

Flexible use of spectrum

Are we flexible enough?

ITU Workshop on spectrum management

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ETSI ESP

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Legal field

Directives & regulations (equipment)

*Radio &
Telecommunications
Terminal Equipment
Directive (1999/5/EC)*

*Radio Spectrum
Decision
676/2002/EC*



Directives & regulations (networks and services)

Framework Directive
(2002/21/EC)

Authorisation Directive
(2002/20/EC)

Access Directive
(2002/19/EC)

Universal Service
Directive (2002/22/EC)

Privacy Directive
(2002/58/EC)

Regulation
(2887/2000)
Unbundled
access to the
local loop



EC documents on flexible use of radio spectrum

*Lisbon agenda 2000 amended
in 2004*

*i2010 initiative is part of the
renewed Lisbon strategy*

*RSPG opinion on
WAPECS (2005)*

*EC Communication on
flexible bands
(COM(2007)050)*

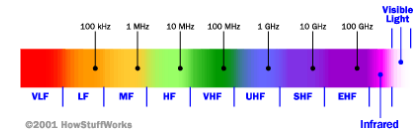
*M/406 on flexible
bands*

*EC recommendation
on flexible use of
spectrum 2007*

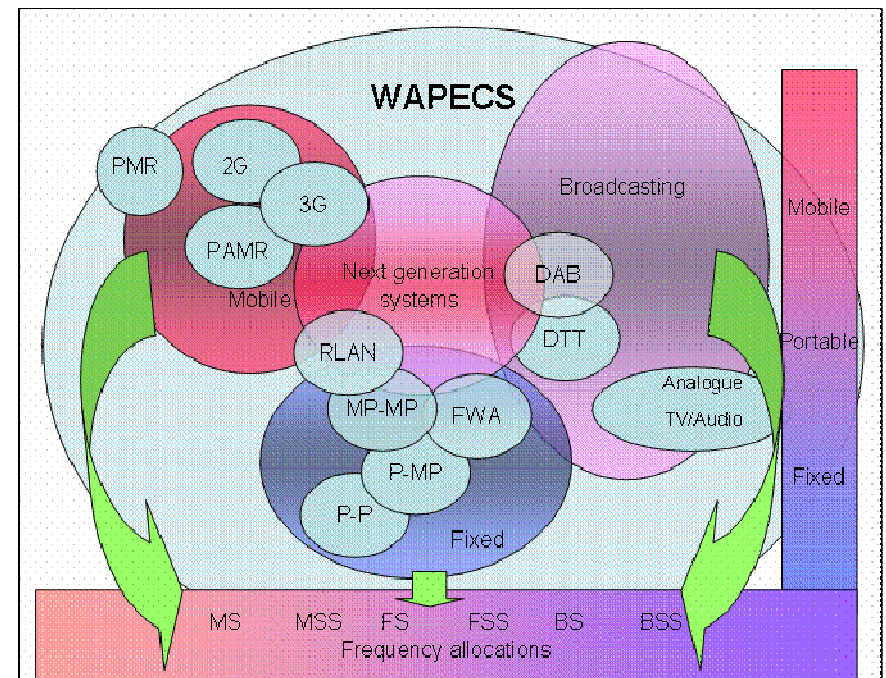
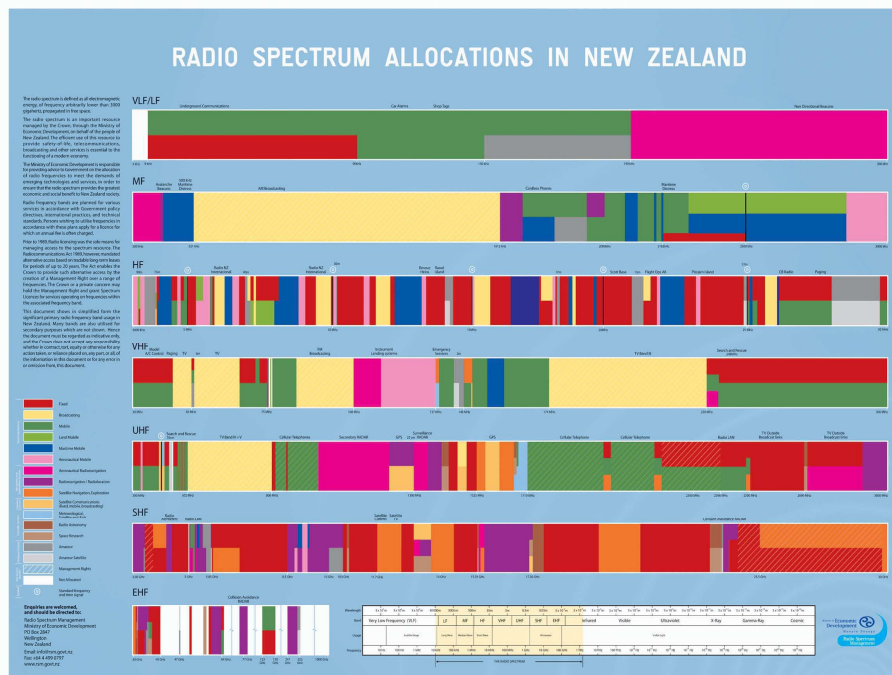


