Space Law Bootcamp and Preparatory workshop on the OEWG on PAROS in all its aspects

Session 4: Overview of non-security frameworks and processes
International Telecommunication Union

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ITU is the United Nations **specialized agency for information and communication technologies** (ICTs)



Our members

194

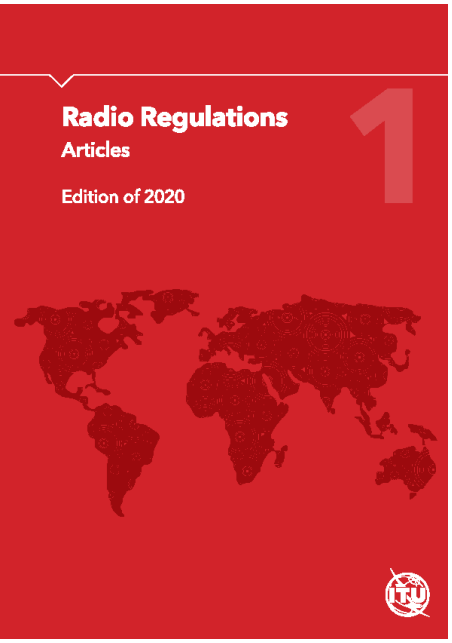
MEMBER STATES

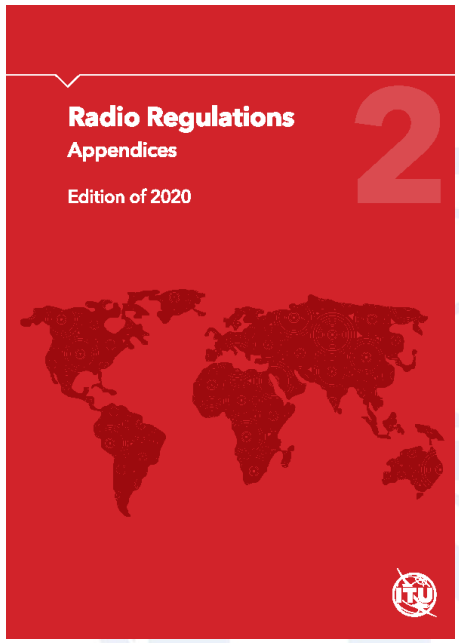
+900

INDUSTRY & INTERNATIONAL ORGANIZATIONS

+170

ACADEMIA MEMBERS









RADIO REGULATIONS

TODAY

More than 2000 pages of Radio Regulations regularly reviewed by World Radiocommunication Conferences

40 Conferences since 1906

- Prevention of harmful radio interference
- Allocation of radio spectrum parts for space services
- Access to spectrum/orbit resources

Preventing harmful interference

- One of the first and foremost aim of the ITU-R is **to prevent harmful radio interference** to occur:
  - ITU Constitution, Article 1, Nos.10, 11 and 12:

"To this end, the Union shall in particular:

a) effect allocation of bands of the radio-frequency spectrum, the allotment of radio frequencies and the registration of radiofrequency 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;

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"

  - Preamble of the Radio Regulations, Nos. 0.4 and 0.8:

"0.4 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 Members 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 these Regulations (No. 197 of the Constitution)."

"0.8 to assist in the **prevention and resolution of cases of harmful interference** between the radio services of different administrations"

Preventing harmful interference

- The ITU Constitution has one Article dedicated to military radio installations.

- ARTICLE 48 - Installations for National Defence Services

1. Member States retain their entire freedom with regard to military radio installations.
2. Nevertheless, these installations must, so far as possible, observe statutory provisions relative to giving assistance in case of distress and to the measures to be taken to prevent harmful interference, and the provisions of the Administrative Regulations concerning the types of emission and the frequencies to be used, according to the nature of the service performed by such installations.
3. Moreover, when these installations take part in the service of public correspondence or other services governed by the Administrative Regulations, they must, in general, comply with the regulatory provisions for the conduct of such services.

