



Improving of international orbit / spectrum management system

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Satellite market trends (2011)

- 1)** 419 GSO satellites, 107.7 billions (SIA)
- 2)** BSS TV - 200 millions users (ITU)
- 3)** TV distribution, capacity leasing
- 4)** Direct to business- to home- Broadband
- 5)** MSS (2005) –2 millions (ITU-R SG8D)
- 6)** BSS (sound)- near 22 millions (Sirius XM Radio)
- 7)** Remote sensing 1 billion
- 8)** 286 satellite to be launched 2022 (FAA)

Deficits of Plan bands

- Minimal uptake of Plans
- Additional use and regional systems
- Degradation of national allotments
- National coverage

Deficits of Non-planned bands

- **EMC is calculated on the basis of SRS date base.**
 - “paper” satellites/“paper” parameters
- **Uncertainty of access to resource**
- **Transaction cost, Latecomer penalty:**
currently US\$ 3-5 mln,
- **Investment risk**
- **Dysfunctional enforcing mechanism**



Theory of common property resources

- **Tragedy of the Commons**
- **Methods to improve efficiency:**
 - **Centralized administrative management,**
 - **Private property and market,**
 - **Common property**

EU Spectrum in 2015-30 % market, 7 % - common

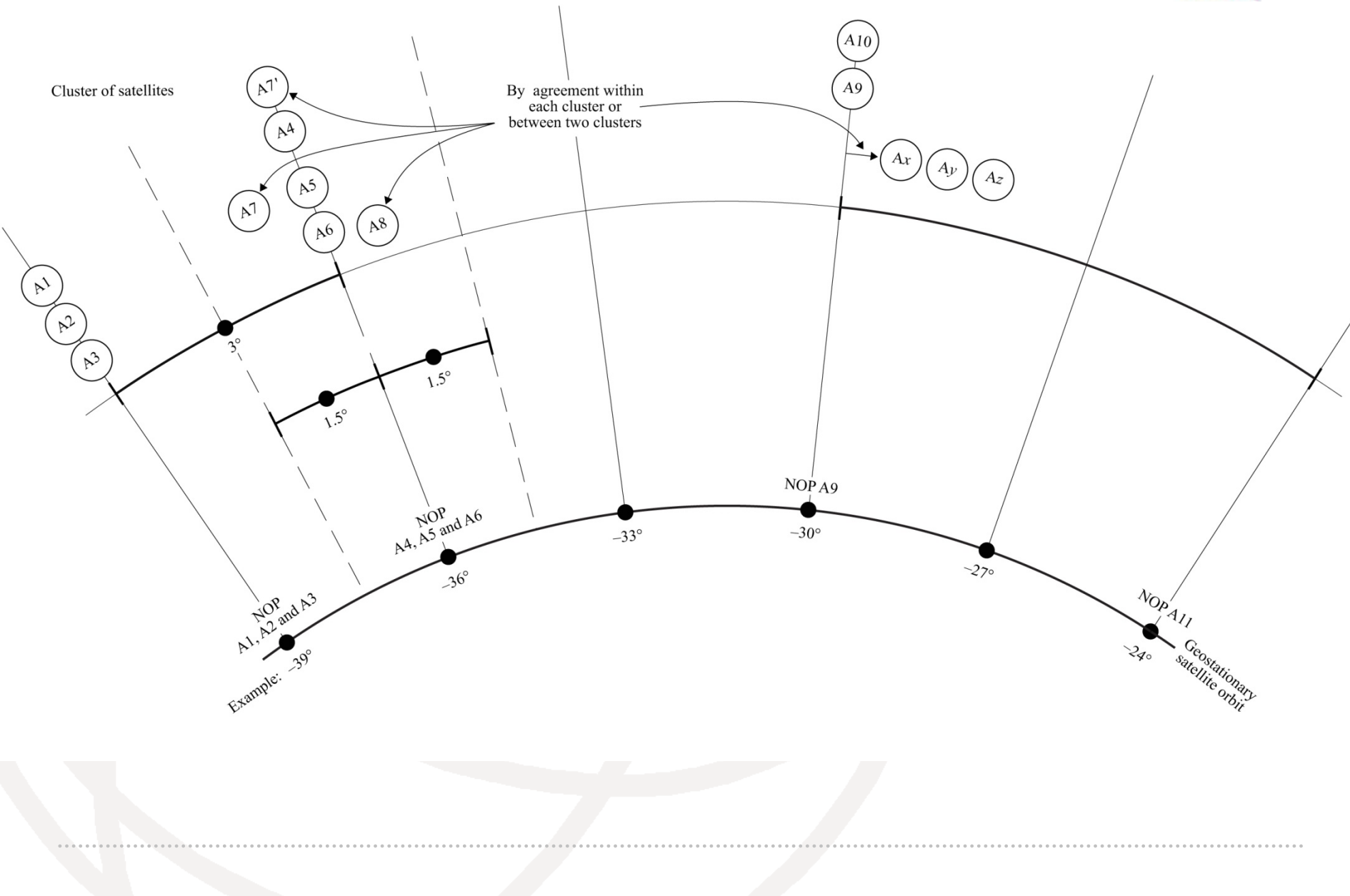
Planned bands

EC Radio Spectrum Policy Group

Spectrum right
Name of the public authority that assigns the right
Name of holder
Spectrum bandwidth
Max in band power or Max out of band power or Spectrum mask
Service area and maximum in-band power beyond geographical limits
Duration and rights of renewal

Existing FSS Plan

National allotment
Name of Administration
800 MHz (up- and down- links), orbital position
CPFD/I$\geq$26 dB, C/N$\geq$16 dB, single entry C/I$\geq$30
National coverage, Test points
Up to next WRC





Non-plan bands

- Trading impossible, as spectrum rights remain undefined
- Spectrum is mainly distributed between big players
- Approach: Annual spectrum fee for systems in SRS database

$$R = \sum_{n=1}^N (\Delta F \cdot \Delta \varphi \cdot k \cdot s)_n$$

$\Delta \varphi$ is the required angular separation of the assessed system relative to the reference network



Enforcement mechanism

- Independent radio monitoring
- Independent judgment- RRB
- RR has to get measure against violation of spectrum use rules



Conclusions

- 1) SatCom prospects remain good**
- 2) Existing system for international spectrum management system needs to be looked at**
- 3) Introduction of economic methods- promising option to increase efficiency of spectrum use for satellite systems**



Questions?