



UNITED NATIONS
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Institute on Comparative Regional Integration Studies

GR:REEN

Global Re-ordering:
Evolution through European Networks

Future Trends Series - GR:REEN Project

Title of the report

Analysis of Technology Trends, Future Needs and Demand for Spectrum in line with Art.9 of the RSPP

Area

Science and Technology

Reporter

European Commission

Type of the Reporter

International Organisation

Periodically updated?

No

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Official website

<http://ec.europa.eu/>

Language available

English, French, German

Short summary

The report summarises the work carried out by "Analysys Mason Limited" on behalf of the European Commission (EC), DG Communications Networks, Content and Technology in relation to the implementation of Article 9 of the first Radio Spectrum Policy Programme (RSPP), by analysing technology, consumer and community trends, and assessing future needs and demand for spectrum usage.

The primary objective of the study is to assess incremental demand for spectrum usage for 14 particular categories of use (e.g. aeronautical-maritime-civil radiolocation and navigation systems, terrestrial broadcasting, mobile, defence, fixed links, transport systems, meteorology, radio, programme making and special events, public protection and disaster relief, science, satellite, short-range devices and WLAN) over the next ten years in the EU-27, within the frequency range from 400 MHz to 6 GHz.

Even though the EC study does not estimate quantitatively the demand for future spectrum usage, the results of the report provide a solid base to inform future spectrum usage and needs, and to highlight areas that require further work to improve the accuracy of the results. In particular, they are very useful to inform the debate about the direction, scale and timing of future spectrum usage demand, together with the key that will determine the demand.

Key trends

- There are significant differences in spectrum usage across the focus countries, both currently and in the future. This is also shown by the differences between the minimum and maximum usage in the EU-27 as a whole. The main differences are between 2 GHz and 5 GHz frequency ranges.
- For most application categories there is significant uncertainty regarding the impact on spectrum demand of the different technology, consumer and community trends, particularly in the longer term. Many research houses that provide forecasts for the different trends do not provide data for the long term. Moreover, estimates vary widely between the various research houses, and their forecasts are adjusted annually.
- There are also some uncertainties regarding the designation of some spectrum bands in some countries, which make it difficult to accurately estimate the demand for future spectrum usage. One example is the possible designation of spectrum in the 700 MHz band (in the 694–790 MHz range) to mobile services.
- Future spectrum usage – across most frequencies – will increase significantly over the next 10 years. However specific nature of the congestion problem is completely different in the short term, medium term and long term. Generally, congestion problems begin to appear mainly in the medium term.
- Some categories are interrelated, and therefore in some cases demand by one category will reduce demand by another. For example, the spectrum demand for both mobile and Wi-Fi is driven mainly by the growth in on demand video and audio-visual services on tablets, smartphones and other devices. In such cases, satisfying demand from one category is likely to be at the detriment of the other category – and different stakeholders will have different perspectives on how such competing demands should be met.

Suggestions

- Since for most categories demand for spectrum is increasing, more sophisticated sharing of spectrum is increasingly important – for example based on white spaces. It is therefore important to invest more time and resources in identifying and developing possibilities for spectrum-sharing.
- Existing data on current spectrum usage is not reliable enough to form a basis for accurate quantitative forecasts of spectrum usage demand. To remedy this, it is important that Member States improve their knowledge of current spectrum usage and make this data publicly available.
- There are concerns about the 14 application categories and how these should be categorized and demand estimated. It is important to be clear about which applications are included under each category, and the exact mapping onto European Communications Office Frequency Information System (EFIS) layers, in order to minimize duplication or overlaps.

Methodology

Modelling

Reference to other trends reports? If yes, which reports?

ANALYSIS MASON, Spectrum Demand for Non-Government Services 2005-2025, UK, 2005

PA CONSULTING, Defence Demand for Spectrum: 2008-2027, Ministry of Defence, Final report, 2008

PA CONSULTING, Predicting Areas of Spectrum Shortage, Ofcom, Final Report, 2009