Definition of flexible use of spectrum

Flexible use of spectrum



- ❑ Flexible use - non-restrictive approach, which allows the spectrum user to choose services and technology
- ❑ Exclusive use by a particular service, such as mobile or broadcasting, should be removed (from the Framework Directive)



Definition of WAPECS

WAPECS is a framework for the provision of electronic communications services (ECS) within a set of frequency bands to be identified and agreed between European Union Member States in which a range of ECS may be offered on a technology and service neutral basis, provided that certain technical requirements to avoid interference are met, to ensure the effective and efficient use of the spectrum, and the authorisation conditions do not distort competition



World Class Standards

http://ec.europa.eu/information_society/policy/radio_spectrum/by_topics/wapecs/index_en.htm

The screenshot shows a Windows Internet Explorer browser window displaying the European Commission's Information Society Thematic Portal. The address bar shows the URL: http://ec.europa.eu/information_society/policy/radio_spectrum/by_topics/wapecs/index_en.htm. The page title is "WAPECS presentation". The portal header includes the European Union flag and the text "Europe's Information Society Thematic Portal". Below the header, there is a navigation menu with links to "Policies", "Activities", "Culture & Society", "Economy & Work", "Education & Training", "Quality of Life", "IS Industry", "Regions / World", and "Research & Innovation". The "Policies" link is selected. The main content area is titled "POLICIES :: Radio Spectrum" and "WAPECS". It includes a sidebar with links to "General overview", "Activities", "By topics", "Reference Documents", "Public Presentations", "Archives", "Links", "Contact us", and "Site overview". The main text describes the WAPECS initiative, its purpose, and its potential outcomes.

WAPECS

What is it about?

New developments in radio technology have led to more efficient methods of sharing spectrum amongst a wide range of users and rapid innovation has created a need for speedier access to spectrum for individuals and services. Constraints attached to the usage of specific radio spectrum bands must be removed as much as possible and spectrum management should be made more relevant to the rapid development of new technologies, markets and services.

Wireless Access Platforms for Electronic Communications Services (WAPECS) is the term coined by the Commission for transmission platforms used for radio access to electronic communications services regardless of the bands in which they operate or the technology they use. This reflects the need for a coherent approach including greater flexibility in the management of relevant spectrum resources.

Possible outcomes from this initiative could be:

- A future framework including all relevant frequency bands in which flexible use is possible, characterized by an open service definition (broad market approach) and a limited set of conditions/parameters that clarify rights and obligations in a specific frequency band;
- A transition period leading up to a recommended date that allows sufficient time to implement the transition to the new framework. Some elements of the framework may be capable of earlier implementation than others;
- A road-map towards implementation of the proposed framework for further consideration in EU, CEPT and ITU fora;

Possible cases for the application of the approach developed for WAPECS are bands where 2G, 3G, PMR / PAMR (Private Mobile Radio / Public Access Mobile Radio) or broadcasting services operate.

What is the role of ETSI and where it can help?