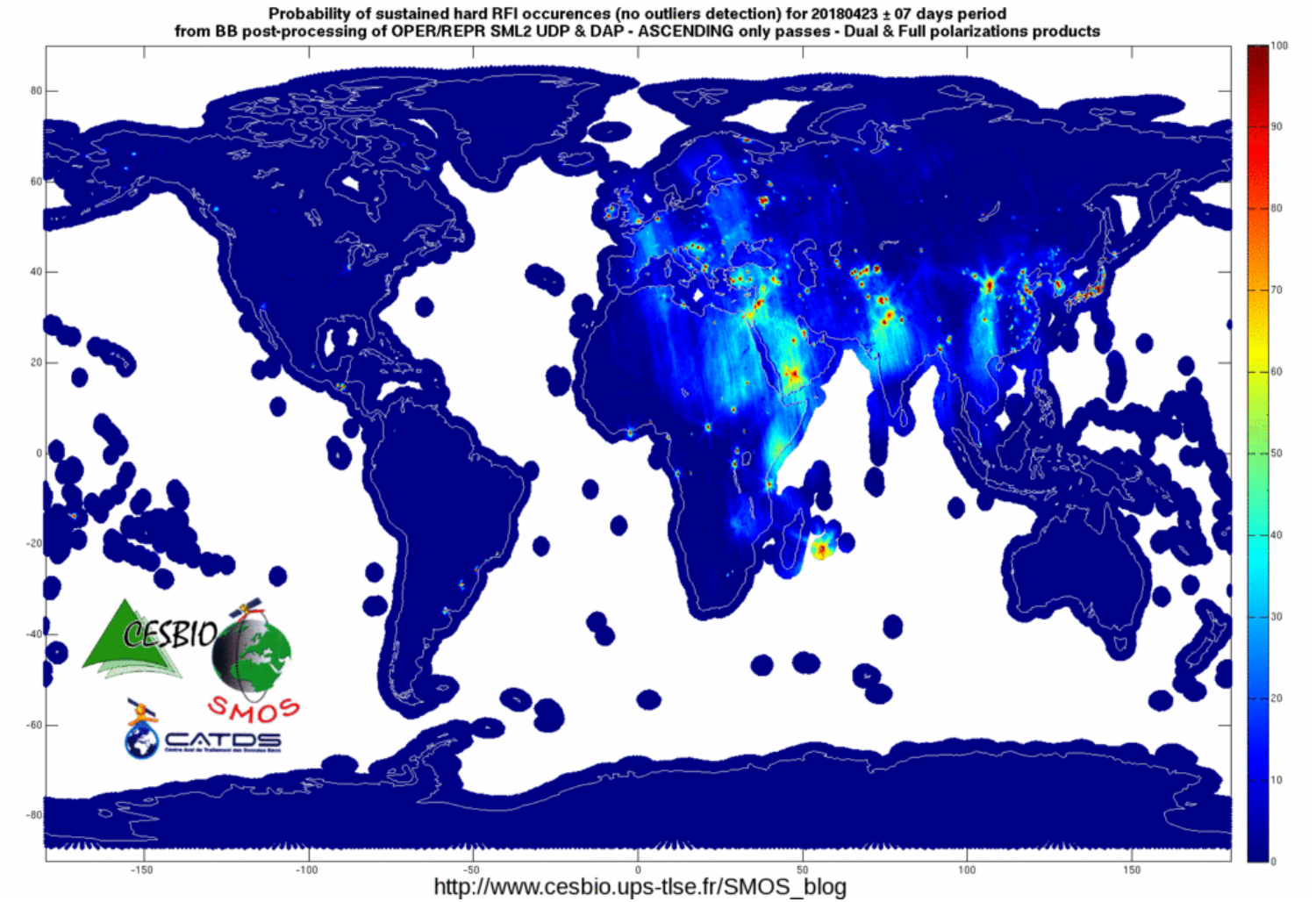
Preventing harmful interference

Various mechanisms are established to **prevent interference** to occur:

