

ITU regulations on RNSS interference

Dat Vo

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ITU, Radiocommunication Bureau, Space Services Department



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ITU History

- 1865: formation of the *International Telegraph Union* (ITU) (20 States)
- 1932: adopted the new ITU name - *International Telecommunication Union*
- 2025: 160 years, 194 Member States



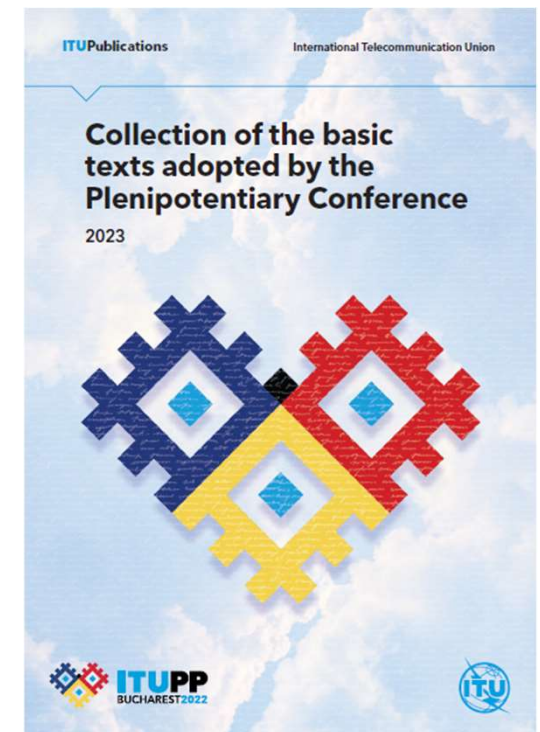
- 1906: 1st edition of the radio regulations – international treaty
- 1927: International Radiotelegraph Conference adopted the first table of frequency allocations
- 2023 World Radiocommunication Conference (WRC-23) revised the radio regulations
- Edition of 2024: over 2000 pages



ITU Constitution

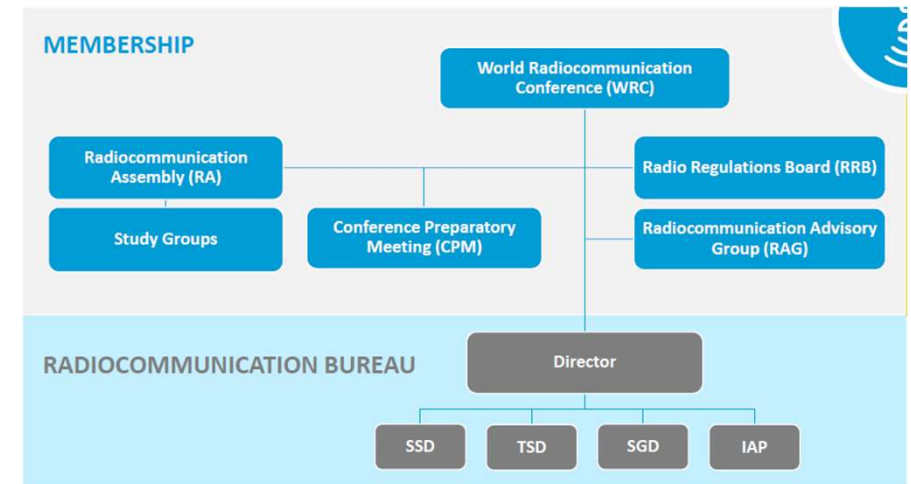
Article 1 - Purposes of the Union

- 11**
PP-98
- a)* effect allocation of bands of the radio-frequency spectrum, the allotment of radio frequencies and the registration of radio-frequency assignments and, for space services, of any associated orbital position in the geostationary-satellite orbit or of any associated characteristics of satellites in other orbits, in order to avoid harmful interference between radio stations of different countries;
- 12**
PP-98
- b)* coordinate efforts to eliminate harmful interference between radio stations of different countries and to improve the use made of the radio-frequency spectrum for radiocommunication services and of the geostationary-satellite and other satellite orbits;





ITU Radiocommunication Sector and Radiocommunication Bureau

- 1992: ITU Radiocommunication Sector (ITU-R) was formed and Radio Regulations Board (RRB) was created
- ITU-R Mission:
 - Allocation of radiofrequency spectrum
 - Implementation of the Radio Regulations
 - Coordination of efforts to eliminate harmful interference
 - Elaboration of Recommendations
 - Technical assistance and capacity-building support to developing countries
- Radiocommunication Bureau (BR) serves as the specialized secretariat for the Sector.