Flexibility already now

- ❑ There are various ways through which the Community and Member States are currently introducing more flexibility in the use of the radio frequency spectrum:
 - 1. Through more generic allocations for license exempt bands (e.g. developments in 862-870 MHz SRD band);
 - 2. Through granting of exclusive rights to use frequency bands without setting specific conditions for their use other than the obligation to avoid interference to the adjacent bands users;
 - 3. Through granting of shared rights to use frequency bands without setting specific conditions for their use other than the obligation to avoid interference to the other sharing users.
- ❑ Policies on this matter are still under development

Pre-requisites

- ❑ **Convergence trend and increasing use of digital technologies made radio access technologies to compete with other. Avoiding interferences was made easier because of the technological progress**



Spectrum management policy is a subject for improvement . Flexible spectrum management is an objective of the European Commission

Spectrum use by electronic communications services 2006 turnover is 240-260 billion Euros. Flexible spectrum use will bring another 8-9 billion Euros

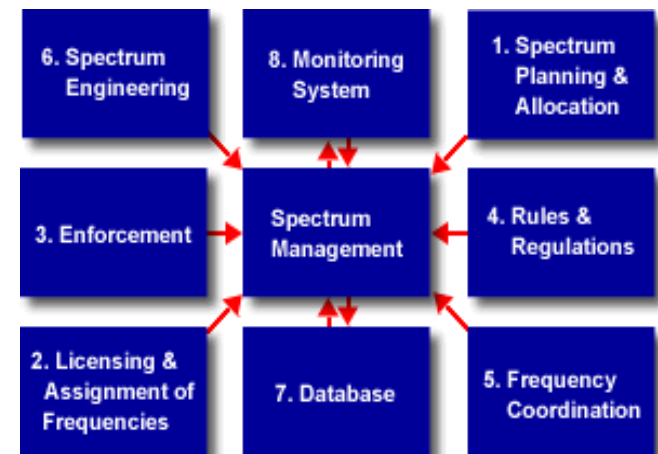


Goals

- ❑ Introducing flexibility in spectrum management aims at speeding up access to the radio frequency spectrum for new applications and services.



Avoiding interference remains a key element of spectrum management, but the way it can be achieved has evolved due to technological progress.



This progress means that the traditional spectrum management approach should be replaced by a more flexible one, which not only facilitates technical efficiency, but also economic efficiency in spectrum use.

Focus on ETSI

- ❑ **Facilitating standardisation through at least the establishment of a harmonised set of technical requirements for the usage of certain frequency bands to allow the single European market to benefit from economies of scale (*RSPG Opinion*)**

- ❑ **Minimal technical usage conditions for the bands are to be established through technical implementation measures adopted under the Radio Spectrum Decision (676/2002/EC) and harmonised standards adopted under the R&TTE Directive in order to facilitate the single market, the avoidance of interference, cross-border coordination and protection of health. (*COM(2007)050*)**

M/406 on HENs for equipment operating in flexible bands (accepted by the last Board#62)

- ☐ The purpose of this mandate is to establish a set of Harmonised Standards for equipment operating in so-called "flexible bands" to be recognised under Directive 1999/5/EC (the R&TTE Directive) giving a presumption of conformity with its requirements.
- ☐ The European Standardisation Organisations should assess, under the current EU legal framework, the impact of these developments on the principles according to which harmonised standards should be drafted, and on the existing set of harmonised standards that have been developed under the R&TTE Directive.

M/406

- ❑ The European Standardisation Organisations are requested in two phases to:
 - ❑ Phase 1
 - Assess in a report to the Commission the impact of the trend towards flexibilisation on the design of harmonised standards, on the corresponding work programme, and make proposals for an update to this work programme;
 - Report the progress of the work on this phase 1 to the Commission at regular intervals and at least prior to each meeting of the TCAM;
 - ❑ Phase 2
 - Deliver a comprehensive set of harmonised standards for equipment operating in flexible bands, the references of which will be published in the official journal of the European Communities as giving presumption of conformity with the R&TTE Directive.
 - Report the progress of the work on this phase 2 to the Commission at regular intervals and at least prior to each meeting of the TCAM



Fears of the ETSI members

- ☐ 1. Overlap with CEPT activities on WAPECS
- ☐ 2. Protection of the existing technologies and services.