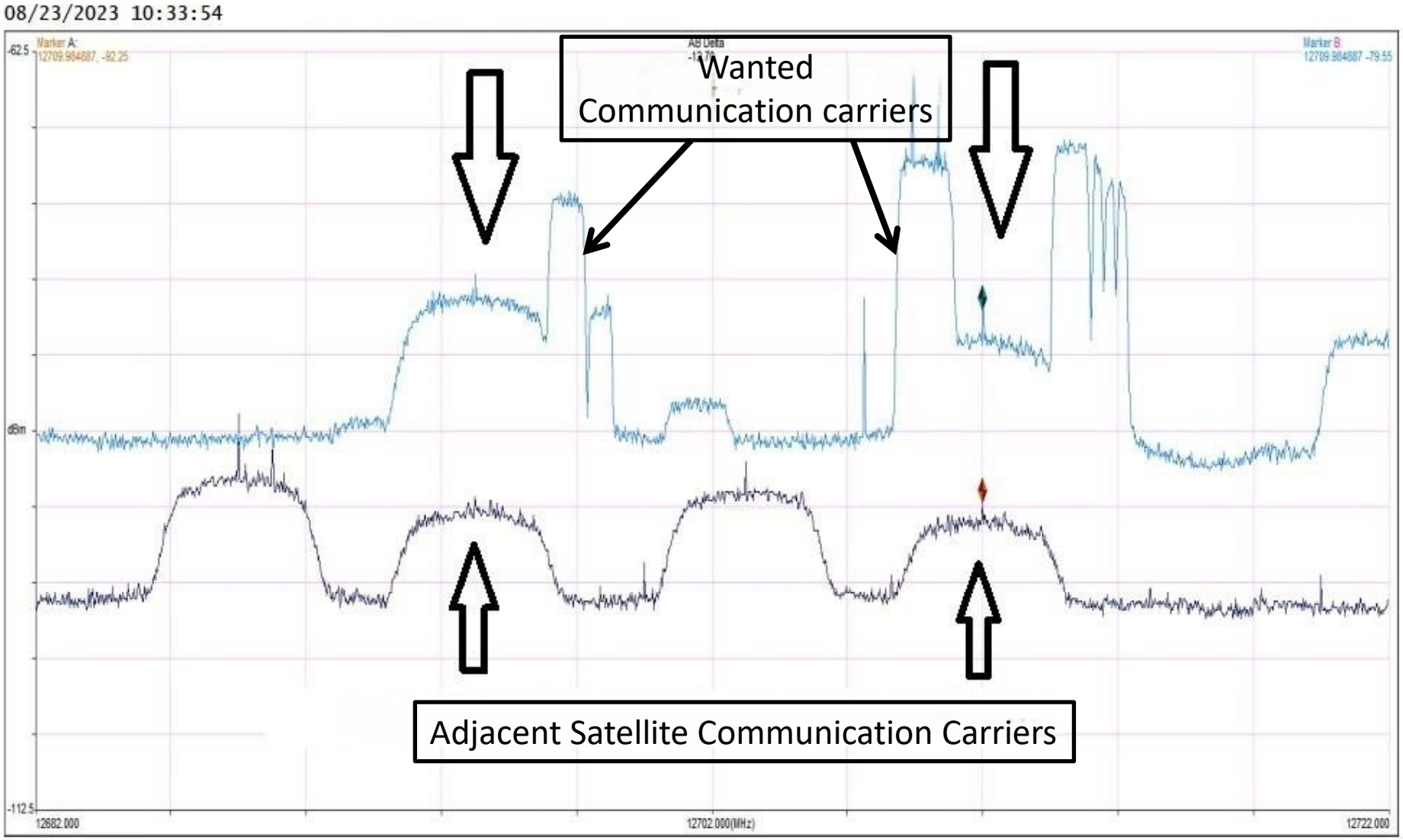
1. spectrum allocation
2. Power limits
3. Coordination process
4. Recording
5. Monitoring

But the same instruments also emphasise the need **to resolve cases of actual harmful interference** when they happen by eliminating the interference.

