

# Technology and service neutrality: a deeper insight

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## Technology and service neutrality

- A wide goal to relax administrative constraints to allow the market place to “naturally select” those systems leading to an optimal usage of radio resources.
- This “natural selection” can be accomplished easing a dynamic replacement of services and technologies.
- Two basic principles are fostered: *service* and *technology neutrality*.

## Technology and service neutrality (2)

- Technology neutrality: any available technology to date can be employed to provide a certain service in the used frequency band
- Service neutrality extends this concept, stating that *any* service can be offered in the frequency band of interest.

## **Service neutrality means system architecture neutrality?**

- A true “service neutrality” requires to preliminarily solve technical problems related to different network architectures and duplexing approaches.
  - mesh network vs point -multipoint network
  - TDD vs FDD.
- To refine compatibility criteria since those adopted so far seem to be no longer adequate in a service neutral environment.
  - Block Edge Mask, EIRP limitations.

# Some further warnings

## Some risks related to a pure economic approach to frequency trading

Spectrum  
buy-up

Spectrum  
fragmentation

Non technological  
pressure in favor of less  
spectrum efficient  
systems

## Some proper protection of the final user

Inertial force against efficient use and innovation

# Re-visit Technical Aspects

Technology Neutrality  
Service Neutrality

+

Preservation of Final User  
rights

## Some possible approaches by the regulator

TN+SN on  
restricted  
freqs/areas

TN given  
interoperable  
fixed service

SN in a  
technology fixed  
environment

# Technical Solutions

Guiding rules to TN



Spectrum Quality  
Benchmark

e.g. by means of Generic  
Radio Modelling Tool

Open issues:

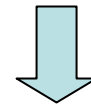
- Difficult coexistence between different architectures
- Difficult coexistence between different duplexing approaches
- Need of refined criteria for interference control

# FUB research guideline

Guiding rules to SN



Service Quality Benchmark  
by means of Generic  
System Modelling Tool



*Radio propagation*  
*Traffic modeling*  
*Network topology*  
*Radio Resource Management*  
*Quality of service*  
*Operational requirements*

# Concluding: a proper balance

Technology and service neutrality may pave the way to spectrum efficiency

- Flexibility vs. harmonisation
- Technology update vs. fragmentation
- Market vs. final user

A methodological issue:

a gradual and analytical approach should be rigorously preserved.