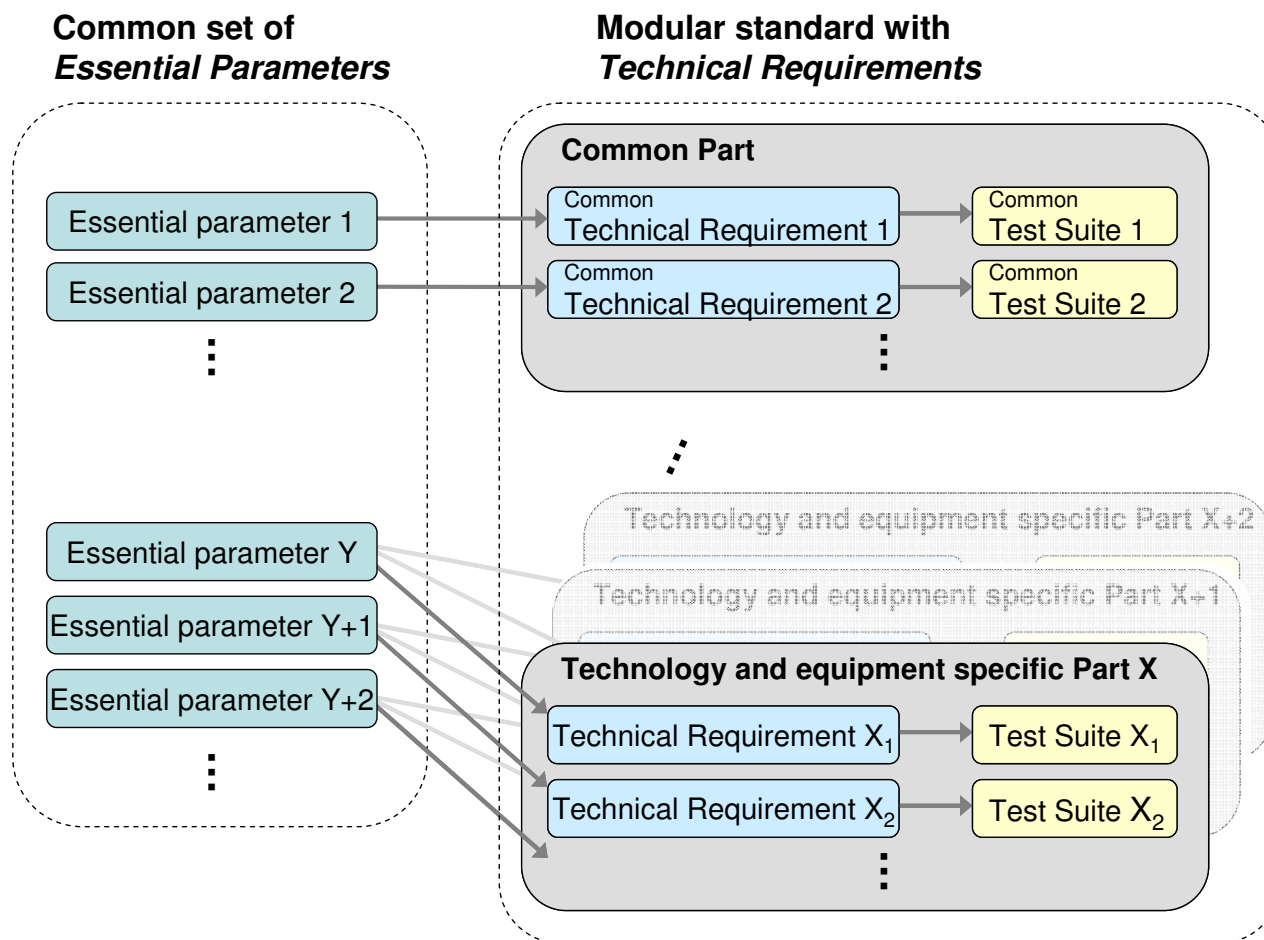
Overlap with CEPT activities on WAPECS

- ☐ This Mandate overlaps with other Mandate issues by the Commission to CEPT (Mandate on WAPECS). All ETSI members can participate in the work in CEPT, and indeed for most organisations it would be the same individuals who would need to do so. There is no benefit from duplicating the work in the two bodies, and it would slow down progress of work in them both.
- ☐ In licence-exempt bands, the conditions of use are defined largely through Harmonised Standards, whereas in individually licensed bands this is done largely through the licence conditions.
- ☐ For all of these reasons, it would be sensible for ECC/SE42 to focus initially on the WAPECS mandate, and for ETSI ERM to focus on Harmonised Standards for licence-exempt bands. This would lead to efficient progress in the work, which would benefit both the participants and the European Commission.

