10, "*Aeronautical Telecommunications*", which incorporates satellite navigation standards and recognizes GNSS as a core element of the Communications, Navigation, and Surveillance (CNS) system. From a functional perspective, GNSS performs precisely the role contemplated by Article 28, enabling safe, continuous, and standardized aircraft navigation across international airspace.

State conduct that degrades GNSS functionality therefore undermines the provision of navigation facilities required by Article 28. The obligation to "provide" such facilities necessarily entails a correlative duty not to impair or disrupt them, particularly where such degradation endangers international civil aviation. A State cannot simultaneously comply with its obligations under Article 28 while permitting, or engaging in, conduct that renders GNSS unreliable or unsafe.

4. GNSS Interference and Article 12 (Rules of the Air)

Article 12 requires Contracting States to adopt and enforce rules of the air in conformity with the ICAO "rules and regulations relating to the flight and maneuver of aircraft" in force.[57] These rules presuppose the availability of reliable navigation systems, including GNSS, upon which modern operational concepts—such as area navigation (RNAV), performance-based navigation (PBN), and advanced air traffic management—depend.

and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically; [...]". "Article 44. Objectives. "The aims and objectives of the Organization are to [...]: (a) Insure the safe and orderly growth of international civil aviation throughout the world; (b) Encourage the arts of aircraft design and operation for peaceful purposes; [...] (d) Meet the needs of the peoples of the world for safe, regular, efficient and economical air transport; [...] (h) Promote safety of flight in international air navigation; [...]."

57. See *supra*, note 52.

GNSS interference directly disrupts compliance with ICAO rules of the air. When aircraft are deprived of accurate GNSS data, they are compelled to deviate from standardized navigation procedures, thereby affecting adherence to air traffic control clearances and the uniform application of operational standards. Where such interference extends beyond national airspace, its effects reverberate throughout the international aviation system, undermining the Convention's objective of uniformity.

Whether such interference is intentional or incidental to military activity is legally neutral to this analysis. What is determinative is its effect: the impairment of the consistent application of ICAO-mandated rules of the air.

B). Normative Reinforcement and Institutional Practice Relating to GNSS Interference

1. Annex 10 and the Incorporation of GNSS Standards

The legal status of the Annexes to the Convention is governed by the Convention's own provisions,[58] from which it follows that the Annexes do not enjoy the same formally binding force as the Convention itself.[59] Moreover, Article 54, paragraph(l), makes clear that International Standards and Recommended Practices are designated as Annexes to the Chicago Convention "for convenience." The Annexes have therefore often been characterized as a form of "*technical international legislation*"[60] or "*soft law*"[61] rather than as treaty law.[62] Furthermore, under Article 37 of

58. In particular, arts. 37 and 38 of the Convention.

59. One compelling reason for such conclusion is that they are not subject to signature and ratification by States and, therefore, are not binding treaty law in the sense of the Vienna Convention on the Law of Treaties of 1969. Art. 90 of the Chicago Convention prescribes that: "*Any such Annexes or any amendment of the Annex shall become effective within three months after its submission by the Council to the Contracting States or at the end of such longer period of time as the Council may prescribe, unless in the meantime a majority of the Council States register their disapproval with the Council.*"

60. Cfr. T. Buergenthal, *Law-making in the International Civil Aviation Organization* (New York, Syracuse University Press 1969), p. 57 et seq. Also, B. Cheng, *The Law of International Air Transport* 64 (Stevens 1962), p. 63 et seq.; Le Geoff, 'Les Annexes techniques à la Convention de Chicago', 19 *Revue Générale de l'Air* (1956), p. 146 et seq.; R. Mankiewicz, 'L'adoption des annexes à la Convention de Chicago par le Conseil de l'Organisation internationale de l'aviation civile', in: L. Brandt (ed.), *Beiträge zum Internationalen Luftrecht. Festschrift zu Ehren von Alex Meyer*, (Düsseldorf, Droste Verlag 1954) p. 82 et seq.; all as referenced in L. Weber: *International Civil Aviation Organization (ICAO)*, Wolters Kluwer. Law & Business (The Netherlands, 2012), page 46.

61. M. Milde, *International Air Law and ICAO*, Eleven International Publishing, 3rd edition (2016), page 175 (hereinafter "*Milde, M: International...*").

62. This conclusion is supported, inter alia, by the fact that the Annexes are not subject to signature and ratification by States and, therefore, are not binding treaty law in the sense of the Vienna Convention on the Law of Treaties of 1969. Art. 90 of the Chicago Convention prescribes that: "*Any such Annexes or any amendment of the Annex shall become effective within three months after its submission by the Council to the Contracting States or at the end of such longer period of time as the Council may prescribe, unless in the meantime a majority of the Council States register their disapproval with the Council.*"

the Chicago Convention, States accept an obligation to cooperate "to the highest practicable degree," while Article 38 recognizes the right of States to depart from international standards or procedures where they find it "impracticable to comply in all respects with any such international standard or procedure," subject to the corresponding duty to notify any such difference.
Nevertheless, as observed, "it is convincing that the international standards are not devoid of legal significance [...]. Moreover, States are strongly motivated to implement international standards by the sheer realities of international life."[63] Finally, international jurisprudence has recognized ICAO Annexes as authoritative interpretive guides to the Convention's substantive obligations.[64]
ICAO Annex 10, "*Aeronautical Telecommunications*", sets out detailed Standards and Recommended Practices governing GNSS operations, including requirements relating to signal performance, integrity, continuity, and protection against harmful interference. The Annex recognizes GNSS as a core component of the global air navigation infrastructure and articulates affirmative expectations that States ensure the availability and reliability of GNSS signals used for civil aviation.
In this light, persistent GNSS interference is fundamentally incompatible with the operational premises embedded in Annex 10 and undermines the effectiveness of the Convention's implementation mechanisms by eroding the reliability of navigation systems on which international civil aviation now structurally depends.

