“Spectrum Issues”

(The international Regulatory framework)

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WBU-ISOG Forum
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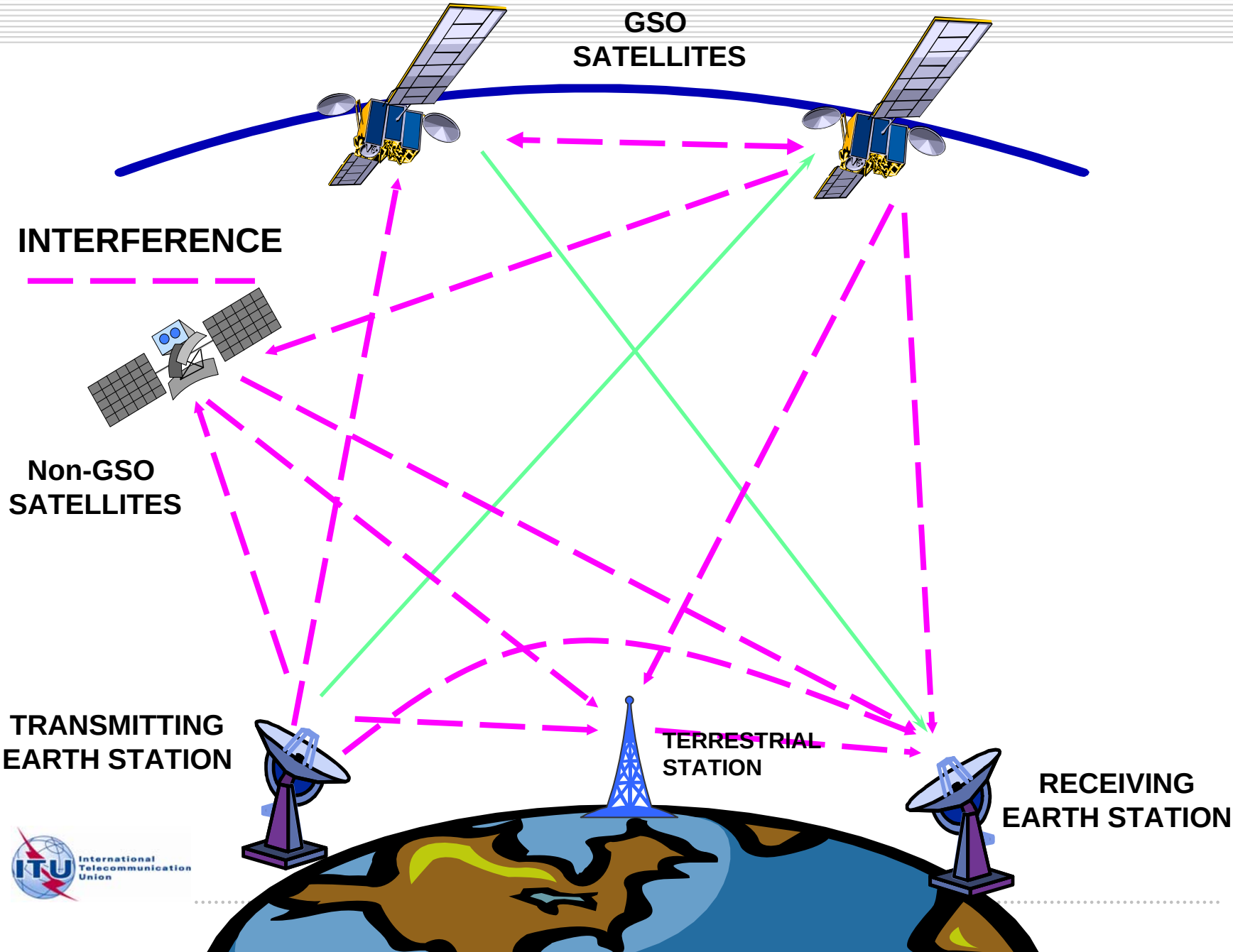
Committed to connecting the world


GSO
SATELLITES
INTERFERENCE
Non-GSO
SATELLITES
TRANSMITTING
EARTH STATION
TERRESTRIAL
STATION
RECEIVING
EARTH STATION
ITU
International
Telecommunication
Union

Radio Regulations

- Lengthy & complex procedure

Decided by Administrations during WRC

Governed by:

- More sophisticated use of spectrum
- Individual requirements of administrations

One of its main purposes - Interference-free operation of Radiocommunications

International Telecommunication Union

Radio Regulations

- Lengthy & complex procedure

→ Efficient use of spectrum,
Equitable access

→ Opportunity to resolve interference before operation

→ Prevents loss of investment, customers & revenue by minimizing unusable capacity due to interference

ITU International Telecommunication Union

API

(Advance Publication)

First part of 3-stage process

1 ~ 2 years

Start of regulatory clock

Up to 7 years before operation

API

(Advanced Publication)

Coordination

Central part of 3-stage process

Technical & regulatory exam

+

Coordination requirements

Affected Adm.

