

# Fixed Service in Europe: Current use and future trends post 2011

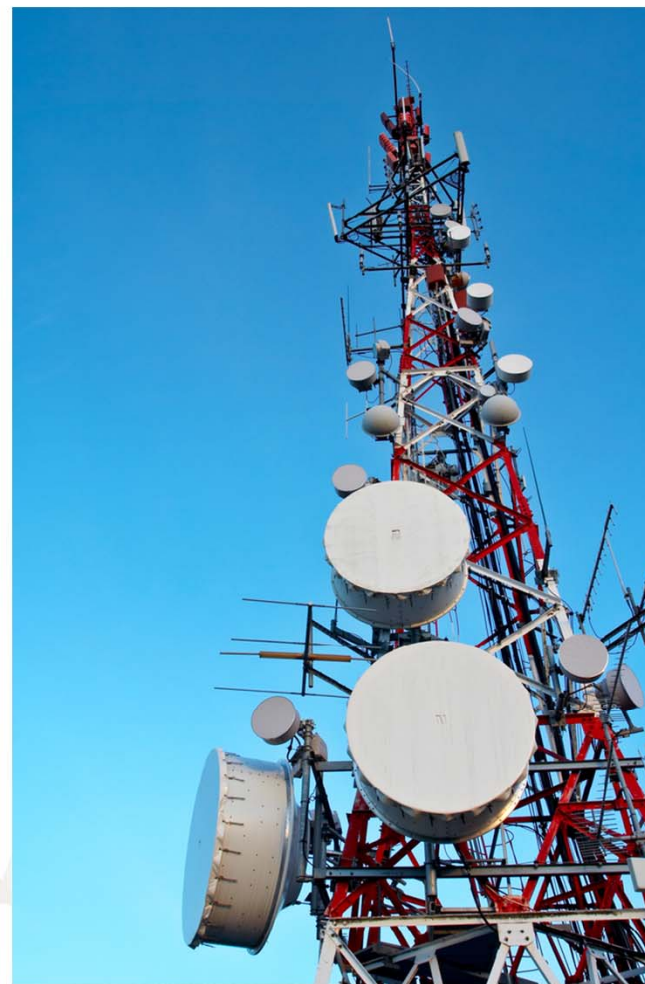
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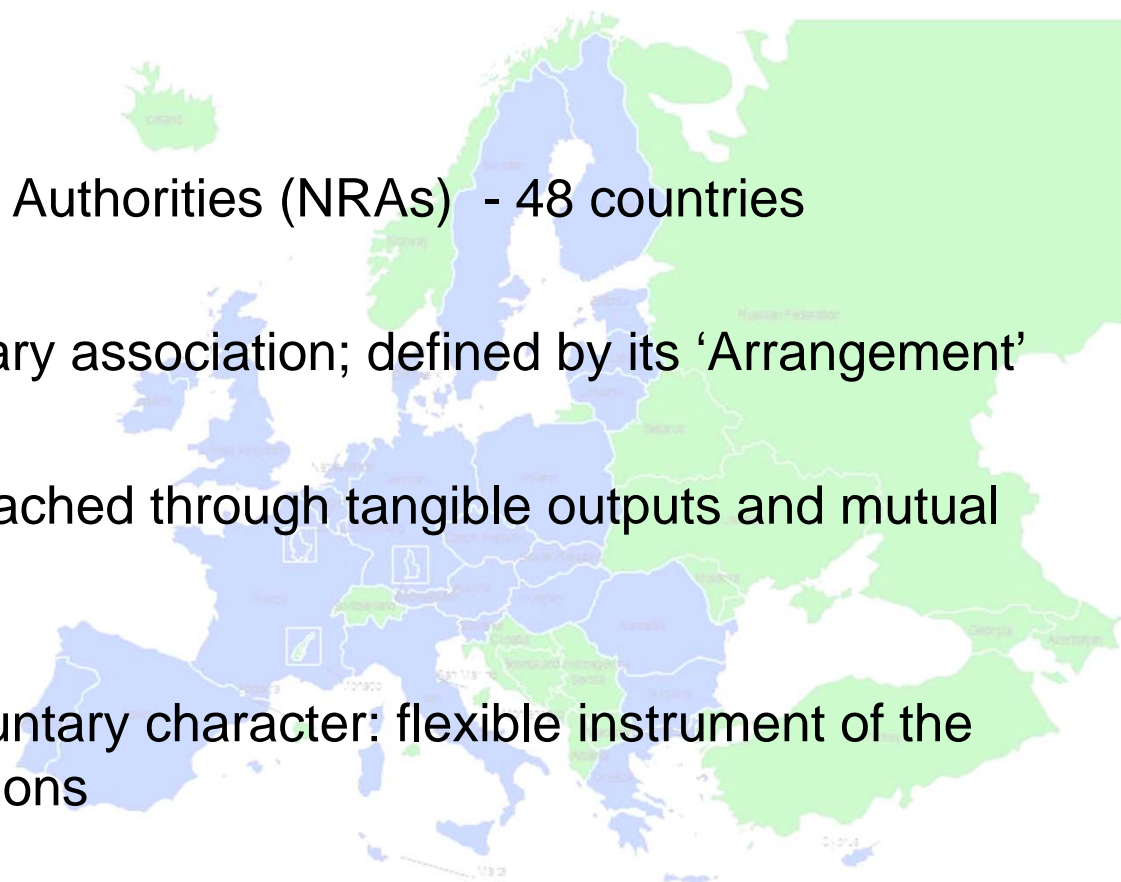
## Outline