2. The Duty to Prevent Harmful Interference

Long before the emergence of GNSS, ICAO's legal instruments acknowledged that harmful interference with aeronautical communications and navigation systems jeopardizes flight safety. Annex 10, read as a whole, accordingly imposes obligations on States to protect aviation frequencies and to prevent harmful interference, and Assembly Resolution A41-8 explicitly incorporated this principle, affirming that the spectrum used by all CNS systems, and GNSS in particular, must be free from harmful interference and calling upon States to refrain from jamming and spoofing that affect civil aviation. Similarly, Assembly Resolution A42-8 urges States to: a) ensure close collaboration between aviation authorities, military authorities, service providers, radio regulatory and spectrum enforcement authorities to put in place any special measures required to ensure that the spectrum used by all CNS systems, and GNSS in particular, is free from harmful interference; b) refrain from any form of jamming, or spoofing affecting civil aviation.
Resolutions A42-2 and A42-3 therefore represent not a doctrinal rupture, but rather a significant step in a progressive normative trajectory within ICAO practice, reflecting the Organization's incremental and deliberate consolidation of legal principles addressing GNSS interference as a matter of aviation safety and security.

63. "*Milde, M., International...*", see *supra*, note 61, page 175.
64. *ICAO Council Jurisdiction Case* (India v. Pakistan), 1972 I.C.J. 46, 71.

3. State Practice and *Opinio Juris*

State reactions to GNSS interference, particularly among European aviation authorities, provide important evidence of an emerging *opinio juris* to the effect that harmful GNSS interference is inconsistent with international legal obligations. Numerous States have characterized State-attributable interference as contrary to the Chicago Convention, while regional institutions have welcomed ICAO's determinations as authoritative confirmation of the applicable legal framework.[65]

This articulated legal position is reinforced by negative practice, as most States refrain from GNSS jamming that affects civil aviation, including in the context of military exercises. This consistent pattern of restraint supports the understanding that interference with GNSS used by civil aircraft is regarded as impermissible under international law.

Taken together, ICAO's institutional acts, consistent State practice—including restraint—and articulated *opinio juris* support the emergence of a customary norm prohibiting GNSS interference that affects international civil aviation.

4. ICAO–IMO–ITU Interaction: Spectrum Governance and Legal Complementarity

The International Telecommunication Union (ITU), the International Civil Aviation Organization (ICAO), and the International Maritime Organization (IMO) issued a *Joint Statement on the protection of the Radio Navigation Satellite Service from harmful interference*, signed on 17 March 2024 by the ITU and on 18 March 2025 by the ICAO and the IMO.[66]

The Joint Statement represents a coordinated and authoritative expression of concern by the three United Nations specialized agencies most directly responsible for the safety and integrity of global aviation, maritime navigation, and radiocommunications, situating GNSS interference as a cross-sectoral safety and security issue rather than a purely technical matter.

The Joint Statement recalls the respective mandates of The International Telecommunication Union, the International Civil Aviation Organization, and the International Maritime Organization, and grounds its analysis in binding provisions of the ITU *Constitution and Radio Regulations*,[67] relevant ICAO Assembly resolutions, and maritime safety obligations under the *International Convention for the Safety of Life at Sea* (SOLAS Convention).[68] It emphasizes that

65. See *supra*, notes 8, 10 and 11.

66. Joint *Statement by The Secretary General of the International Telecommunication Union, The Secretary General of the International Civil Aviation Organization, The Secretary General of the International Maritime Organization regarding Protection of the Radio Navigation Satellite Service from Harmful Interference*; available at https://www.itu.int/harmful-interference-to-rnss/wp-content/uploads/sites/74/2025/07/Joint-Declaration-ITU-ICAO-IMO-on-RNSS1303_DBM.pdf (last accessed: 15 January 2026).

67. *Constitution of the International Telecommunication Union*, adopted on 22 December 1992, entered into force on 1 July 1994.

68. *International Convention for the Safety of Life at Sea*, adopted on 1 November 1974, entered into force on 25 May 1980.

frequencies used for radionavigation and other safety services require absolute international protection and notes, with grave concern, the increasing number of cases of jamming and spoofing affecting the Radio Navigation Satellite Service (RNSS). The document further highlights the growing reliance of civil aviation, maritime transport, humanitarian operations, and telecommunications networks on GNSS for positioning, navigation, timing, and distress and safety services, underscoring the systemic consequences of interference, including effects extending beyond conflict zones.

In this context, the three organizations jointly and urgently call on Member States to take concrete action to protect GNSS from harmful interference, to reinforce the resilience of systems dependent on satellite navigation, and to retain sufficient conventional navigation infrastructure as a contingency. The Joint Statement further urges enhanced inter-authority coordination across aviation, maritime, defense, spectrum regulation, and enforcement bodies, as well as systematic reporting of interference incidents to enable international monitoring and response. In doing so, the Joint Statement consolidates existing legal obligations and institutional practice into a unified call for accountability, prevention, and resilience in the face of escalating GNSS interference risks, and contributes to the progressive development of *opinio juris* identified in the preceding section.