Space services at the ITU

- 1963: Extraordinary Administrative Radio Conference, first ITU conference that allocated frequency bands for space radiocommunication
-  • 75 Member States with access to space frequencies with right to international recognition
-  • 2640 satellite networks/systems operating



ITU definition of harmful interference

1.169 *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 (CS).*



Radiocommunication services subject to harmful interference as reported to the ITU

- Fixed-satellite service, broadcasting-satellite service and associated space operations functions in the frequency bands 6/4 GHz and 14-17-18/10-12 GHz
- Earth exploration-satellite service (passive) in frequency band 1 400-1 427 MHz
- Mobile-satellite-service in the frequency bands 1 626.5-1 660.5 MHz, 1 980-2 010 MHz and 2 670-2 690 MHz
- Radio astronomy service in the frequency band 1 610.6-1 613.8 MHz
- Radionavigation-satellite service (RNSS) in the frequency bands 1 164-1 215 MHz and 1 559-1 610 MHz



Types of harmful interference affecting RNSS in 1 164-1 215 MHz and 1 559-1 610 MHz

1. Use of transmitting devices (jammers) without authorization
 - The risk of impacting safety and regularity of flights spreads all over the world
 - Not limited to areas near zones of conflicts
2. Military exercises or operations near zones of conflict
 - Impact on safety and regularity of flights, maritime activity and time synchronization of telecommunications networks is beyond the zone of conflict



Situation of harmful interference

- Harmful interference increased significantly from 2019 to 2023
- Number of reports received by the ITU in 2024 are over 5 times compared to the same period in 2023
- Main affected regions reported to ITU: Middle East, North-East Europe (Baltic Sea), Black Sea Region, Korean Peninsula and Central Africa
- 22 Administrations concerned and 4 affected satellite systems: GPS, Galileo, GLONASS and COMPASS
- Harmful interference affected receivers onboard aircrafts and/or ships and caused degradation or total loss of service.



Key ITU Constitution provisions on harmful interference

ARTICLE 45

Harmful Interference

197
PP-98

1 All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States or of recognized operating agencies, or of other duly authorized operating agencies which carry on a radio service, and which operate in accordance with the provisions of the Radio Regulations.

201
PP-98

ARTICLE 47

False or Deceptive Distress, Urgency, Safety or Identification Signals

Member States agree to take the steps required to prevent the transmission or circulation of false or deceptive distress, urgency, safety or identification signals, and to collaborate in locating and identifying stations under their jurisdiction transmitting such signals.

CONSTITUTION OF
THE INTERNATIONAL
TELECOMMUNICATION UNION*

* The language used in the basic instruments of the Union (Constitution and Convention) is to be considered as gender neutral.