- CEPT, ECC and SE19  
*who we are and what we do*
- Questionnaire 2010
- European FS and its regulation
- Current and future FS use
- Technology trends



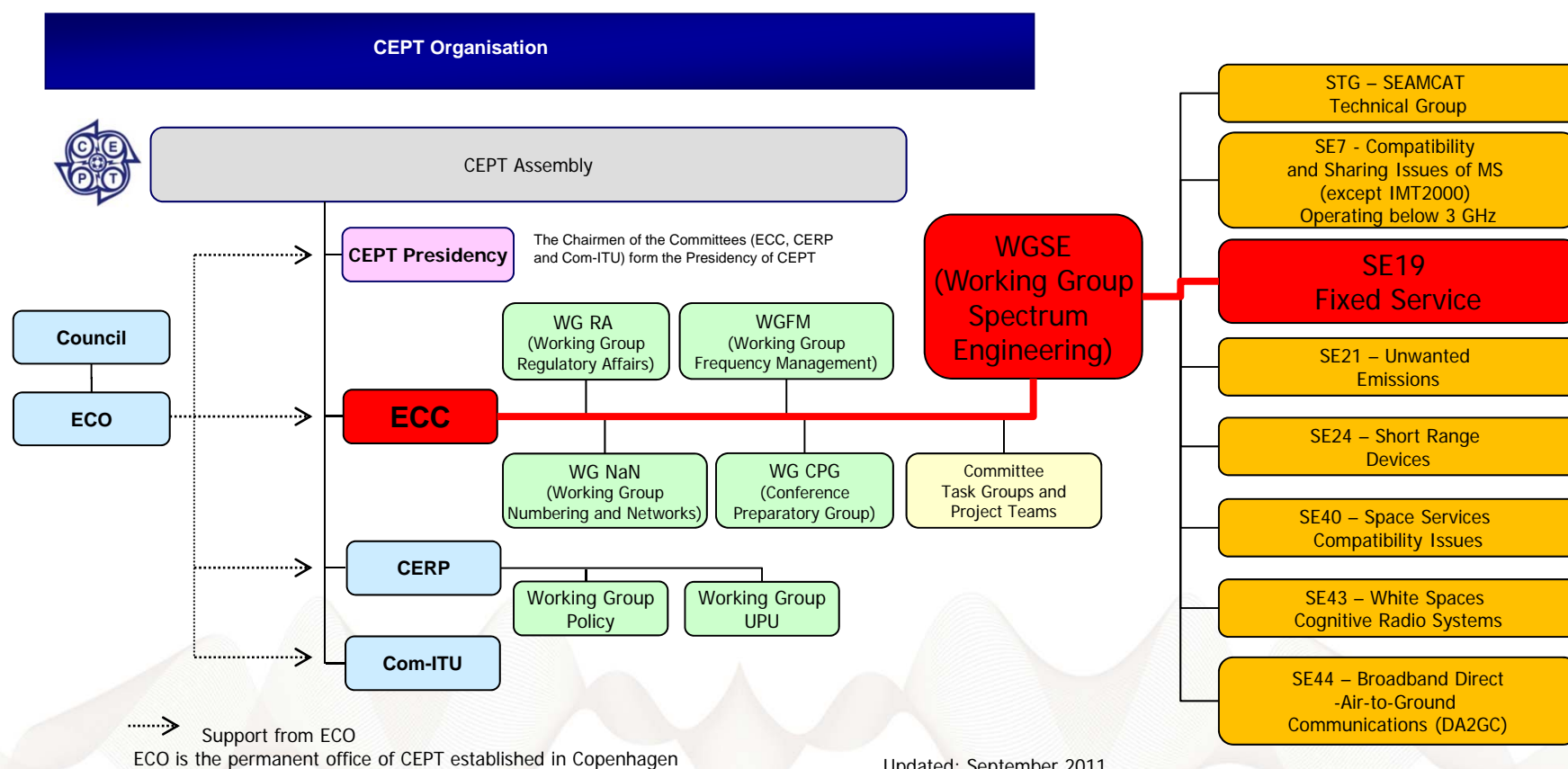
## The CEPT – what it is

- What the CEPT is
  - National Regulatory Authorities (NRAs) - 48 countries
  - Independent voluntary association; defined by its 'Arrangement'
  - Its objectives are reached through tangible outputs and mutual support
  - Consensus and voluntary character: flexible instrument of the national administrations