C). GNSS Interference as an "Act of Unlawful Interference" with Civil Aviation

The foregoing analysis establishes that persistent, State-attributable Global Navigation System interference engages multiple layers of obligation under the Chicago Convention and its associated normative framework. Considered cumulatively, treaty interpretation, Annex-based standards, institutional practice, and converging expressions of State concern do more than demonstrate non-compliance with discrete technical requirements. Together, they support a broader legal characterization of such conduct within the Convention system. Against this background, the concept of *unlawful interference* provides an appropriate and coherent framework through which the legal significance of GNSS interference affecting civil aviation may be understood.

On this basis, persistent and State-attributable GNSS interference may properly be understood as constituting unlawful interference with international civil aviation. Although the term "unlawful interference" has traditionally been associated with acts of aviation security such as hijacking, sabotage, or violence against aircraft and airports,[69] its defining characteristic lies not in the

69. In particular, under the *Convention for the Suppression of Unlawful Seizure of Aircraft*, signed at The Hague on 16 December 1970, entered into force on 14 October 1971; the *Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation*, signed at Montreal on 23 September 1971, entered into force on 26 January 1973; and the *Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation, Supplementary to the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation, done at Montreal on 23 September 1971*, signed at Montreal on 24 February 1988, entered into force on 6 August 1989.

means employed, but in the effects produced. Unlawful interference encompasses conduct that compromises the safety, regularity, or integrity of international civil aviation operations.

This effects-based understanding is reinforced by ICAO's own regulatory security framework. The definition of "unlawful interference" contained in Annex 17, *Security*,[70] sets out a series of illustrative examples while making clear that the enumeration is expressly non-exhaustive. It is against this open-ended formulation that deliberate GNSS jamming and spoofing must be understood as falling within the scope of the concept. From this perspective, intentional disruption of GNSS signals used for civil aviation—where such disruption degrades navigation performance, undermines situational awareness, or increases systemic risk—falls within the functional logic of unlawful interference.

It must be underscored that understanding GNSS interference as unlawful interference does not depend on the use of physical force, nor does it require proof of intent to cause physical harm. Contemporary aviation governance increasingly recognizes that intangible, technologically enabled conduct may generate consequences comparable to those traditionally associated with physical attacks. Global Navigation System interference illustrates how electromagnetic and cyber-enabled activities can produce transboundary safety risks without crossing conventional thresholds of physical or armed force. Where such measures spill over into international civil aviation, it is appropriate to understand them as constituting unlawful interference with the international air navigation system.

This characterization is also consistent with the broader evolution of international aviation security law reflected in the *Beijing Convention* and the *Beijing Protocol* (the *Beijing Instruments*, 2010).[71] While neither the Convention nor the Protocol expressly address satellite navigation or GNSS interference, they embody an effects-based conception of unlawful acts against civil aviation, focusing on whether conduct unlawfully jeopardizes safety or disrupts operations rather than on the specific modalities employed. This orientation is reflected in the definition of criminal offenses which expressly encompass interference with air navigation facilities or their operation—where such interference is likely to endanger the safety of an aircraft in flight—as well as conduct carried

70. Annex 17, *Security*. Twelfth Edition, July 2022. *"Acts of unlawful interference. These are acts or attempted acts such as to jeopardize the safety of civil aviation, including but not limited to: unlawful seizure of aircraft; destruction of an aircraft in service; hostage-taking on board aircraft or on aerodromes; forcible intrusion on board an aircraft, at an airport or on the premises of an aeronautical facility; introduction on board an aircraft or at an airport of a weapon or hazardous device or material intended for criminal purposes; use of an aircraft in service for the purpose of causing death, serious bodily injury, or serious damage to property or the environment; communication of false information such as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel or the general public, at an airport or on the premises of a civil aviation facility."*

71. *Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation, done at Beijing on 10 September 2010, entered into force on 1 July 2018 (hereinafter "Beijing Convention"), and Protocol Supplementary to the Convention for the Suppression of Unlawful Seizure of Aircraft, done at Beijing on 10 September 2010, entered into force on 1 January 2018 (hereinafter "Beijing Protocol").*

out through any technological means.[72] In this respect, sustained GNSS jamming or spoofing attributable to a State, where it compromises the safety, regularity, or integrity of air navigation, aligns with the functional logic underpinning the Beijing legal framework.[73]

This legal framing has consequential implications. Characterizing persistent GNSS interference as unlawful interference aligns with an integrated understanding of safety and security as mutually reinforcing objectives. Global Navigation System is treated not merely as an optional aid, but as a core component of the global air navigation infrastructure, and States are expected to ensure the availability, reliability, and protection of the signals upon which civil aircraft depend. Interference with GNSS therefore implicates not only technical performance standards, but also the broader obligation to safeguard the conditions necessary for safe and orderly international air navigation. At the same time, it remains fully consistent with ICAO's mandate and institutional culture, grounding the response in existing legal categories rather than introducing novel enforcement mechanisms. In this sense, the qualification of GNSS interference as unlawful interference represents a principled application of the Convention's objectives to contemporary technological realities.