Protection of the existing technologies and services ETSI members proposals

- ❑ **Technology neutral, but not yet application or frequency**
 - A fundamental requirement when setting up TFES was that it should act in a technology neutral manner with respect to the contributing SDOs and the respective radio access technologies, as defined in ITU-R Recommendation M.1457. In this way, TFES became one of the first standards bodies to develop a technology neutral Harmonised Standard.
 - A set of deliverables was produced and has been continuously maintained in the form of a multi-part Harmonised Standard EN 301 908. The standard has a modular structure modular structure with a common generic part and specific parts for each radio access technology. The multi-part EN 301 489 standard covering EMC requirements has been developed on the same basis using a similar structure.

Modular structure of the ETSI/ERM TFES HENs



Flexible use of spectrum

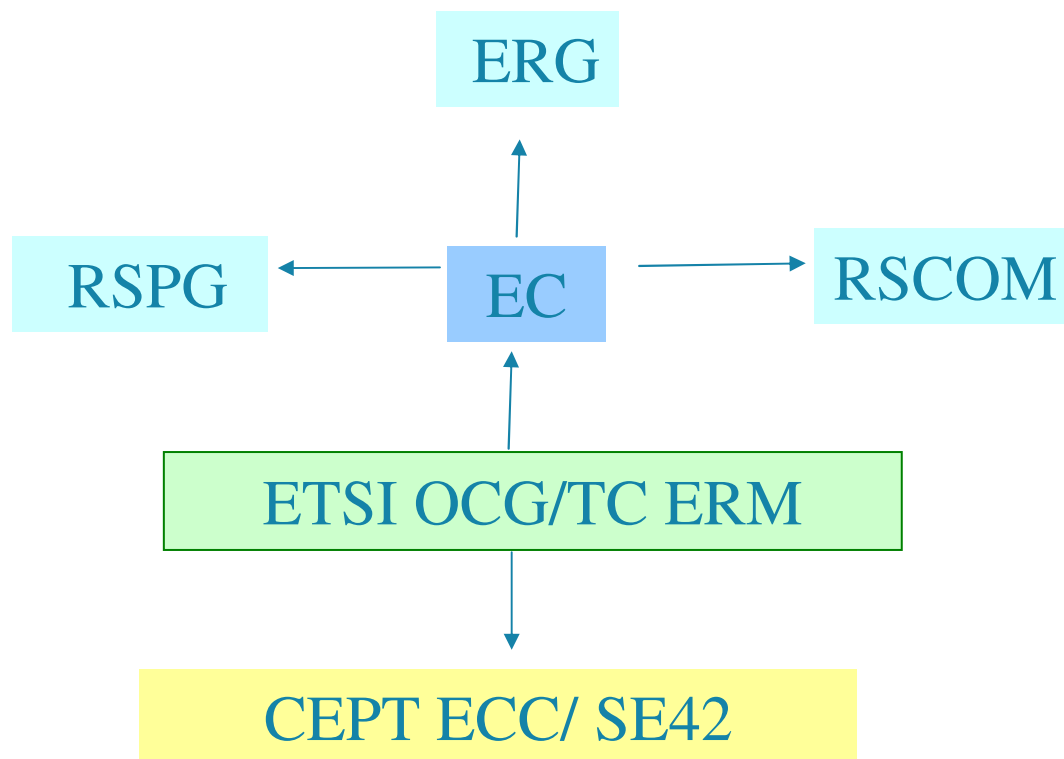
Frequencies under WAPECS consideration

- **Broadcasting (Terrestrial and Satellite)**
- **Land Mobile (PMR, PAMR, GSM, 3G)**
- **Fixed links (P2P & P2MP)**
- **Short Range Devices**

Initial set of frequency bands under investigation for the implementation of more flexibility