## Where the ECC and SE19 fits in CEPT

CEPT's structure is defined by three separate areas of activity





## ECC key outputs

- Impact on industry

- ECC Decisions
- CEPT Reports
- ECC Reports
- ECC Recommendations

**[www.ecodocdb.dk](http://www.ecodocdb.dk)**

- Information exchange between members
- European Common Proposals to WRCs



## European regulatory framework

- Three actors at the European level

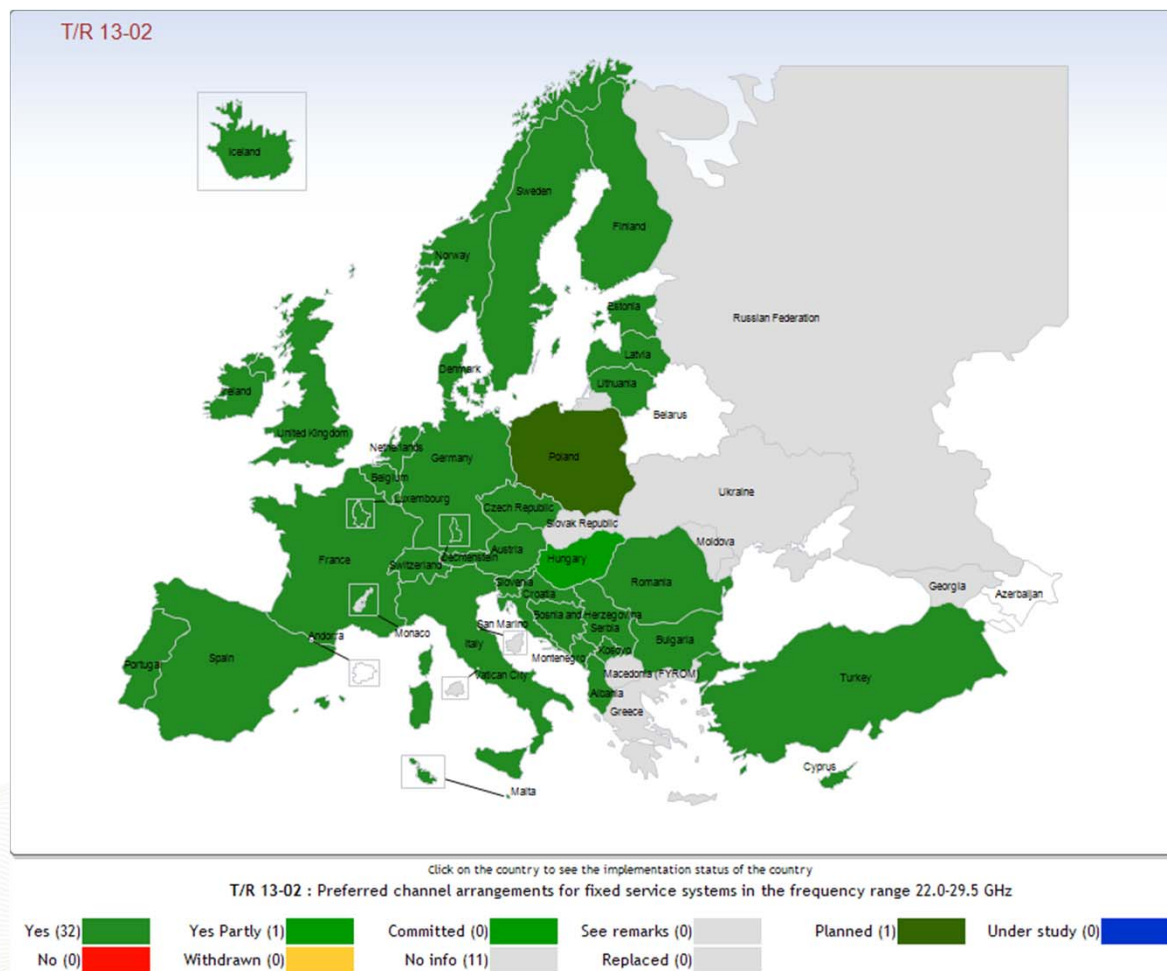


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## Harmonisation – the benefits

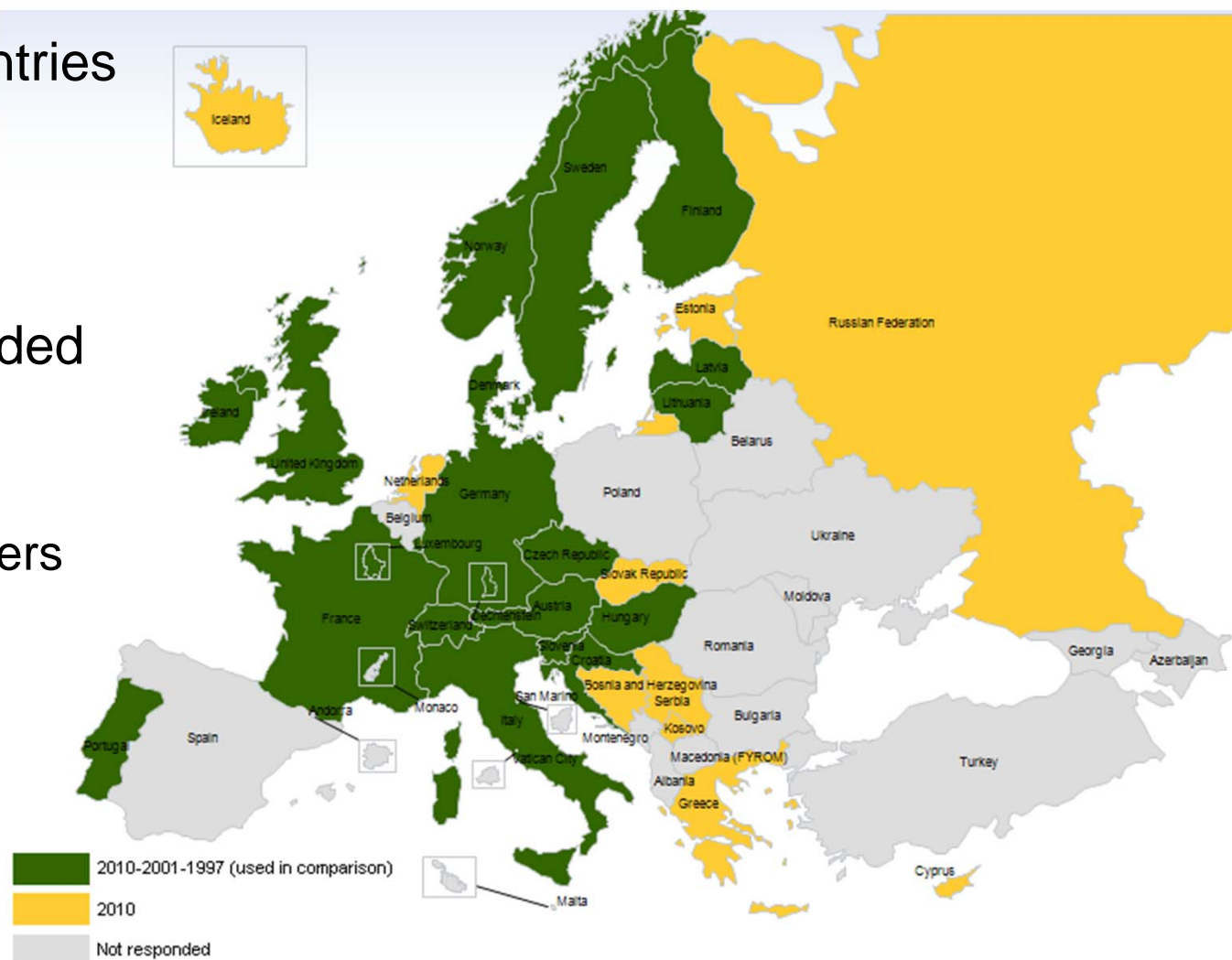
### *T/R 13-02: Preferred channel arrangements for FS systems 22.0-29.5 GHz*