Chapter IV. State Responsibility, Dispute Settlement, and Diplomatic and Regulatory Responses Beyond ICAO

The institutional endorsement by the ICAO Assembly of the characterization of State-attributable GNSS interference as an "infraction" within the meaning of Article 54(k) does more than identify unlawful conduct. It activates the broader architecture of international responsibility. Although ICAO itself is not vested with formal coercive enforcement powers, its legal determinations shape the consequences flowing from harmful interference, clarify the avenues available for dispute settlement, and delineate an emerging institutional frontier for the governance of satellite navigation systems. This Part examines these implications by situating the Assembly's decision within the framework of general international law, the dispute-settlement regime of the Chicago Convention, and the diplomatic and regulatory responses available beyond ICAO's own scope of action.

72. "*Beijing Convention*", Article 1(1) (d), *supra* note 71; "*Beijing Protocol*", Article 1(1), in fine, *supra* note 71.

73. At the institutional level, however, the institutional pathways remain distinct. The Chicago Convention and Article 54(k) operate at the level of State responsibility, compliance oversight, and institutional accountability, whereas the Beijing instruments are directed primarily at individual criminal responsibility and inter-State cooperation in suppression and prosecution. The present analysis does not seek to collapse these regimes, but rather to highlight their normative convergence in recognizing that modern threats to civil aviation increasingly arise from interference with critical technological infrastructure.

A). The International Law Commission's Draft Articles on State Responsibility: Concept, Structure, and Authority

The International Law Commission's *Draft Articles on Responsibility of States for Internationally Wrongful Acts*[74] constitute the most authoritative modern articulation of the general law governing State responsibility.[75] They address a foundational question of the international legal order: under what conditions State conduct gives rise to international responsibility, and what legal consequences follow once that responsibility is established. In doing so, the Articles operate at the level of what international legal doctrine traditionally describes as "secondary rules." [76]

At the core of the Articles lies the concept of an internationally wrongful act of a State, which arises where two cumulative conditions are met: the conduct must be attributable to the State under international law, and it must constitute a breach of an international obligation binding upon the State at the relevant time.[77]

A significant portion of the Articles is devoted to elaborating the rules of attribution, encompassing not only the acts of State organs, but also those of entities exercising governmental authority, officials acting ultra vires, and, under defined conditions, private conduct directed, controlled, or adopted by the State. These rules reflect the complexity of contemporary State action, particularly in technical and regulatory fields where authority is frequently exercised through specialized or delegated bodies.[78]

74. International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts*, adopted by the International Law Commission at its fifty-third Session, 2001 (hereinafter "*ILC: Articles...*").
75. The text of the Draft Articles, finalized after several decades of work, was adopted by the UN International Law Commission in 2001, and submitted to the General Assembly as a part of the Commission's report covering the work of that session. The report, which also contains commentaries on the draft articles, appears in *Yearbook of the International Law Commission*, 2001, vol. II (Part Two). The Draft Articles were subsequently transmitted to the General Assembly, taken note of, and annexed to UNGA Res 56/83, *Responsibility of States for internationally wrongful acts* (12 December 2001) UN Doc A/RES/56/83. Although they were not transformed into a multilateral convention and therefore do not possess binding force as a treaty, their normative significance is not diminished by this formal status. On the contrary, they are widely regarded as reflecting, to a large extent, rules of customary international law and are routinely relied upon by international courts and tribunals, as well as by States in diplomatic practice.
76. See ILC, *Draft Articles on Responsibility of States for Internationally Wrongful Acts, with Commentaries* (2001), General Commentary, para. 1 (stating that the Articles emphasize "the secondary rules of State responsibility," i.e., the general conditions for responsibility and the legal consequences of breach). See also *State Responsibility*, Oxford Public International Law (Max Planck Encyclopedia of Public International Law) (describing the ILC Articles as aiming to codify "secondary rules"). Cf. Ian Brownlie, *Brownlie's Principles of Public International Law* (Oxford University Press) (treating State responsibility as "secondary rules," i.e., framework rules distinct from primary obligations).
77. Part One, Chapter I, Art. 2.
78. Part One, Chapter II, Arts. 4–11.

The Articles further clarify the temporal and material dimensions of breach by distinguishing between instantaneous, continuing, and composite wrongful acts, as well as composite acts constituted by a series of actions or omissions taken as a whole.[79] These distinctions are legally consequential, as they affect the persistence of responsibility, the scope of reparation, and the availability of circumstances precluding wrongfulness.

In this regard, the Articles identify a limited set of such circumstances—including consent, self-defense, countermeasures, force majeure, distress, and necessity[80]—which do not negate the existence of an obligation or the attribution of conduct, but may justify or excuse non-compliance under strictly defined conditions. Their exceptional character underscores the primacy of compliance with international obligations.

Once responsibility is established, the Articles articulate the legal consequences incumbent upon the responsible State, notably the duties of cessation and non-repetition, and the obligation to make full reparation for the injury caused.[81]

The authority of the Articles is confirmed by their consistent reliance upon by international courts and tribunals, including the International Court of Justice, as well as by arbitral bodies and domestic courts. While some provisions may reflect elements of progressive development, the Articles as a whole function as the default reference framework for questions of State responsibility, supplying a shared legal vocabulary and analytical structure.

