Commission for
Communications Regulation

Some Trends & Issues in European Spectrum Management

Jim Connolly

Senior Spectrum Advisor

ComReg

Commission for
Communications Regulation

Three issues

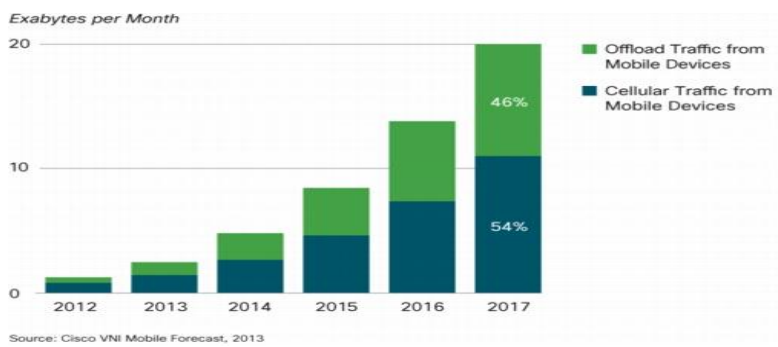
- **Meeting the growth in demand for wireless broadband**
- **White spaces**
- **EC proposals on a single market for electronic communications**

Commission for Communications Regulation

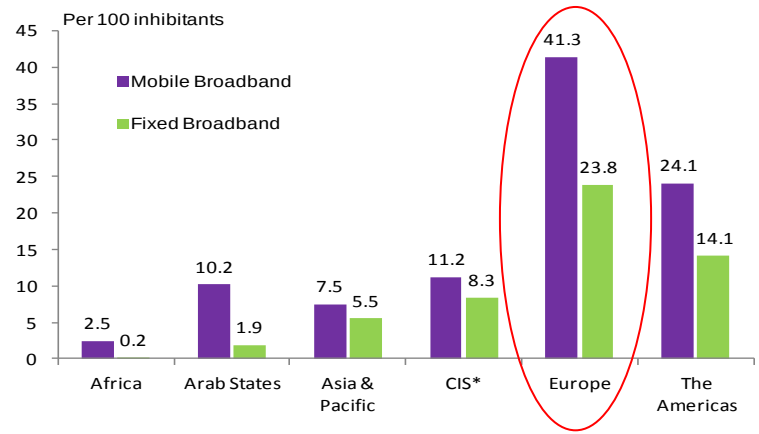
Background (1): Pressure on radio spectrum increasing

Demand for WBB is growing

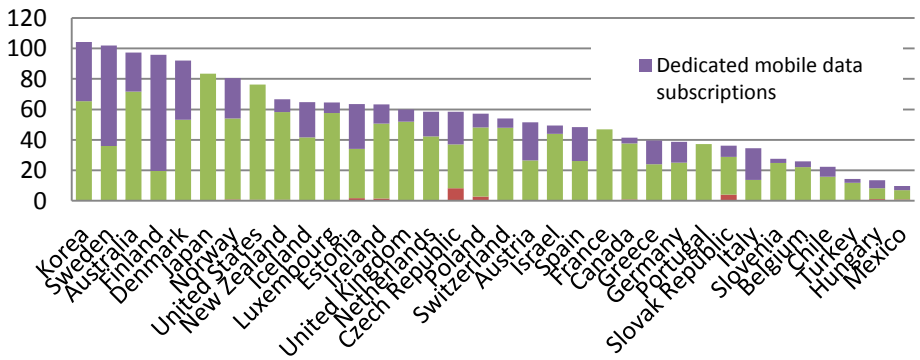
- huge growth in mobile data traffic expected within the next 4-7 years with consequent increased demand for access to suitable spectrum to support this growth