- Economies of scale in manufacture
- Consumer benefit in device portability
- Avoid inefficiencies in the interference zone on either sides of national boundaries



## Questionnaire 2010

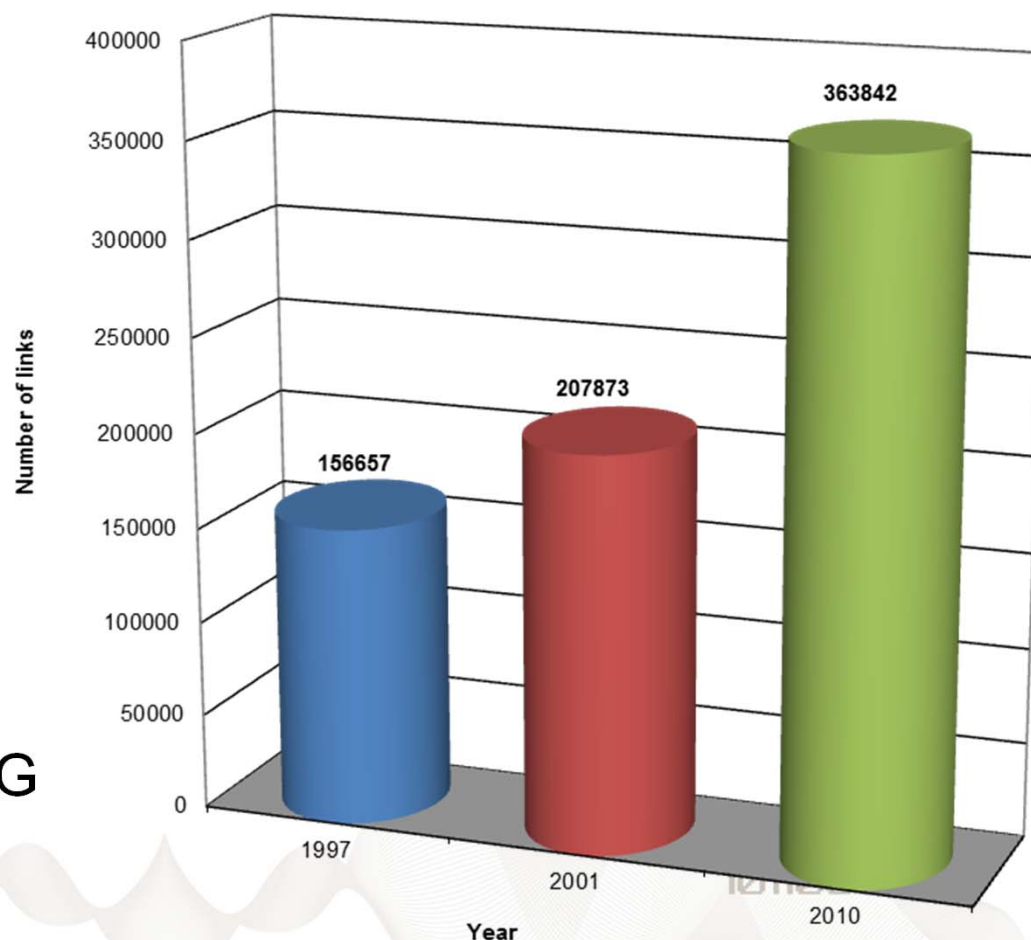
- 28 CEPT countries responded
- 12 industrial partners provided feedbacks
  - Operators
  - Manufacturers
  - Association





