

ITU Role and Actions in Preventing and Resolving Interference to Space Services

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Radiocommunication Sector

Main Strategic Goal → To ensure Interference-Free Operation

Why ?

- To Maximize Quality and Availability of Service
- To Prevent loss of investment, customers and revenue by minimizing unusable satellite capacity due to interference
- To guarantee a Successful Mission

How ?

- I. International Regulations(CS, CV, RR)
- II. Global Standards & Guidelines
- III. Assistance to administrations

193 Member States
+700 Sectors members,
Associates, Academia

Harmful Interference Reported to BR

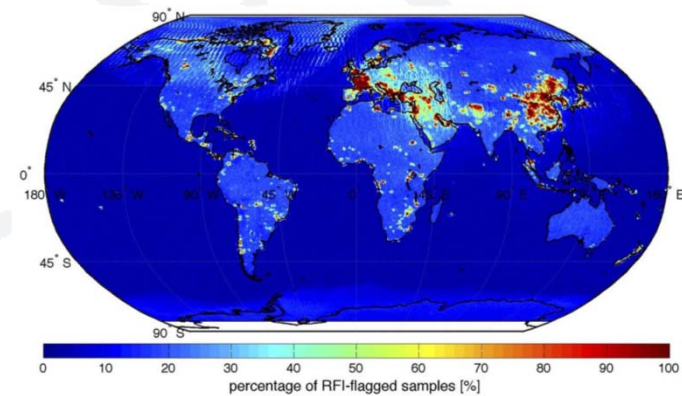
From 2011 to 2016

Affected Services:

FSS, BSS, MSS, EESS, RNSS

Affected Freq. Ranges:

- 1.2 GHz
- 1.5 / 1.6 GHz
- 2.2 GHz
- 3/4, 5/6 GHz
- 10-14 GHz
- 17/18 GHz



Preventive:

- Study Groups Activities
 - Compatibility Studies
 - Development of Recommendations, Reports and Handbooks

- Radiocommunication Assembly
- World Radiocommunication Conference

- Coordination and Notification of Satellite Networks and Earth Stations, Application of the Radio Regulations
 - Provides International Recognition and Protection

Corrective:

- Art. 15 and Appendix 10 to RR + ITU-R SM. 2181:
 - To report a case of Harmful Interference to Radiocomm. Bureau