CA & DT/T

International Telecommunication Union

API

(Advanced Publication)

Coordination

3 ~ 6 years

C/I + Affected Adm.

API

(Advanced Publication)

Coordination

Notification

(Recording in Master Register)

↓

Last part of 3-stage process

↓

Max. 7 years after API submission

API

(Advanced Publication)

Coordination

Notification

(Recording in Master Register)

API

(Advanced Publication)

Coordination

No coordination agreement ?

Notification

(Recording in Master Register)

Unfavourable finding

(No. 11.32)

International Telecommunication Union

API

(Advanced Publication)

No coordination agreement ?

Coordination

11.32A

11.41

Notification

(Recording in Master Register)

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Consequences:

- Difficulty to complete coordination
- Multiple filing submissions
- Operation without prior coordination
- Fait-accompli approa
- Fictitious recorded as

International regulatory framework:

- Lengthy & complex procedures
- Lack of incentive to review underused spectrum/orbital position

Spectrum /orbit resource scarcity

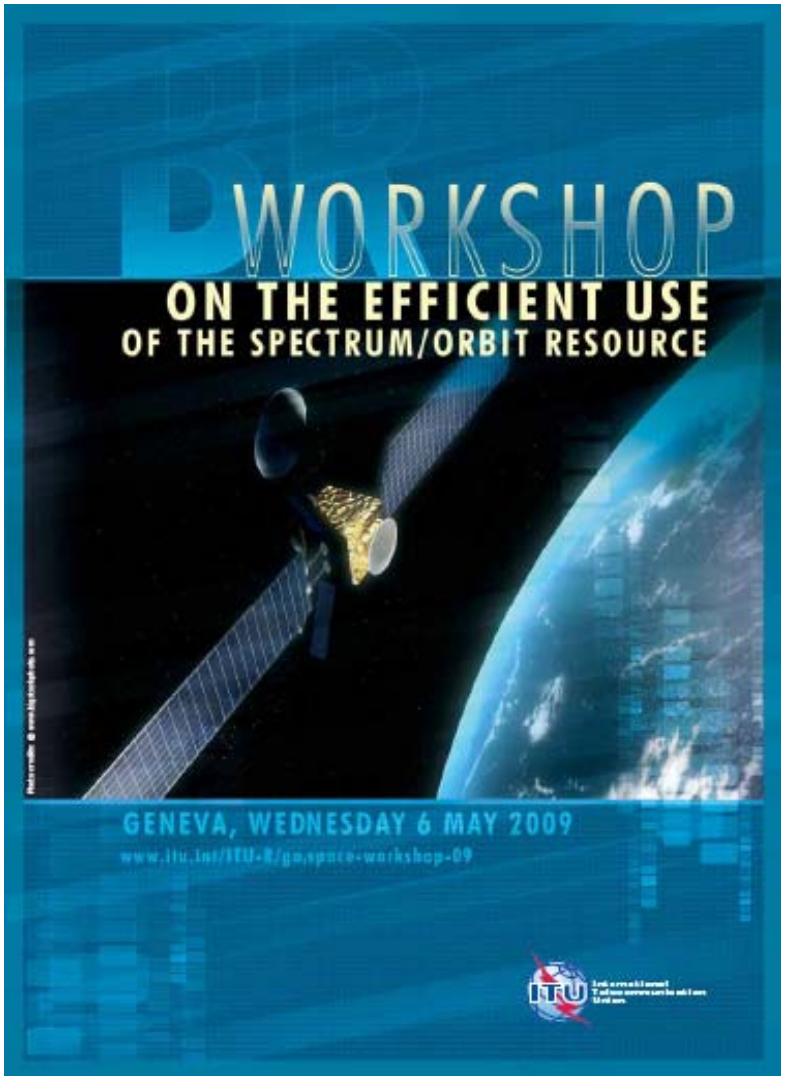
Goal:

- To ensure rational, equitable, efficient and economical use radio frequency spectrum
- To ensure compliance of orbit/spectrum use with RR
- To develop procedures that fa access to the resources
- To guarantee interference-fre satellite network operation…

What to do?