For present purposes, the Articles do not merely provide background doctrine, but constitute the essential legal structure within which State conduct must be assessed. Any analysis of individual provisions must therefore be situated within this broader conceptual and structural framework, which defines both the threshold of responsibility and the legal consequences flowing from internationally wrongful acts.

1. Internationally Wrongful Acts Under the Articles on State Responsibility

Under the *International Law Commission's Articles on Responsibility of States for Internationally Wrongful Acts*, a State commits an internationally wrongful act where conduct is both attributable to the State and constitutes a breach of an international obligation.[82] Measured against this dual criterion, State-origin GNSS interference satisfies both requirements.

1.1. Attribution

Global Navigation Satellite System interference may be attributed to a State in several circumstances. Attribution is established where jamming or spoofing originates from equipment operated by State organs, including military or intelligence units; where interference emanates from the territory of a State in the absence of any plausible alternative source; or where circumstantial

79. Part One, Chapter III, Arts. 12-15.
80. Part One, Chapter V, Arts. 20-25.
81. Part Two, Chapter I, Arts. 28-33, Chapter II, Arts. 34-39.
82. See *supra*, note 77.

and technical evidence demonstrates State direction or control over the interference system. In the cases examined by ICAO, the Council's determinations relied on a convergence of technical indicators—such as ADS-B positional anomalies, signal-strength clustering, temporal repetition, and geolocation analysis—indicating interference sources located within the territory of the Russian Federation and the Democratic People's Republic of Korea. In contexts involving signal-based interference, such cumulative technical evidence meets the International Court of Justice's standard of sufficiently persuasive proof for attribution.[83]

1.2. Breach of International Obligations

A breach of an international obligation, within the meaning of the ILC Articles on State Responsibility, arises where GNSS interference is inconsistent with an applicable obligation of the State under international law. In the aviation context, such obligations arise under several distinct yet mutually reinforcing legal regimes, including the Chicago Convention—most notably Articles 12, 28, and 44;[84] —the ICAO Annexes, in particular Annex 10 (*Aeronautical Telecommunications*); authoritative ICAO Assembly resolutions, including Resolutions A42-2, A42-3, and A42-8; the ITU *Radio Regulations* prohibiting harmful interference with space-to-Earth signals; and relevant rules of customary international law relating to the safety of civil aviation. Deliberate or tolerated GNSS interference degrades navigation facilities that States are obliged to maintain, undermines the standardized application of the rules of the air, and exposes civil aircraft to heightened operational risk. Such conduct is therefore incompatible with a dense and interconnected web of international obligations.

1.3. Absence of Valid Justifications

States may seek to justify GNSS interference on grounds of sovereignty or national defense, particularly in the context of military exercises or electronic warfare. Such justifications cannot prevail, however, where the interference spills into international or foreign airspace, affects civil aircraft operated by other States, creates systemic risks to aviation safety, or undermines obligations owed *erga omnes* partes under the Chicago Convention. In such circumstances, the plea of necessity cannot excuse conduct that seriously impairs the essential interests of other States.[85]

83. International Court of Justice, *Corfu Channel (United Kingdom v Albania)* (Merits) [1949] ICJ Rep 4, 18, where the Court held that circumstantial evidence may be relied upon provided it is *"based on a series of facts linked together and leading logically to a single conclusion"*. Also: *Bosnia and Herzegovina v Serbia and Montenegro* (Judgment) [2007] ICJ Rep 43, paras 209–210.

84. See *supra*, note 56 and 58.

85. *"ILC: Articles..."*, *supra*, note 72, "Article 25. *Necessity. 1. Necessity may not be invoked by a State as a ground for precluding the wrongfulness of an act not inconformity with an international obligation of that State unless the act: a. Is the only way for the State to safeguard an essential interest against a grave and imminent peril; and b. Does not seriously impair an essential interest of the State or States towards which the obligation exists, or of the international community as a whole. 2. In any case, necessity may not be invoked by a State as a ground for*

Aviation safety—lying at the core of the object and purpose of the Chicago Convention and of the objectives for which ICAO was established,[86] —plainly constitutes such an essential interest.

1.4. Legal Consequences of Wrongfulness

Where Global Navigation System interference constitutes an internationally wrongful act, the responsible State incurs the corresponding obligations under general international law. These include, inter alia, the duty to cease the wrongful conduct, to provide appropriate assurances and guarantees of non-repetition, and to make full reparation for any injury caused.[87]

While no major aviation accident has yet been conclusively attributed to GNSS interference, the potential exposure to international responsibility and liability is nonetheless substantial. Accordingly, should a future incident be causally linked to State-origin interference, a right to compensation would arise under general international law, irrespective of the institutional limitations inherent in ICAO's enforcement capacity.[88]

B). Dispute Settlement Under the Chicago Convention

The Chicago Convention establishes a formal dispute-settlement mechanism under its Chapter XVIII,[89] permitting disputes concerning the interpretation or application of the Convention and its Annexes to be referred to the ICAO Council and, ultimately, to the International Court of Justice.[90] Global Navigation System interference directly implicates the interpretation and application of the Convention's substantive provisions and Annexes 10 and 17, thereby rendering such disputes amenable to this framework.

1. Initiating a Dispute

As mentioned before, proceedings under Article 84 of the Chicago Convention may be initiated where two or more Contracting States are in genuine disagreement concerning the interpretation or application of the Convention or its Annexes and that disagreement has not been resolved

precluding wrongfulness if: a. The international obligation in question excludes the possibility of invoking necessity; or b. The State has contributed to the situation of necessity."