- ❑ (1350 MHz in total)
- ❑ █ 470-862 MHz: the band is used for broadcasting today, but issues arising from the digital dividend as well as convergence of broadcasting and mobile services call for action;
- ❑ █ 880-915 MHz / 925-960 MHz as well as 1710-1785 MHz / 1805-1880 MHz: these bands are used for GSM mobile services today, but issues surrounding the introduction of 3rd generation mobile services and the continuing restrictions in the GSM Directive call for action;
- ❑ █ 1900-1980 MHz / 2010-2025 MHz / 2110-2170 MHz; these bands are used for 3rd generation mobile services (IMT-2000/UMTS) today, but market developments point towards the introduction of broadcasting type services as well as broadband connections in residential and rural areas in the light of convergence;
- ❑ █ 2500-2690 MHz (the 2.6 GHz band); this band (still to be licensed) is intended for use by 3rd generation mobile services (IMT-2000/UMTS), but it is of equal interest for the provision of broadband using other technologies;
- ❑ █ 3.4-3.8 GHz: this band is used for broadband connections to the customer's premises, but there is of equal interest for the provision of mobile services within the EU. However, it is also intensively used for satellite communications within Russia and a number of African countries.

Flexible use of spectrum





The Radio Spectrum Decision

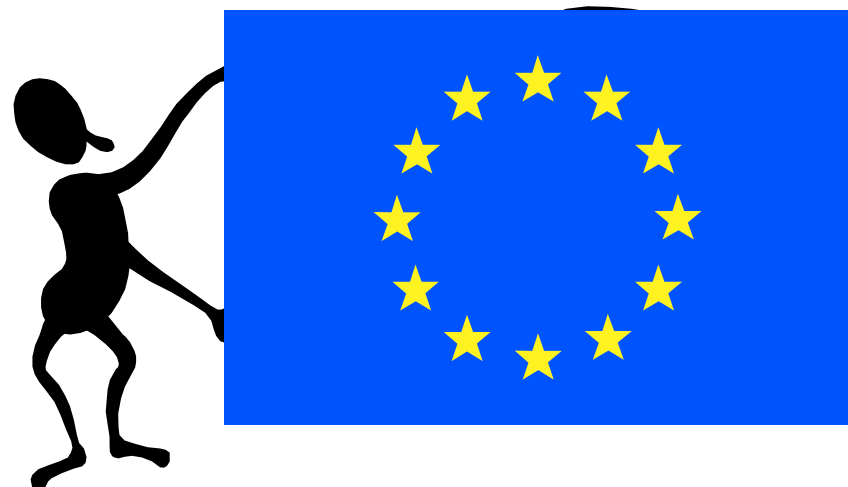
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Radio Spectrum Policy Group

Member states advise EC on spectrum requirements to support EU policy initiatives

e.g. Spectrum trading;
switchover to digital TV;
Wireless Access Policy for
Electronic Communication
Systems (WAPECS)

European Parliament,
CEPT and ETSI as
permanent observers





The Radio Spectrum Decision

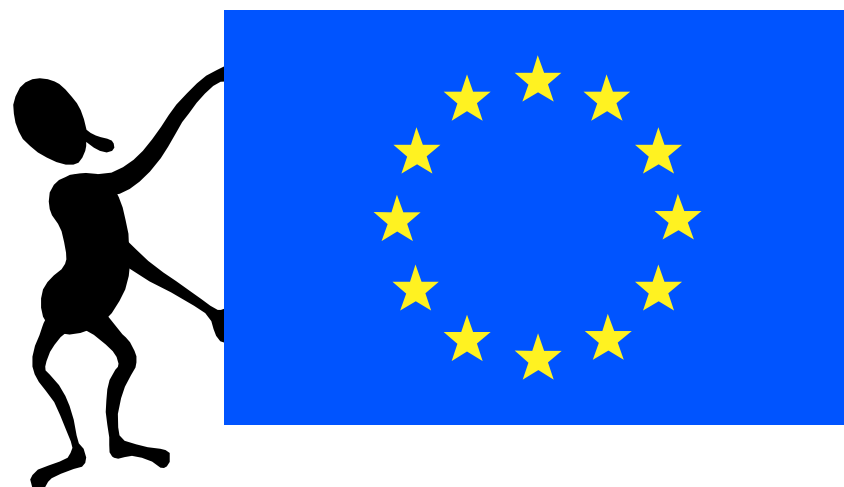
Radio Spectrum Committee

European Commission requests CEPT to provide frequency allocations in support of EU policies

CEPT output codified into a Commission Decision

Legal certainty !