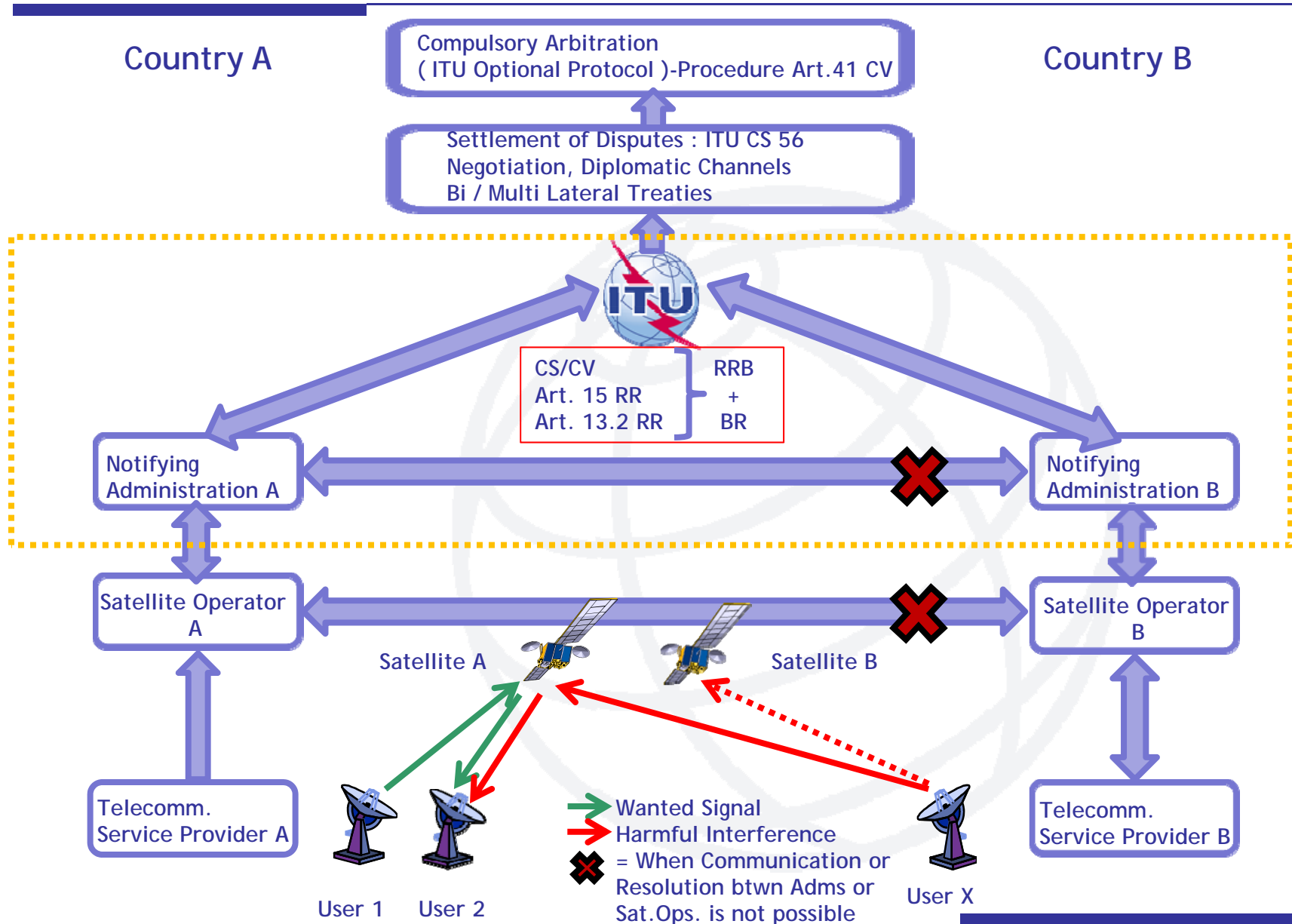
- Radio Regulations Board's Decisions

Some key provisions:

- Art. 5: Table of Frequency Allocations
- Art. 9: Coordination Procedure of satellite networks
- Art. 11: Notification Procedure of satellite networks
- AP 30, AP30A, AP30B: BSS and FSS plans
- Art.21: Sharing Scenario between Space and Terrestrial systems
(limits on PFD , eirp, minimum elevation angle, etc)
- Art.22: Sharing scenario between GSO, NGSO
(limits on epfd , station keeping, pointing accuracy,
off-axis eirp density on Earth Stations)
- Art. 15: Procedure in case of Harmful Interference
- Art. 13.2: Request for assistance in case of Harmful Interference (HI)
- Art. 13.6: BR request Adms clarifications about recorded assignments
- Art. 16: International Monitoring
- Art. 18: Licensing - Identification of Stations
- AP 10 and Report ITU-R SM.2181 (submission of information)
- And more...



Schema of Actions in case of Harmful Interference



How to Report a Case of Harmful Interference to ITU ?



Today

I. To submit Letter to BR :

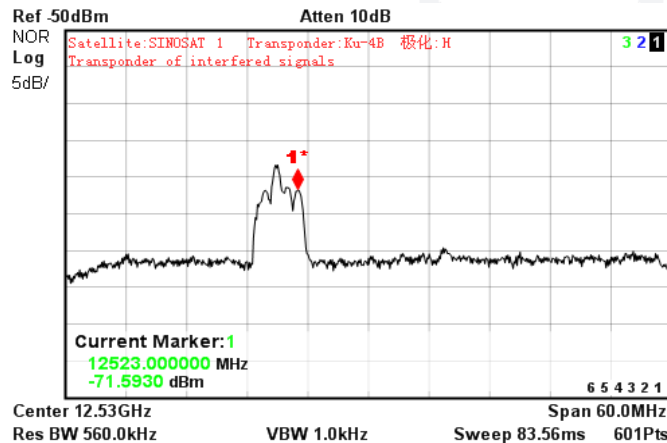
- - For BR Information, or
- - For BR Action, requesting Assistance under No 13.2 of Radio Regulations