## European Fixed Service Market

- FS growth over the last 15 years
- Number of reported FS links in Europe for 19 countries (1997-2001-2010)
- Annual growth 7.3% (1997-2001) and 6.4% (2001-2010)
- Major growth in infrastructure support (3G mobile networks)



## European Fixed Service Regulation

- No drastic changes over the last 15 years
- General rule apply central management, i.e. where the Administration is the responsible manager of the FS frequency assignments
- Many administrations do carry out **block allocation** of frequencies in selected bands, i.e. where licensees are allocated a block of spectrum within which they deploy and manage links themselves



## European Fixed Service Method

- **Individual licensing:**
  - Link-by-link coordination under administration's responsibility
  - Can be delegated to operators (sometimes), but not the national nor cross-border interference situation
  - Most efficient method of spectrum usage for P-P links networks
- **Light licensing:**
  - Link-by-link coordination, under users responsibility (ECC Report 80)
  - Similar to the individual licensing; Higher risks of "errors" or "misuses" in the coordination process
- **Block assignment:**
  - Licensing (renewable) or through public auction (permanent)
  - Most common for FWA (P-MP)
  - User is usually free to use the block at best to deploy its network
- **License exempt:**
  - Flexible and cheap usage
  - No guarantee of any interference protection
  - Popular in 2.4 and 5 GHz where SRD are allocated, but FS applications may also be accommodated
  - Used in bands between 57 GHz and 64 GHz less attractive due to the unfavourable propagation attenuation

## Technology trends

- Higher modulation schemes (up to 1024 levels)
- Adaptive modulation schemes
- Hybrid/Ethernet technology equipment, better suited for different Quality of Service (QoS) levels and high capacity links



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## Development of FS 1997-2010