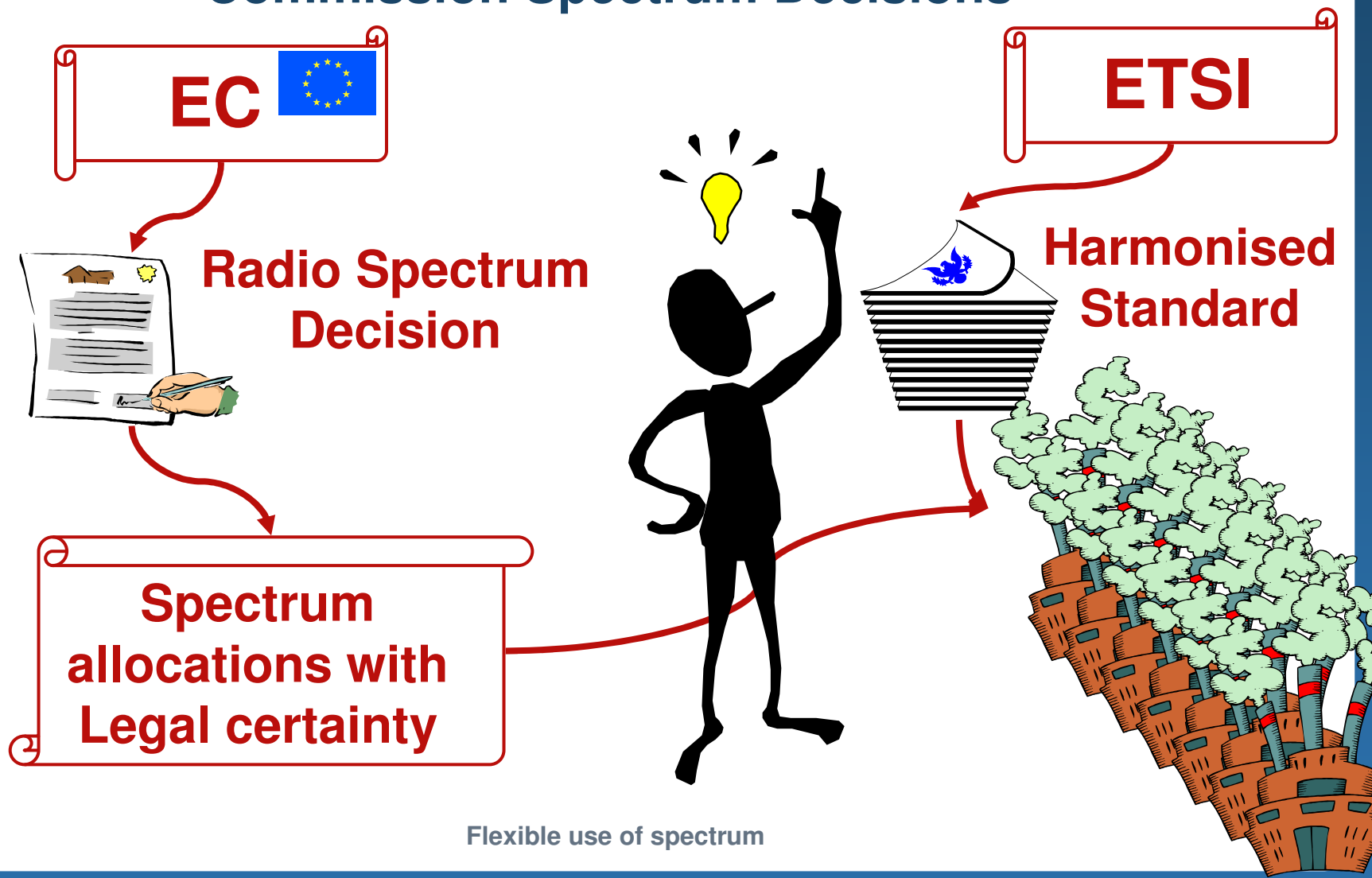
CEPT and ETSI are permanent observers





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Harmonised Standards and Commission Spectrum Decisions



World Class Standards Keeping up to date

❑ <http://www.etsi.org/europe/public-interest>

❑ <http://portal.etsi.org>

- ERM
- Spectrum
- Others...

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❑ <http://portal.etsi.org/ocg>

- R&TTE Steering Committee

❑ <http://www.europa.eu.int>

- Radio spectrum policy

Any questions?