86. See *supra*, note 56.

87. See *supra*, note 79, Articles 34-39. Reparation may take the form of restitution, compensation, or satisfaction, singly or in combination, in accordance with the well-established principle that reparation must, as far as possible, wipe out all the consequences of the wrongful act.

88. See note 91, below.

89. "*Chicago Convention*", *supra*, note 5, Arts. 84-88.

90. For a comprehensive discussion of the application, characteristics, and recent developments and practice of this mechanism, see: Luongo, Norberto E., *Recent Developments in the ICAO Settlement of Disputes Mechanism*, Diritto e Politica dei Trasporti, Anno 3, n. 5 (II-2020), pages 102-122 (herein after: "*Luongo, N., Recent Developments...*").

through negotiation.[91] In light of ICAO Assembly Resolutions A42-2 and A42-3, States affected by GNSS interference could plausibly contend that these procedural and substantive thresholds are met, thereby rendering recourse to the ICAO Council procedurally available.

2. The ICAO Council's role in the Settlement of Disputes Between States

Once proceedings under Article 84 have been duly initiated in the context of a GNSS-related dispute, the ICAO Council will ultimately be required to engage with the substantive merits of the dispute. In that context, the Council would be called upon to determine, *inter alia*, whether the alleged interference is incompatible with the substantive obligations imposed by the Convention, whether the conduct in question is attributable to the respondent State on the basis of the available technical and circumstantial evidence, and whether the Convention entails an obligation to cease the interference. For these purposes, the Council's prior determinations under Article 54(k) and, more importantly, the institutional endorsement of those findings by the 42nd Assembly through Resolutions A42-2 and A42-3 would carry significant interpretive weight, informing both the legal framing of the dispute and the evaluation of the factual record.

3. Appeal Instance

The Chicago Convention further provides, in Article 84, that, subject to Article 85, any Contracting State may appeal a decision of the ICAO Council either to the International Court of Justice or, by agreement of the parties, to an *ad hoc* arbitral tribunal. This appellate mechanism thus introduces an additional layer of legal scrutiny, offering an opportunity not only to review the Council's determinations but also to clarify and further develop the applicable law in areas that remain only partially addressed in existing doctrine. In the specific context of GNSS interference, appellate review could contribute to a more authoritative interpretation of the Convention's application to electromagnetic interference, the scope of States' obligations regarding the integrity of satellite navigation systems, and the legal characterization of this type of conduct that threatens aviation safety under international law.

4. Structural Limitations

Despite its formal availability, ICAO's dispute-settlement mechanism remained underutilized for an extended period, owing, *inter alia*, to political sensitivities, concerns about precedent, and the slow pace of adjudication.[92] In more recent years, however, a growing number of disputes have

91. The Settlement of Differences mechanism is also available in respect of disputes concerning the interpretation or application of the *International Air Services Transit Agreement, signed at Chicago on 7 December 1944, entered into force on 30 January 1945* (Article II, Section 1 of the Agreement).

92. Further elaboration on these particular concerns is provided in *"Luongo, N., Recent Developments..."*, *Criticism on the ICAO Dispute Settlement System* (pages 109-112), see *supra* note 90.

been submitted to the Council for decision,[93] a development that may be understood as a tentative renaissance of this institutional avenue.

C). Diplomatic and Regulatory Responses Beyond ICAO

The absence of a direct enforcement mechanism within the Chicago Convention[94] does not exhaust the range of responses available to States confronted with persistent GNSS interference. Beyond ICAO's institutional processes, States may pursue a variety of diplomatic, regulatory, and security-oriented avenues through which concerns may be articulated, pressure exerted, and risks to civil aviation mitigated. While some of these responses remain largely indicative or prospective, others are reflected in practices already developed within adjacent institutional frameworks. Taken together, they illuminate a broader landscape of responses that may complement, though not replace, ICAO's legal and institutional role.

1. Diplomatic Action

Affected States may pursue traditional diplomatic responses as an initial means of addressing persistent GNSS interference. Such measures may include, *inter alia*, the lodging of formal diplomatic representations or protests, the suspension or recalibration of aviation-related cooperation, and the elevation of GNSS interference concerns within broader multilateral fora, including the United Nations. Through these means, States may seek to increase political pressure, internationalize the issue beyond the technical aviation domain, and signal authoritatively the seriousness with which they regard conduct affecting the safety, integrity, and reliability of civil aviation operations.

2. Targeted Sanctions

In addition to diplomatic engagement, States and regional organizations may contemplate the use of targeted sanctions in response to persistent GNSS interference. In this regard, the European Union has signaled the potential applicability of restrictive measures against individuals and entities involved in electronic warfare or other hostile activities affecting civil aviation, drawing on

93. *"Luongo, N., Recent Developments..."*, Chapter I, *supra* note 90.