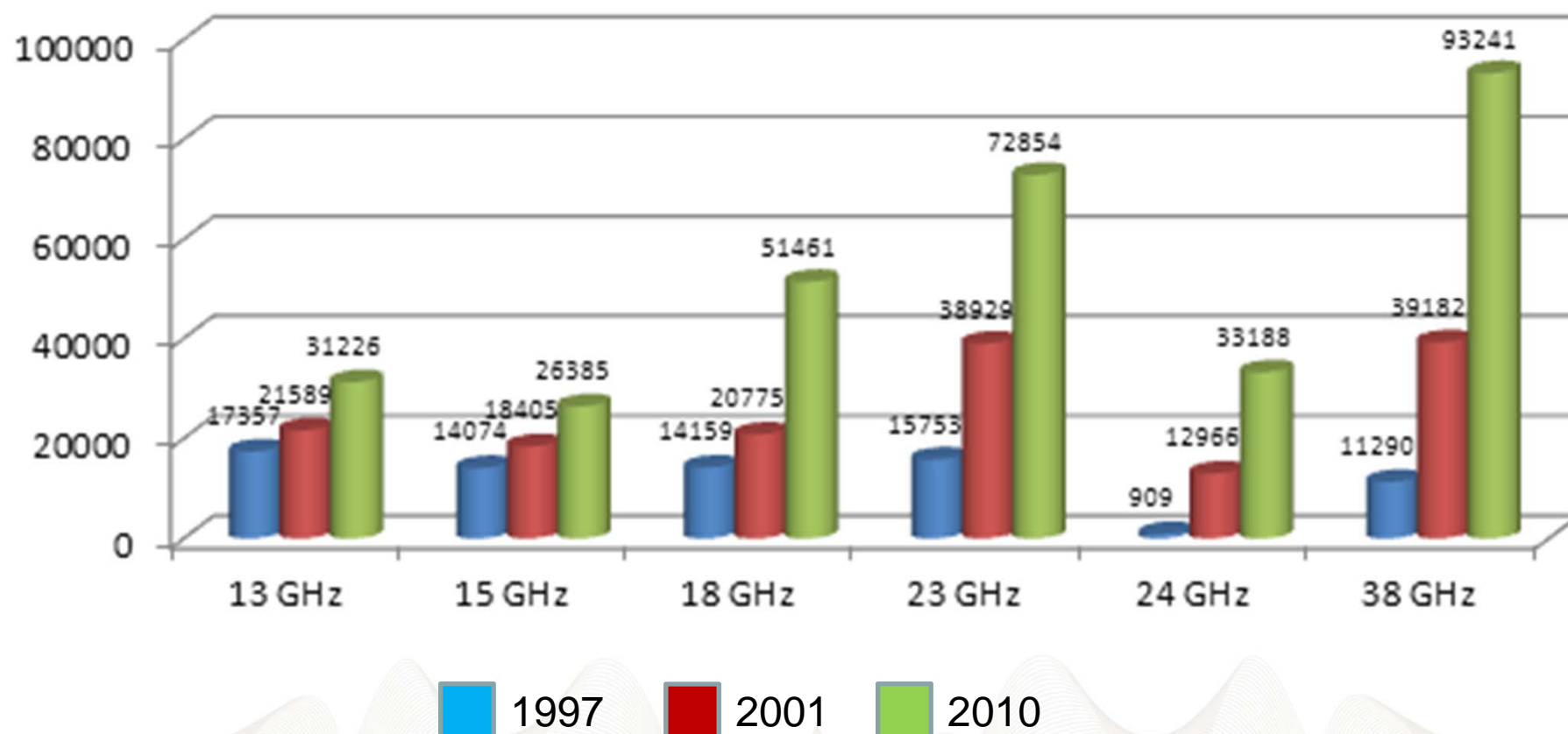
### *The Negative Trend*

- Below 3 GHz
  - Due to different use of these bands (mobile/broadcasting, etc.)
- 3.6-4.2 GHz (since 1997)
  - Now probably reached its minimum possible number of links
  - Long-haul links for telecommunication and broadcasting network infrastructure remaining
- 14.25-14.5 GHz (since 1997)
  - Band closed to new links in some CEPT countries
- 10.0-10.68 GHz (period 1997-2001)
  - Now stable, with a slight inversion of trend due to the deployment of new FWA systems
- 10.7-12.5 GHz (period 1997-2001)
  - Difficulties of sharing with satellite services
  - Now stable

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## Development of FS 1997-2010 *The Positive Trend*



**Number of links per band (in 19 countries of CEPT)**

## Conclusion

- High bandwidth capacity need for the mobile infrastructures
- FS needs to provide a viable alternative to deploying fibre optic cables (in rural areas as well as in high density urban areas)
- Strategic bands:
  - rapid and consolidated growth  
(13 GHz, 15 GHz, 18 GHz, 23 GHz, 38 GHz)
  - take off  
(32 GHz, 50 GHz, 70 GHz, 92 GHz)
- CEPT proactively responds to the industry demand for efficient usage with a set of new or revised recommendations



## More information

- ECC:  
<http://www.cept.org/ecc>
- SE19:  
<http://www.cept.org/ecc/groups/ecc/wg-se/se-19>
- ECC-ETSI relationship:  
<http://www.cept.org/ecc/about-ecc/ecc-etsi>



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