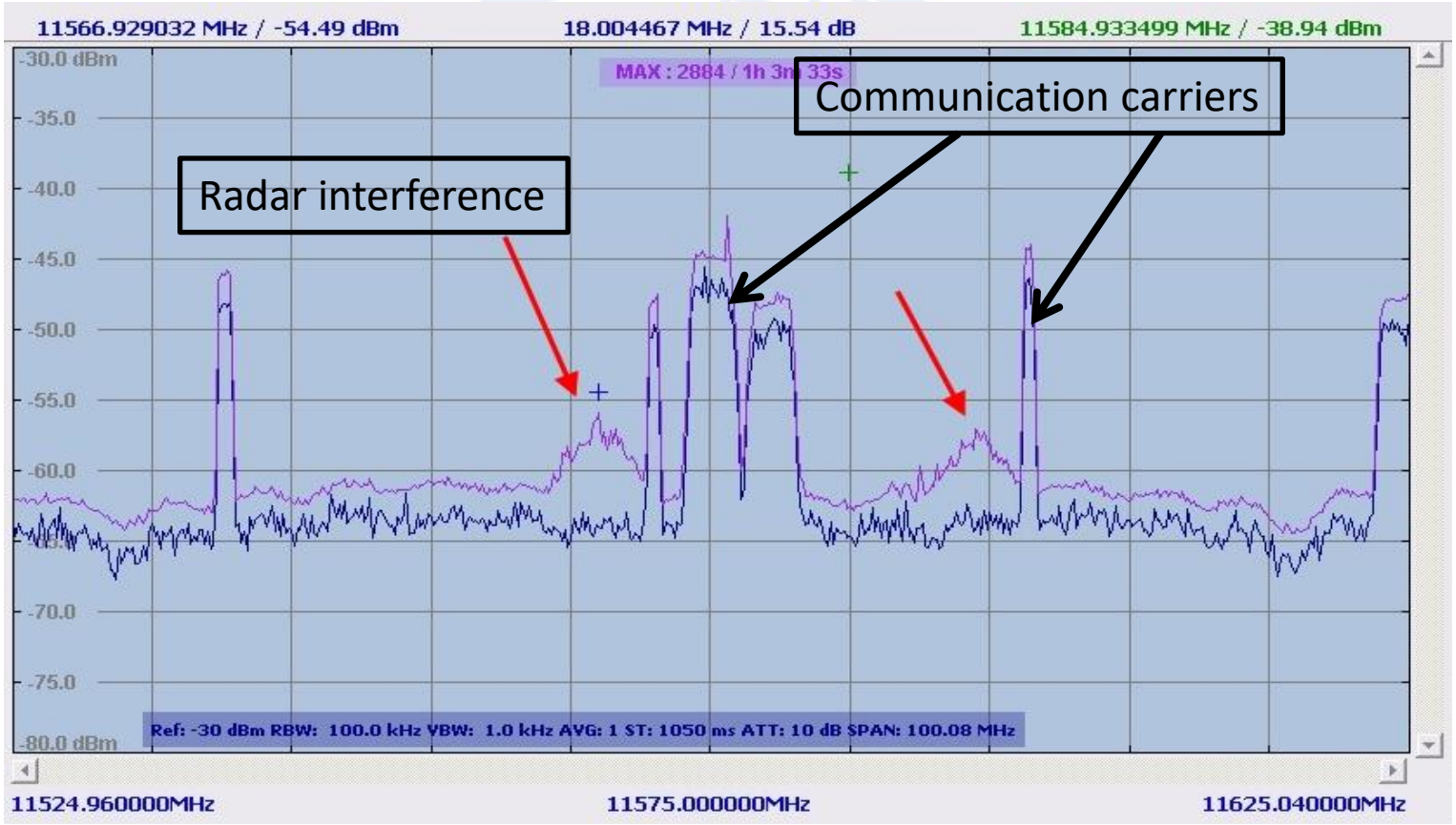
Harmful interference sometimes happens
Case 1: SMOS (EESS satellite – 1400-1427 MHz)