94. The Chicago Convention does not endow ICAO with a direct enforcement mechanism. Although Articles 87 and 88 constitute the Convention's only explicit penalty provisions, their operation is indirect and mediated through States. Article 87 obliges each contracting State, rather than ICAO as an organization, to deny the operation of an airline found by the Council to be non-conforming with a final decision adopted under Article 86. Article 88 provides for the suspension of a State's voting rights in the Assembly and Council, a measure that constitutes an institutional sanction exercised by States acting collectively within ICAO, rather than by ICAO as an autonomous permanent enforcement authority. Consistently, scholarly commentary characterizes these provisions as internal sanction mechanisms within the Convention framework, falling short of a robust or coercive enforcement power comparable to that exercised by judicial bodies.

sanctions frameworks developed in response to cyber operations and related conduct. Comparable approaches may also be envisaged under existing sanctions regimes applicable to the Democratic People's Republic of Korea, which already provide for asset freezes, travel bans, and trade and financial restrictions targeting designated individuals and entities.

While such measures fall outside ICAO's institutional competence and do not constitute remedies under the Chicago Convention, they may nonetheless function as additional instruments of economic and regulatory pressure where technical cooperation and diplomatic engagement have proven insufficient.[95]

3. Security-Oriented Responses

Beyond aviation-specific responses within ICAO, persistent GNSS interference has increasingly been addressed within broader security and resilience frameworks, reflecting growing recognition that such conduct may form part of wider non-force-based strategies affecting critical infrastructure. While these responses do not displace ICAO's primary role in governing international civil aviation, they provide important contextual insight into how GNSS interference is perceived within adjacent institutional settings.

In this context, within the *North Atlantic Treaty Organization* (NATO), interference with navigation and other safety-critical technological systems has been situated within the broader category of hybrid threats. NATO understands hybrid activities as the coordinated use of military and non-military, overt and covert means—including cyber and electromagnetic measures—designed to blur the distinction between war and peace, complicate attribution, and undermine societal resilience. In this context, NATO has emphasized that technological disruptions affecting critical infrastructure may, depending on their scale, persistence, and effects, raise collective security concerns, while consistently reaffirming that responses must remain grounded in international law and that primary responsibility rests with the affected State.[96]

95. See Council of the European Union, Press Release, *Russian Hybrid Threats: EU Lists Nine Individuals and Six Entities Responsible for Destabilising Actions* (July 15, 2025) (adding the 841st Separate Electronic Warfare Center and related persons to the EU sanctions list, noting GNSS signal disruptions linked to electronic warfare that disrupt civil aviation), available at https://www.consilium.europa.eu/en/press/press-releases/2025/07/15/russian-hybrid-threats-eu-lists-nine-individuals-and-six-entities-responsible-for-destabilising-actions-in-the-eu-and-ukraine/ (last time accessed: January 15, 2026). See also, Council of the European Union, *EU Sanctions Against the Democratic People's Republic of Korea*" (listing autonomous EU sanctions measures including asset freezes, travel bans, and trade/financial restrictions applicable to DPRK individuals and entities as part of a broader sanctions regime), available at https://www.consilium.europa.eu/en/policies/sanctions-against-north-korea/ (last accessed: 15 January 2026).

96. NATO, Countering Hybrid Threats (NATO Factsheet, updated edition, 7 May, 2024): https://www.nato.int/en/what-we-do/deterrence-and-defence/countering-hybrid-threats (last time accessed: January 15, 2026). See also, generally: "NATO 2022. Strategic Concept", available at https://www.nato.int/content/dam/nato/we-bready/documents/publications-and-reports/strategic-concepts/2022/290622-strategic-concept.pdf (last accessed: 15 January 2026).

In parallel, operational and regulatory actors within the civil aviation sector have focused on practical mitigation strategies aimed at preserving safety in the face of GNSS disruption. Joint work undertaken by the European Union Aviation Safety Agency (EASA) and the International Air Transport Association (IATA), including the conclusions of a jointly hosted workshop on GNSS interference, has underscored the importance of coordinated operational responses, enhanced situational awareness, and robust contingency planning. These initiatives prioritize risk mitigation over attribution or enforcement, seeking to ensure the continuity and safety of flight operations even where interference persists.[97]

In the aggregate, these security- and resilience-based responses illustrate the growing recognition of GNSS interference as a phenomenon with broader strategic and safety implications. Nevertheless, it must be underscored that they remain complementary to, rather than substitutes for, the legal and institutional mechanisms of the Chicago Convention, within which questions of treaty compliance, attribution, and institutional accountability properly reside.

4. Domestic Regulatory Measures

At the domestic level, States may adopt or strengthen regulatory measures aimed at mitigating the operational consequences of GNSS interference. Such steps may include enhanced reporting requirements, contingency-planning obligations for air operators and air navigation service providers, and the integration of alternative navigation capabilities designed to reduce reliance on satellite-based systems. These responses are primarily preventive and adaptive in nature, focusing on risk management rather than attribution or responsibility, and may operate alongside—rather than in substitution for—institutional mechanisms under the Chicago Convention.