Key ITU Radio Regulations provisions on harmful interference

ARTICLE 15

Interferences

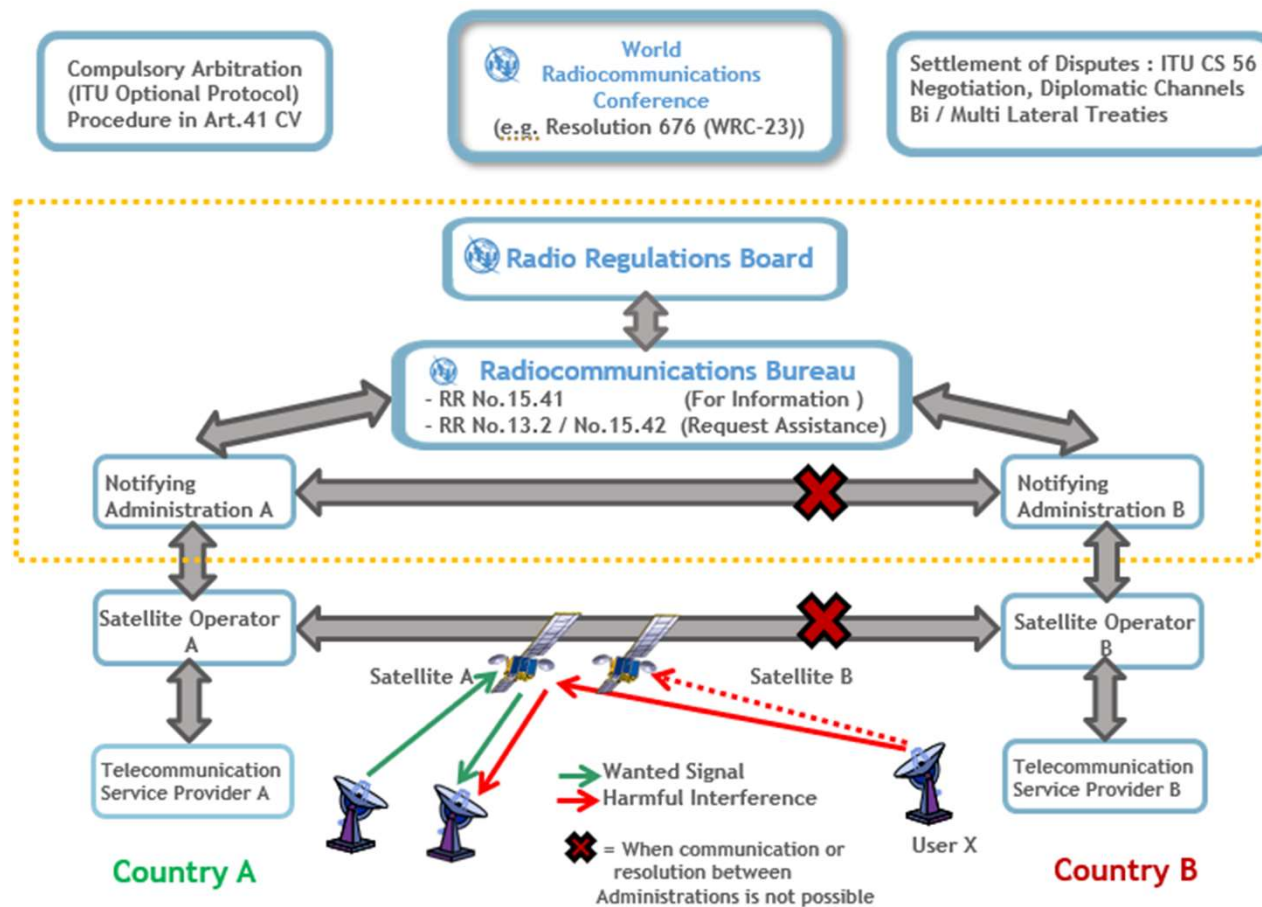
Section I – Interference from Radio Stations

15.1 § 1 All stations are forbidden to carry out unnecessary transmissions, or the transmission of superfluous signals, or the transmission of false or misleading signals, or the transmission of signals without identification (except as provided for in Article 19).

15.28 § 20 Recognizing that transmissions on distress and safety frequencies and frequencies used for the safety and regularity of flight (see Article 31 and Appendix 27) require absolute international protection and that the elimination of harmful interference to such transmissions is imperative, administrations undertake to act immediately when their attention is drawn to any such harmful interference. (WRC-07)



Process in case of harmful interference



To report harmful interference cases to the ITU

- Use the ITU Satellite Interference Reporting and Resolution System (SIRRS)
<https://www.itu.int/en/ITU-R/space/SIRRS/Pages/default.aspx>
- Accessible to ITU registered users



The screenshot shows the ITU website header with the slogan "Connecting the world and beyond" and a search bar. The navigation menu includes ITU, General Secretariat, Radiocommunication, Standardization, Development, News, Members' Zone, and Join ITU. Below the menu, the "Space Services Department" section is visible. The main content area is titled "SIRRS" and "Satellite Interference Reporting and Resolution System". It includes a breadcrumb trail: "YOU ARE HERE ITU > HOMEPAGE > ITU-R > SPACE SERVICES > SIRRS". A login section for "Reporting (ITU Registered Users)" is present, with a "LOGIN" button and a link for "I forgot my password...". A "References" section at the bottom right contains a link for "Short Video to Use SIRRS".