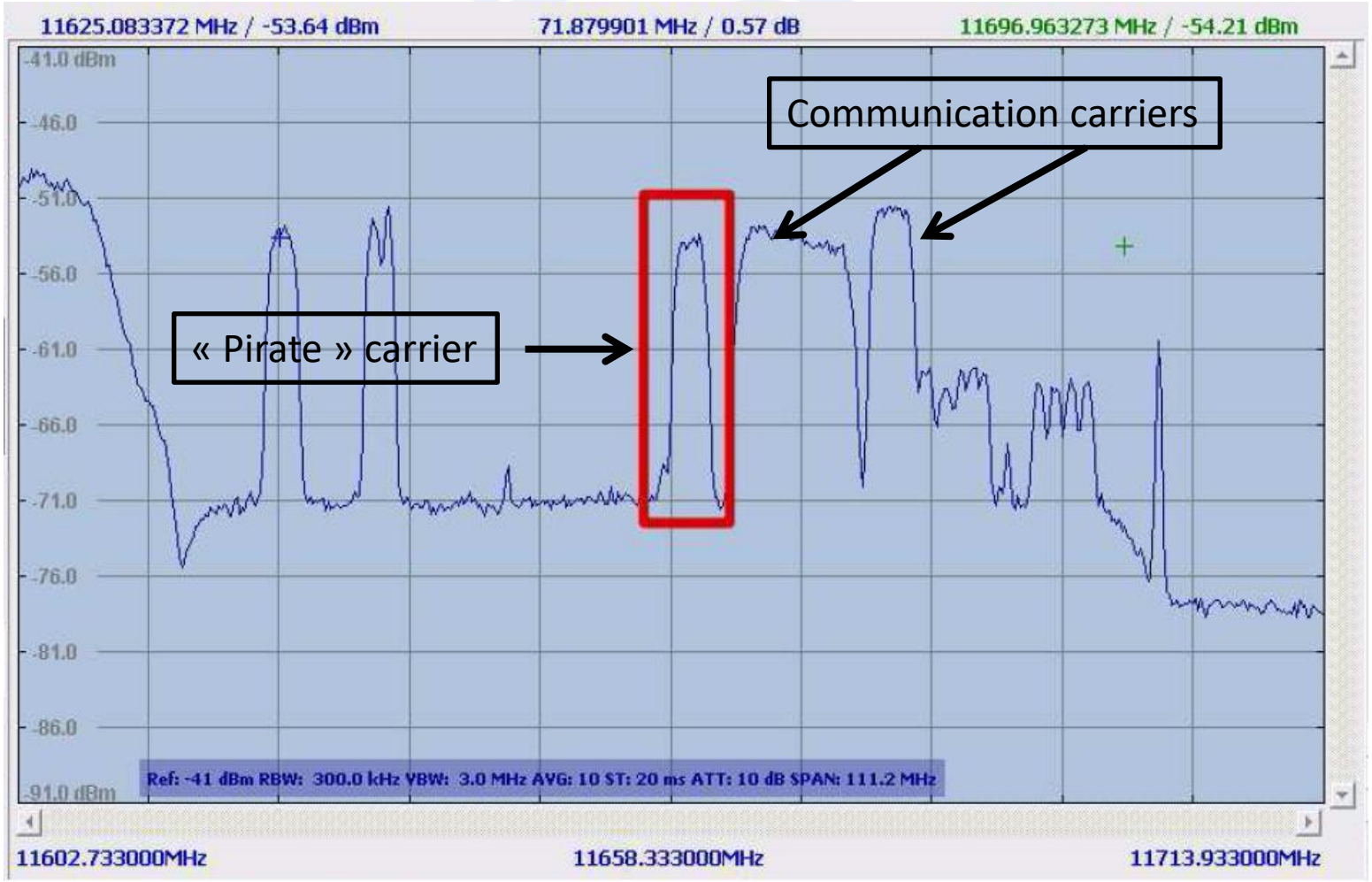
Harmful interference sometimes happens
Case 2: Communication satellite (Ku band)