Conclusion

A. Legal, Institutional, and Geopolitical Significance of ICAO's 2025 Resolutions

The adoption by the 42nd ICAO Assembly of Resolutions A42-2 and A42-3 constitutes one of the most consequential interpretive developments in international aviation law of recent decades. For the first time, the Assembly expressly endorsed the ICAO Council's prior determination that persistent, State-attributable Global Navigation System interference may qualify as an "infraction" within the meaning of Article 54(k) of the Chicago Convention. Through this institutional decision, the Assembly elevated GNSS interference from a technical or operational concern to a matter of treaty compliance, thereby clarifying the legal character of conduct that had previously

97. *EASA and IATA outline comprehensive plan to mitigate GNSS interference risks*, available at https://www.easa.europa.eu/en/newsroom-and-events/press-releases/easa-and-iata-outline-comprehensive-plan-mitigate-gnss (last accessed: 15 January 2026).

occupied an indeterminate position at the margins of the Convention's compliance and accountability mechanisms.
From a doctrinal perspective, these resolutions confirm that GNSS, though unknown at the time of the Convention's adoption in 1944, falls squarely within the Convention's progressively unfolding normative reach. Satellite-based navigation is no longer a peripheral or optional capability, but a systemic enabler of global air navigation, integral to the safety, efficiency, and regularity of international civil aviation. The Assembly's identification of GNSS interference as conduct capable of constituting an infraction of the Convention affirms the applicability of core Convention obligations to contemporary navigation technologies and underscores the dynamic character of the Convention's regulatory architecture.
Institutionally, the resolutions mark a notable development in ICAO practice. The naming and condemnation of the conduct of two specific States reflects the Assembly's willingness to move beyond purely technical regulation and cooperation and to engage with questions of responsibility and compliance where persistent interference poses systemic risks to civil aviation. This evolution should not be understood as transforming ICAO into an enforcement body in the traditional sense, nor does it displace the Chicago Convention's consensual and cooperative ethos. It does, however, demonstrate that the Organization is prepared to articulate collective institutional judgments regarding conduct that undermines the Convention's objectives, thereby reinforcing the normative authority of its processes.
The geopolitical significance of the Assembly's course of action should not be understated. Global Navigation System interference increasingly occurs in contexts characterized by heightened strategic competition, hybrid tactics, and the deliberate use of non-physical means to achieve political or military objectives. The decision to frame such interference as a matter of treaty compliance rather than political grievance anchored the response firmly within a legal and institutional structure. This approach contributes to the depoliticization of disputes, channels State responses through established multilateral processes, and affirms the relevance of international law in addressing technologically enabled conduct with transboundary safety implications.

B. Future Pathways for GNSS Legal Governance

The Assembly Resolutions A42-2 and A42-3 also highlight the developing landscape of the legal governance of GNSS systems, which increasingly extends beyond any single institutional or regulatory regime. Interference with satellite navigation systems exposes the limits of their treatment as a purely technical component of aviation safety, revealing instead the central role of those systems as critical infrastructure upon which multiple sets of rules converge.
As satellite-based navigation systems become indispensable to civil aviation, their vulnerability to interference renders visible the growing interdependence between air law, telecommunications regulation, cybersecurity governance, and broader international legal norms.
Within the ICAO system, the recognition of persistent, State-attributable GNSS interference as a potential infraction of the Chicago Convention may prompt further normative development.

While the Convention does not provide for direct enforcement, the combined practice of Council determinations and Assembly endorsement contributes to a more developed and coherent understanding of States' obligations concerning the protection of satellite-based navigation services used for civil aviation, as well as to their more effective implementation. Over time, such practice may inform the interpretation of existing Convention provisions and guide the development of additional guidance, standards, or cooperative mechanisms aimed at mitigating the risks associated with GNSS disruption.

At the same time, the governance of GNSS interference increasingly depends upon coordination across institutional boundaries. ICAO's engagement with other international bodies, including those responsible for radio-frequency regulation and maritime navigation, reflects an emerging multilayered approach to the protection of satellite-based navigation services. Such cross-institutional dimension reaffirms ICAO's central role in civil aviation, while situating it within a broader ecosystem of legal and regulatory responses addressing the shared vulnerabilities of satellite-dependent systems.

These developments also carry implications for the evolution of international law more generally. Repeated institutional determinations, expressions of concern by affected States, and the articulation of legal expectations within international organizations may, over time, contribute to the consolidation of a shared understanding that harmful GNSS interference affecting civil aviation is incompatible with States' international obligations. While it would be premature to assert the crystallization of a customary norm, the Assembly's resolutions provide authoritative evidence of an emerging consensus regarding the legal characterization of such conduct.

Finally, the treatment of GNSS interference within legal and institutional fora reflects a broader shift in how international law engages with intangible, technologically enabled modalities of harm, and illustrates how hybrid tactics can generate significant transboundary safety risks without resort to force. The Assembly's decision to address such conduct through established legal frameworks rather than *ad hoc* political responses affirms the continuing relevance of international law in mediating the challenges posed by technological change and strategic competition.

The developments examined in this article demonstrate how the Organization has activated, through authoritative construction and Assembly endorsement, compliance and accountability mechanisms that had long existed within the Chicago Convention but had remained largely dormant in practice.

In this respect, Assembly Resolutions A42-2 and A42-3 may be understood not as an endpoint, but as a responsibly calibrated step toward the further consolidation of legal governance of Global Navigation System-dependent aviation, consistent with ICAO's mandate, institutional culture, and legal authority.

In this light, due recognition is warranted for the role played by both the ICAO Council and the international community represented within the Assembly. Through rigorous technical analysis, careful institutional deliberation, and a rare convergence of political will, these bodies have demonstrated the capacity of the Chicago Convention framework to respond meaningfully to

novel technological and security challenges without recourse to a formal amendment of ICAO's Magna Carta. The resulting interpretive consolidation represents not merely a reaction to episodic interference, but a collective affirmation of the Convention's continuing relevance, resilience, and normative vitality in the face of emerging threats to the safety and integrity of international civil aviation.