II. In both cases the information to be submitted is described in:

III. Appendix 10 to RR

IV. ITU-R Report 2181

V. If possible, Geolocation Information and Scan Plots

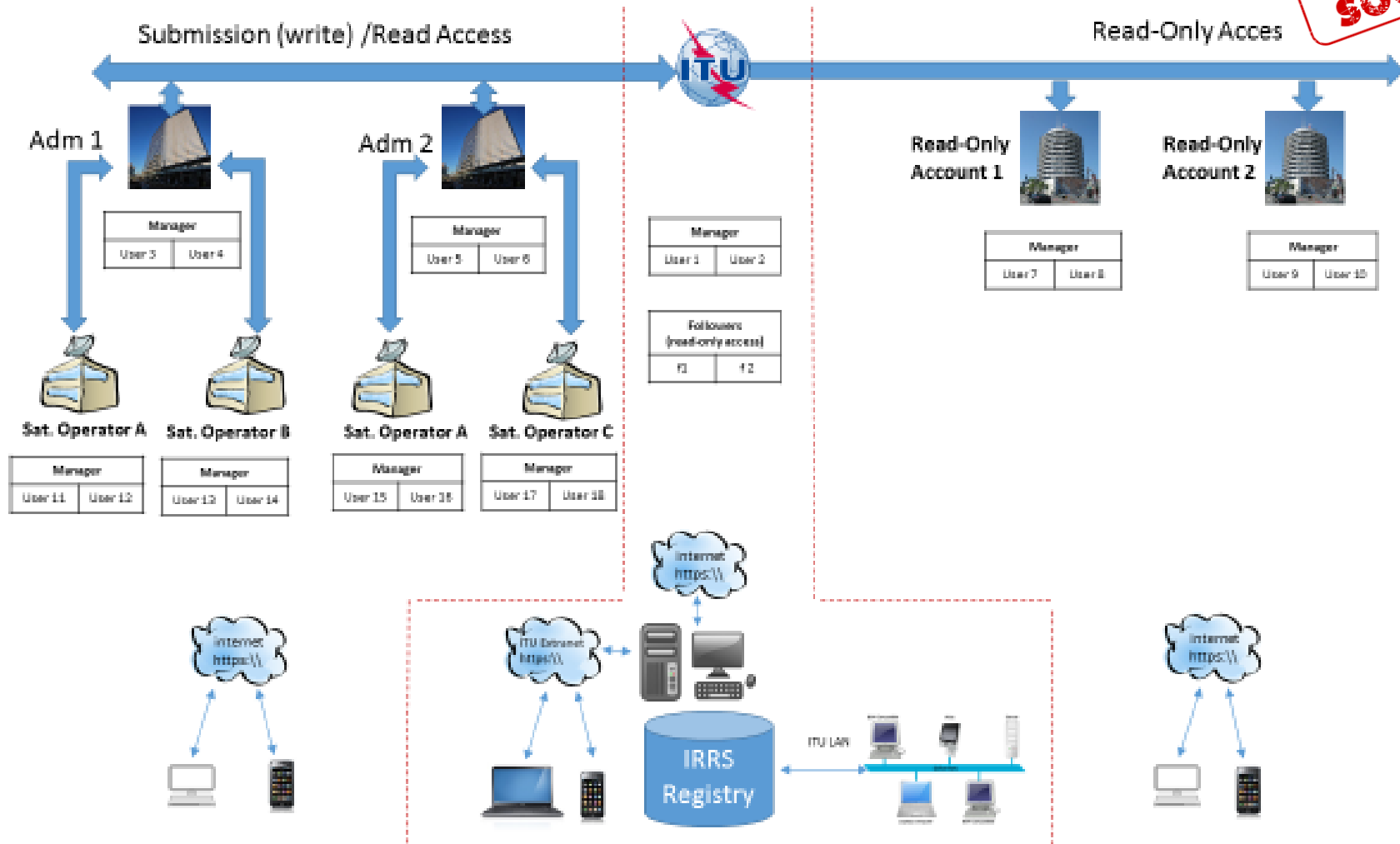




Interference Resolution and Reporting System

193 Member States !

COMING SOON!

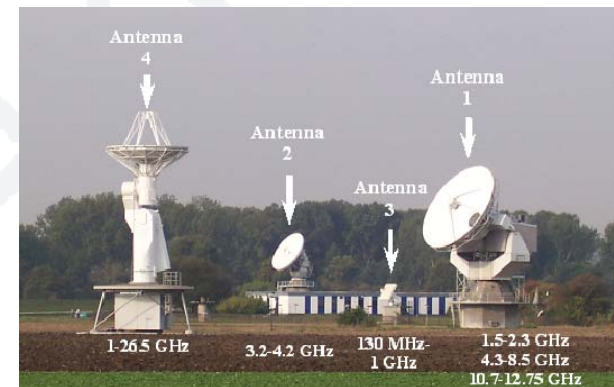


Extension of the Int'l Monitoring System



Recent Plenipotentiary Conference Resolution 186 (Busan, 2014) instructs the Director BR:

“1 to promote access to information, upon request by concerned Administrations, related to satellite monitoring facilities, to address cases of harmful interference in accordance with Article 15 of the Radio Regulations, through Cooperation Agreements referred to under invites the Council above within the budgetary limitations of the Union in order to implement the objectives of this Resolution”.