Recent ITU-R actions on harmful interference

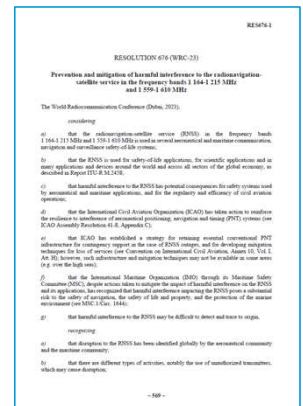
- 2022: issued [Circular Letter CR/488](#) to Member States raising awareness of a significant number of cases of harmful interference to the radionavigation-satellite service (RNSS) and informing of RRB's decision on the matter – recalling obligation to abide the ITU Constitution and Radio Regulations) and providing recommendations to prevent and mitigate the interference.
- 2023: reported the issue through BR Director's Report to WRC-23 with a recommendation that the Conference address the matter and adopt a Resolution with measures to prevent and mitigate harmful interference affecting RNSS.



WRC-23 decision on harmful interference

Approved Resolution **676 (WRC-23)** - Prevention and mitigation of harmful interference to the radionavigation-satellite service in the frequency bands 1 164-1 215 MHz and 1 559-1 610 MHz.

- *resolves to urge administrations*
 - to apply necessary measures to avoid the proliferation, circulation and operation of unauthorized transmitters that cause ... harmful interference to RNSS systems ...
 - to encourage collaboration between spectrum regulators, enforcement authorities ...
 - to encourage cooperation between aeronautical, maritime and security authorities ...
 - to report cases, as the affected administration deems appropriate, of harmful interference to the RNSS, in accordance with Article 15,
- *instructs the Director of the Radiocommunication Bureau*
 - to provide, on request, assistance to administrations in accordance with No. 13.2,
- *instructs the Secretary-General*
 - to bring this Resolution to the attention of ICAO and IMO.

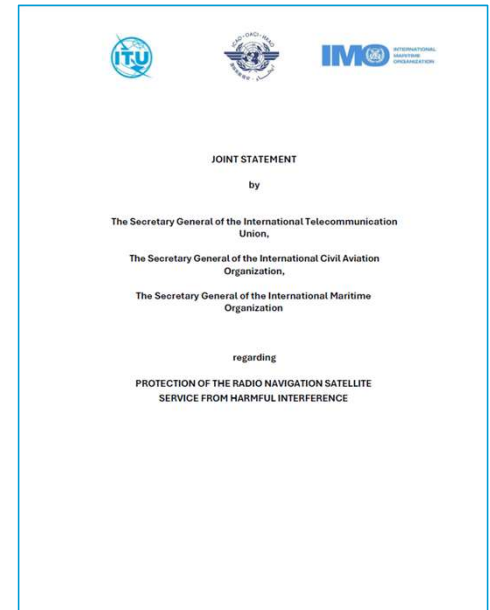


ITU-ICAO-IMO action

March 2025: **Secretaries General of the 3 UN Agencies** signed a joint statement regarding protection of RNSS from harmful interference:

ITU, ICAO, and IMO Secretary Generals jointly and urgently call on their respective Member States to:

- a) protect the RNSS from transmissions that can adversely cause harmful interference degrading, interrupting or misleading signals used for civilian and humanitarian purposes;*
- b) reinforce resilience of the systems which rely on RNSS for navigation, positioning and timing in relation to this type of interference;*
- c) retain sufficient conventional navigation infrastructure for contingency support in case of RNSS outages and misleading signals, and develop mitigation techniques for loss of services;*
- d) increase collaboration between radio regulatory, civil aviation, maritime, defence and enforcement authorities; and*
- e) report cases of harmful interference affecting RNSS to the appropriate telecommunication, aeronautical and maritime authorities, and to the ITU Radiocommunications Bureau, to enable the monitoring of the situation.*

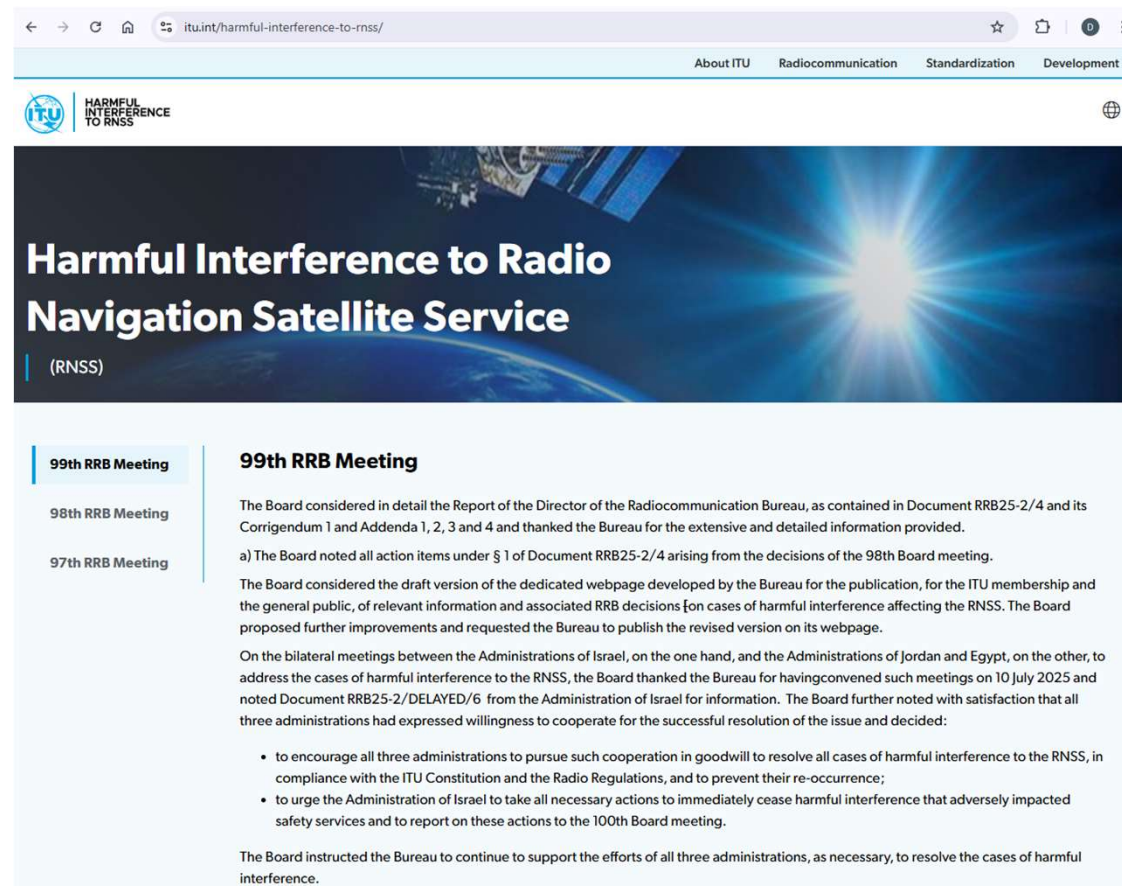


ITU-R actions following WRC-23

- 2024: BR reported some cases of harmful interference to the RRB
- 2025: the RRB decided
 - to urge Administrations to abide to ITU Constitution and Radio Regulations and cease any harmful interference to safety services in the RNSS
 - to urge Administrations to cooperate urgently in the resolution of cases that had been persistent
 - to request the BR to make publicly available a summary of cases in a dedicated webpage: www.itu.int/harmful-interference-to-rnss/
 - to instruct the BR to convene bilateral/multilateral meetings with Administrations concerned
 - to approve Rules of Procedure (RoP) on Radio Regulations No. **13.2**
- 2025: the BR developed the RNSS website, convened a number of meetings and drafted the RoP on Radio Regulations No. **13.2** as instructed by the RRB.