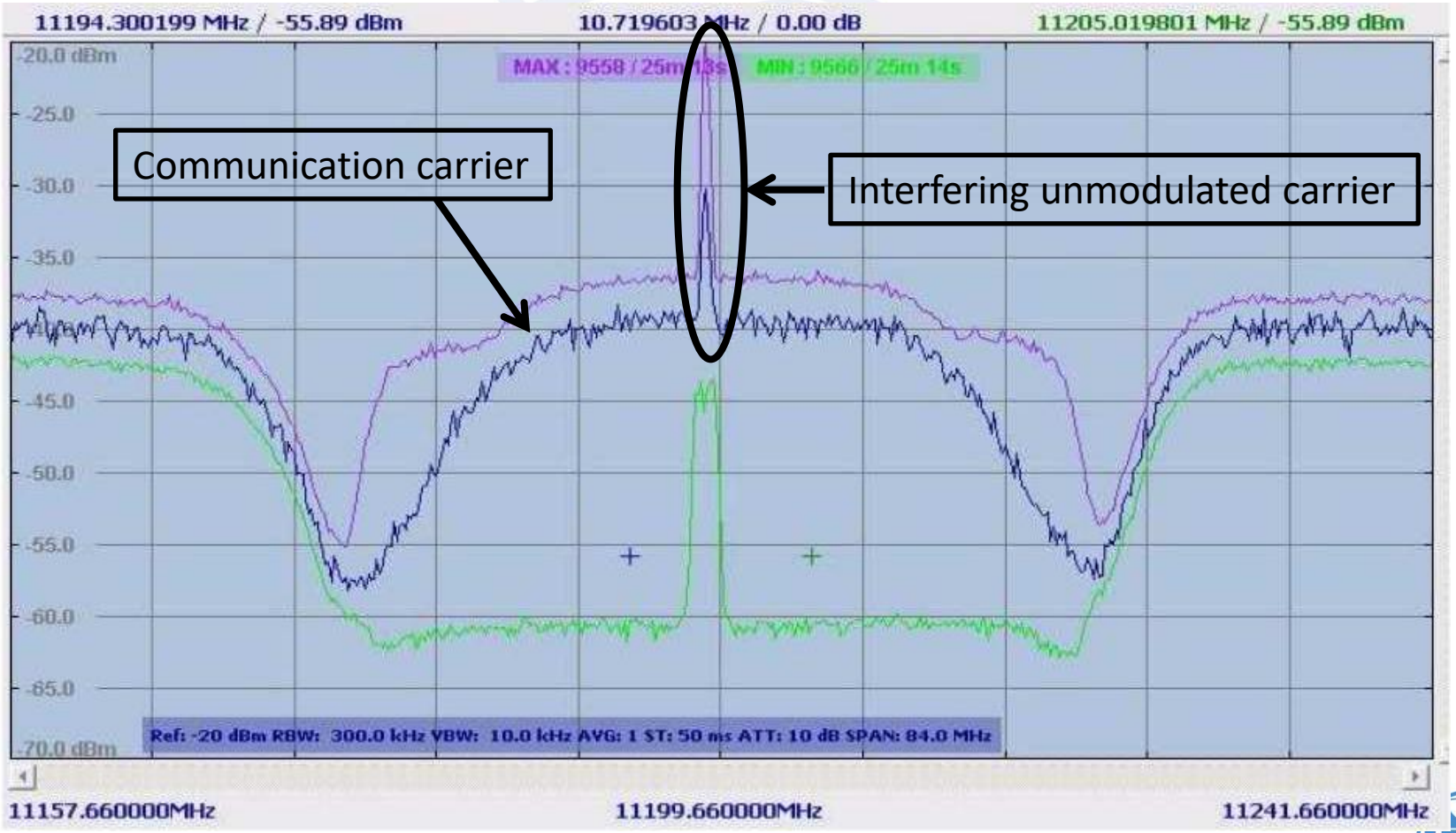
Harmful interference sometimes happens
Case 3: Communication satellite (Ku band)



Harmful interference sometimes happens
Case 4: Communication satellite (Ku band)



Harmful interference sometimes happens
Case 5: Communication satellite (Ku band)



ITU procedures: how to stop harmful interference

- To be able to resolve cases of harmful interference, a **first step** is to locate their origin (geolocation).
  - Technical means of satellite geolocation exist but has of course some technical limits.
  - ITU has engaged with national administrations in **Memoranda of Cooperation** to be able to use their technical monitoring facilities to help solving cases of harmful interference.
  - Once a gross area has been initially determined through satellite geolocation, the precise location of the interferer can only be found with spectrum monitoring mobile units (trucks or helicopters).

- Then the notifying administration of the interfered-with satellite sends a complaint of harmful interference to the administration on the territory of which the interfering earth station was geolocated (**second step**).
  - ITU make available to all its Member States and UN agencies an **online system** to report cases of harmful interference to satellites (SIRRS):
    - Available at: https://www.itu.int/en/ITU-R/space/SIRRS/Pages/default.aspx
  - When the process works, experience shows that often no reply is sent BUT interference actually disappears.

ITU procedures: how to stop harmful interference

- ITU procedures rely on the assumptions that all administrations
  - are able to control emissions originating from their territories,
  - will cooperate to resolve cases of interference.

- Intentional interference – piracy or jamming – is by nature challenging one or both of these assumptions.
  - However most reported cases of satellite interference are indeed solved! → ITU legal instruments still provide a stable regulatory framework.

Percentage of spectrum assigned to satellite networks which was **free** from reported harmful interference in 2025

99.84%


ITU