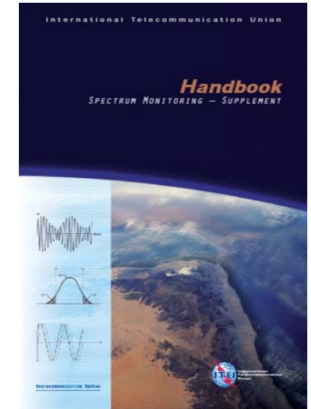
- Cooperation Agreement Signed with:
Germany, Pakistan, Vietnam

- Under discussion: Brazil, Ukraine,
Russia, Japan, Kazakhstan, Korea



ITU-R Recommendations, Handbooks

Development of a **New Rec. on Access Procedures** for FSS Occasional Use, Transmissions to GSO Space Stations in 4/6 GHz and 11-12/13/14 GHz FSS Bands. (ITU-R S.2049, Dec. 2013)



This Recommendation is intended to provide some **easy-to-follow practices** to enable OU operators to transmit to geostationary space stations without interfering with other users on the target satellite or with users on any other nearby satellites.

Free Download:

<http://www.itu.int/rec/R-REC-S.2049-0-201312-l/en>

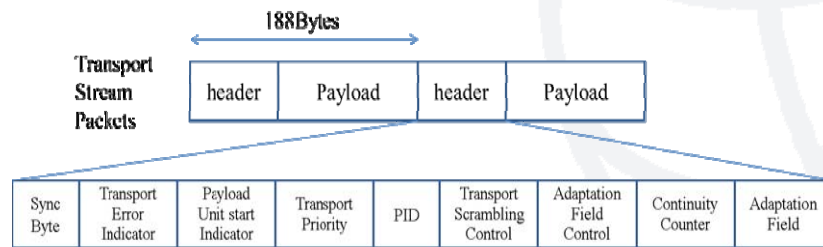
ITU-R Recommendations, Handbooks

Development of a **New Recommendation on Carrier ID** (ITU-R S.2062-0. Sept.2014)

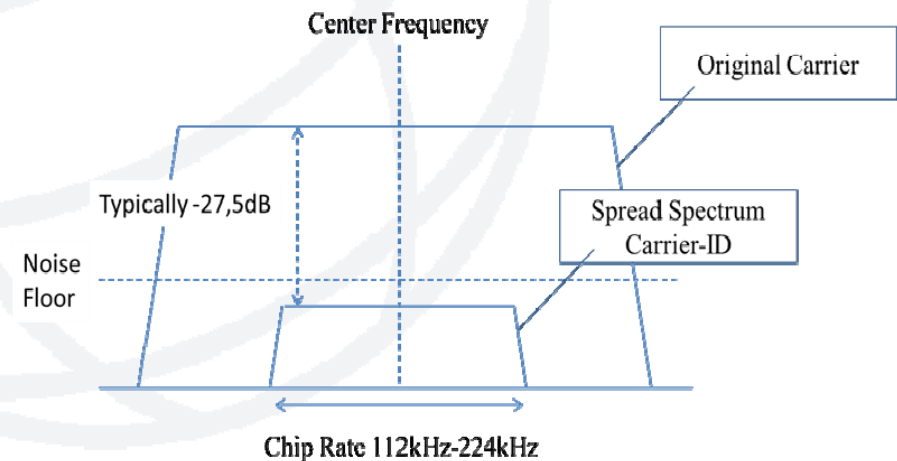
Objective: To facilitate rapid identification of an interference source and reduce the time required to clear the interference that occurs unintentionally.

2 Methods:

Network Information Table (NIT)



Spread Spectrum CID



Free Download

<http://www.itu.int/rec/R-REC-S.2062/en>

Further Actions taken by ITU



- I. To raise awareness of the impact of Harmful Interference to Space Services
- II. To disseminate information on Technical and Regulatory Solutions
- III. To Promote the exchange of experience, cooperation, and participation in related Fora.



Summary and Key Messages:



- I. ITU plays a leading role to ensure interference-free operations of space services
- II. Member States' cooperation and exchange of information among parties is essential
- III. Only continuous synergistic actions by all sectors of Satellite Community can guarantee a minimum level of interference is kept.

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Thank You !