- To introduce new milestones in Res 49
- To notify more realistic parameters at the notification/recording stage
- To charge fees for data in the MIFR
- To review satellite service/application definitions
- to introduce more deterrent enforcement mechanisms
- to improve procedures?

ITU BR Workshop



Efficient Use of the Spectrum/Orbit Resource

was held in

Geneva, 6 May 2009

International Telecommunication Union

ITU BR Workshop

Two questions were posed

Question One

Do ITU & RR, through the existing procedures for the registration of frequency assignments for space services, **bring added value to administrations and the satellite community** ?

Question Two

What mechanisms & practical strategies can be employed to **ensure efficient use** of the spectrum/orbit resource and **improve** the existing international satellite spectrum management systems ?

Solutions

http://www.itu.int/ITU-R/space/support/workshop-spectrum-2009/doc/BR_Workshop_notes.pdf

Solutions

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- Technical characteristics of satellite networks
- Regulatory
- Financial & economic considerations
- Equitable access considerations
- Training

Solutions

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Technical characteristics of satellite networks

Regulatory

Financial & economic considerations

Equitable access considerations

Training

- **Adopt state of art technology** – Higher transmission rate with less spectrum, efficient spectrum use at all times & reduced satellite interference
- **Use simplified set of "real" operating satellite parameters** - More realistic interference exam & facilitate sharing
- **Improve AP4 information quality** – More realistic notified power, remove A16a, quantify steerability, suspend/sup steerable beams not brought into use, limit steerability to service area, extend coordination arc to other bands, shorten current coordination arcs, introduce coordination pfd limits, use NGSO

Solutions

http://www.itu.int/ITU-R/space/support/workshop-spectrum-2009/doc/BR_Workshop_notes.pdf

- Technical characteristics of satellite networks
- Regulatory
- Financial & economic considerations
- Equitable access considerations
- Training

- **CR/301 1 May 2009** – Remove unused frequency assignments & networks in MIFR
- **Remove API** – For networks subject to coordination. Only 20% of networks in API will reach notification
- **No. 11.41** – Limit number of 11.41 recorded assignments, limit to closely separated satellite networks and genuine coordination difficulties
- **No. 11.44.1** – Recorded assignments in MIFR maintained, remove API and coordination data
- **Res49** – Submit Res49 after launch, allows verification by administration
- **No. 11.44** & **11.47** – concept of bringing into use
- **ISM** – Resolve interference problems and ensure proper use of international regulatory framework

Solutions

http://www.itu.int/ITU-R/space/support/workshop-spectrum-2009/doc/BR_Workshop_notes.pdf

Technical characteristics of satellite networks

Regulatory

Financial & economic considerations

Equitable access considerations

Training

- **Impact of fees** – May improve efficient spectrum/orbit use. But may be difficult to agree on fee, disadvantage for developing countries, may not deter major players

Solutions

http://www.itu.int/ITU-R/space/support/workshop-spectrum-2009/doc/BR_Workshop_notes.pdf

- Technical characteristics of satellite networks
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- **Metric Proposal** – Evaluate equitable access in present and future spectrum/orbit use
- **Climate, Geographical, Economical and Social Aspects** – Major constraints on planning of satellite spectrum/orbit resources in developing countries

Solutions

http://www.itu.int/ITU-R/space/support/workshop-spectrum-2009/doc/BR_Workshop_notes.pdf

- Technical characteristics of satellite networks
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- Financial & economic considerations
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- Training

- **Seminars/Workshop** –BR provides administration with useful training about regulatory procedures and software tools

WP 4A & 1C

Correspondence Group on the efficient use of the spectrum/orbit resource

Chairman

Jack Wengryniuk: jwengryniuk@directv.com

Working Party 1C (WP 1C)
Spectrum monitoring

- Development of a monitoring programme on the use of the spectrum by space services
- 11th International Space Monitoring Meeting (October 2009, Seoul, Korea)
- Question ITU-R 232/1

BR Workshop Follow-up

- Possible workshops/meetings in 2010
- On Regional Basis:
  - Asia Pacific
  - Americas
  - Europe
- Programme yet to be defined