ITU harmful interference to RNSS website



ITU-R Rules of Procedure on Radio Regulations No. 13.2

13.2

(ADD RRB25/520)

Noting that No. 13.2 does not provide a detailed procedure to handle requests of assistance made under this provision, the Board decided that the Bureau shall apply the following steps for cases of harmful interference.

- 1) When receiving a request for assistance under No. 13.2 together with the full particulars relating to the harmful interference (see No. 15.27), the Bureau shall promptly acknowledge receipt of the communication to the affected administration, study the case and contact the administration(s) concerned to request their urgent cooperation. Further information may also be sought from any administration, if necessary (see No. 15.25).
- 2) If the administration(s) concerned does not acknowledge receipt under No. 15.35 within seven days from the dispatch of the Bureau's communication, the Bureau shall send a reminder.
- 3) If the administration(s) concerned has not informed the Bureau of the results of its investigation of the case (or of its status) within thirty days from the dispatch of the initial Bureau's communication, the Bureau shall contact the affected administration to inquire whether the harmful interference is still present.
- 4) If the harmful interference is still present, the Bureau shall send a reminder to the administration(s) concerned, indicating that, in the absence of a resolution of the case in the following thirty days, the case will be reported to the next meeting of the Board in application of No. 13.2, together with draft recommendations to the administrations concerned.

The Board emphasized that the procedure contained in this Rule describes the actions of the Bureau when implementing No. 13.2 but does in no way modify the obligations on Administrations in the application of the provisions of the Radio Regulations related to cases of harmful interference.

The Board also reminded affected administrations to ensure that the administration(s) concerned and the Bureau were informed when the harmful interference had stopped so that the case could be considered closed.

ITU Publications

International Telecommunication Union
Radiocommunication Sector

Rules of Procedure approved by the Radio Regulations Board

2021 edition (+ rev.6)

For the application, by the Radiocommunication Bureau, of the provisions of the Radio Regulations, Regional Agreements, Resolutions and Recommendations of World and Regional Radiocommunication Conferences



BR's work in supporting the ITU-ICAO-IMO action

- Update SIRRS to create a new type of users (UN organisation) to provide access to SIRRS for authorised ICAO (and IMO) users.
- Authorised ICAO (and IMO) users can now submit harmful interference cases



Updated SIRRS to support ICAO (and IMO) users (1)

ITU Satellite Interference Reporting and Resolution System (SIRRS) ITU_USER@itvdat

Home Reports **New report** Users Messages

Create New Interference Report

Back to drafts Save draft

Report information Ref.: Not applied

Title: Test harmful interference to the GPS

Ref. Administration/UN org: UNICAO

Stations Causing Interference*

Station type	Terrestrial
Location	Unknown
Administrations	SUI
Measured frequencies	1189.5 MHz
Bandwidth	51 MHz
Polarization	LHCP
Date of interference	11/11/2025
Type of carrier	Frequency Sweeping
Source	Unwanted Emissions Reference to RR No.15.1 (Unnecessary Emissions)

Add Station

Stations Interfered With*

Interfering Scenario: Space to Earth

Station type	Space > Non-geo stationary
Direction	TX
Administration	USA
Associated ITU name	NAVSTAR GPS

Station type	Earth
Direction	RX
Location	25.2800, 51.5001
Administration	QAT

Affected Frequency Assignments*

Assigned frequency	1189.5 MHz
Bandwidth	51 MHz
Polarization	
Service	RNSS

Assigned frequency	1584.5 MHz
Bandwidth	51 MHz
Polarization	
Service	RNSS

Add frequency Assignment

Uploaded documents

Letter from Affected Administration/UN organizations*

Test - Letter from UN ICAO.docx

Interference Signal Geolocation Plot:

Test - geolocation - UN ICAO.docx

Interfered and Interfering Signal Scan Plots:

Browse... Upload

Information on Passive Sensors-EESS (REC ITU-R RS. 2106-0):

Browse... Upload

Title: Test - additional document - UN ICAO

Description: Test - additional document description - UN ICAO

Test - additional document - UN ICAO.docx

Add additional document

Remarks

Test - remarks - UN ICAO

Direct contact details

Name

Test First Last

Title

Test Title

Organization

UN ICAO

Email

UN_ICAO@icao.int

Phone

+974 0000 0000

Save draft Save draft and Continue



Updated SIRRS to support ICAO (and IMO) users (2)

Requested Action

☒ To inform the Concerned Administrations and the Bureau (No. 15.34, No 15.35, No 15.41)
☐ To request Assistance from the Bureau (No.13.2, No 15.42)

Availability

☐ Authorize Public Access

Ref.:UN2025-70880

Title : Test harmful interference to the GPS

ITU Satellite Interference Reporting and Resolution System (SIRRS)

ITU_USERS\vodat

Home Reports New report Users Messages

Drafts Submitted Implicated in Public Archived

Submitted reports

Case ID contains...

Affected administration/U...

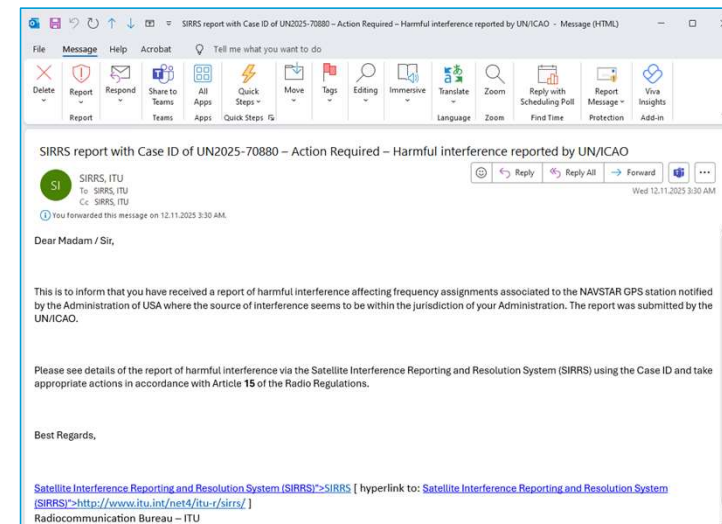
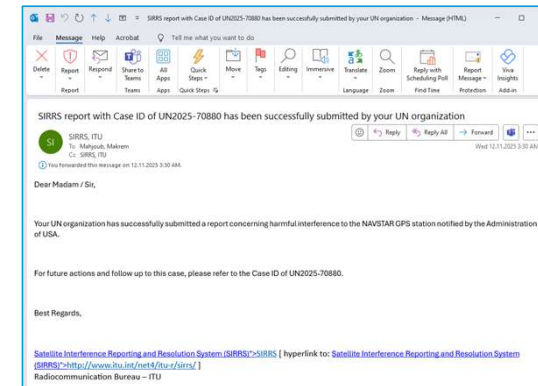
Implicated administration/...

Affected Station contains...

1 2 3

1 - 10 of 31

Case ID	Affected Adm/UN org	Operator	Affected Station	GSO Long.	Implicated Adms/UN org	Status	Date of receipt	BR Request	Last modification	Archive
UN2025-70880	USA, QAT		NAVSTAR GPS		SUI, UN/ICAO	Recorded	12/11/2025 03:25 (GVA)	1	12/11/2025 03:25 (GVA)	2



Thank you!

ITU – Radiocommunication Bureau
Questions to sirrs@itu.int or jorge-alberto.ciccorossi@itu.int
or dat.vo@itu.int



ICAO GNSS RFI Workshop (Doha, Qatar, 18-20 November 2025)

www.itu.int