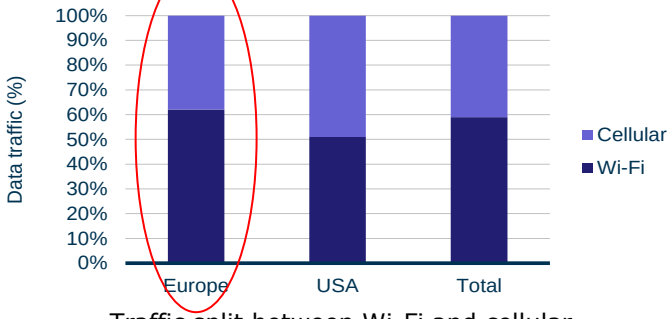


Fixed and mobile broadband penetration in 2010



* CIS: Commonwealth of Independent States





Traffic split between Wi-Fi and cellular

Commission for Communications Regulation

Background (2): RSPP

- The **Radio Spectrum Policy Programme (RSPP)**, adopted in March 2012, states in Article 3 that **at least 1200 MHz of spectrum** suitable for **wireless data traffic** (including frequencies already in use) should be identified by 2015
- RSPP Art. 9 proposes an **inventory of spectrum use** in range **400 MHz to 6 GHz**
- In April 2012 the RSPG received a request from the EC for advice on the following issues:
  - Assess the possible solutions and options for meeting the future demand for wireless broadband services **in the time frame 2013-2020**, including the intermediate target in the RSPP to **make 1200 MHz of spectrum available** for wireless data traffic **by 2015**.
  - Indicate to which extent **shared spectrum access** could also contribute to meet the demand for spectrum for wireless broadband by reducing the need for dedicated frequency bands;
  - Produce guidance on a **common "roadmap ahead"** which would strengthen the single market for digital services, including options for future harmonisation, while noting the different situations existing in Member States

Commission for Communications Regulation

RSPG Opinion on WBB – RSPG13-521

- **RSPG Definition of WBB**

  rather than defining 'broadband' in terms of data speeds (a moving feast) the WG defined it as high-speed wireless transmission of data which may be provided via either **fixed**, **mobile** or **satellite** platforms.

  - **Fixed** – provides wireless broadband service to devices in permanent locations, such as homes and offices
  - **Mobile** - provides nearly ubiquitous connectivity to users on the move or in temporary locations, e.g. coffee shops, train stations, etc.
  - **Satellite** - depending on the characteristics of the satellite network, can service either mobile or fixed broadband users, or both
  - RSPG also highlighted important role of **WiFi**

Commission for Communications Regulation

Detailed analysis of key spectrum bands

- **700 MHz (694-790 MHz) [DTT, future WBB post-WRC-15]**
  - WG surveyed Member States and other stakeholders on long term spectrum requirements for Digital Terrestrial TV (DTT) in Europe with aim to gauge implications for UHF broadcasting band (survey summary in RSPG Report RSPG 13-522)
- **1350-1518 MHz (**radars, tactical radio relay, **SDL in 1452-1492 MHz)**
- **2300-2400 MHz (**growing interest for WBB applications**)**
- **3800-4200 MHz (**fixed satellite service – sharing issues**)**
- **5 GHz (**potential expansion band for WiFi**)**

Commission for Communications Regulation

Conclusions: RSPG Opinion on WBB

- The WG undertook a detailed review of the spectrum bands from **400 MHz – 6 GHz** and concluded that the following amounts of spectrum were available or had potential for WBB:

Broadband access	In use/available for WBB (MHz)	Potential fo term	otential z)	Possibly in very long timeframe
Terrestrial	990.00	140		224.00
Satellite	173.00		0.00	0
WIFI	538.50	0	320.00	0
Total	1701.50 MHz	140.00 MHz	886.00 MHz	224.00 MHz

Already exceeds the RSPP requirement of 1200 MHz for WBB

- The Opinion concluded with **9 Recommendations** to the EC including development of a strategic plan for the candidate bands identified within the range 400 MHz to 6 GHz, and specific recommendations on key bands within that range at **700 MHz**, **1.5 GHz**, **2.3 GHz** and **3.8-4.2 GHz**

*In June 2013, following a public consultation (51 responses), the **RSPG Opinion** (RSPG13-521) on WBB was adopted by the RSPG*

Commission for Communications Regulation

RSPG Report on WBB (RSPG 13-522)

The WG also developed a **RSPG Report** in support of the Opinion, looking at some of the frequency bands in more detail and considering **potential solutions to traffic growth:**

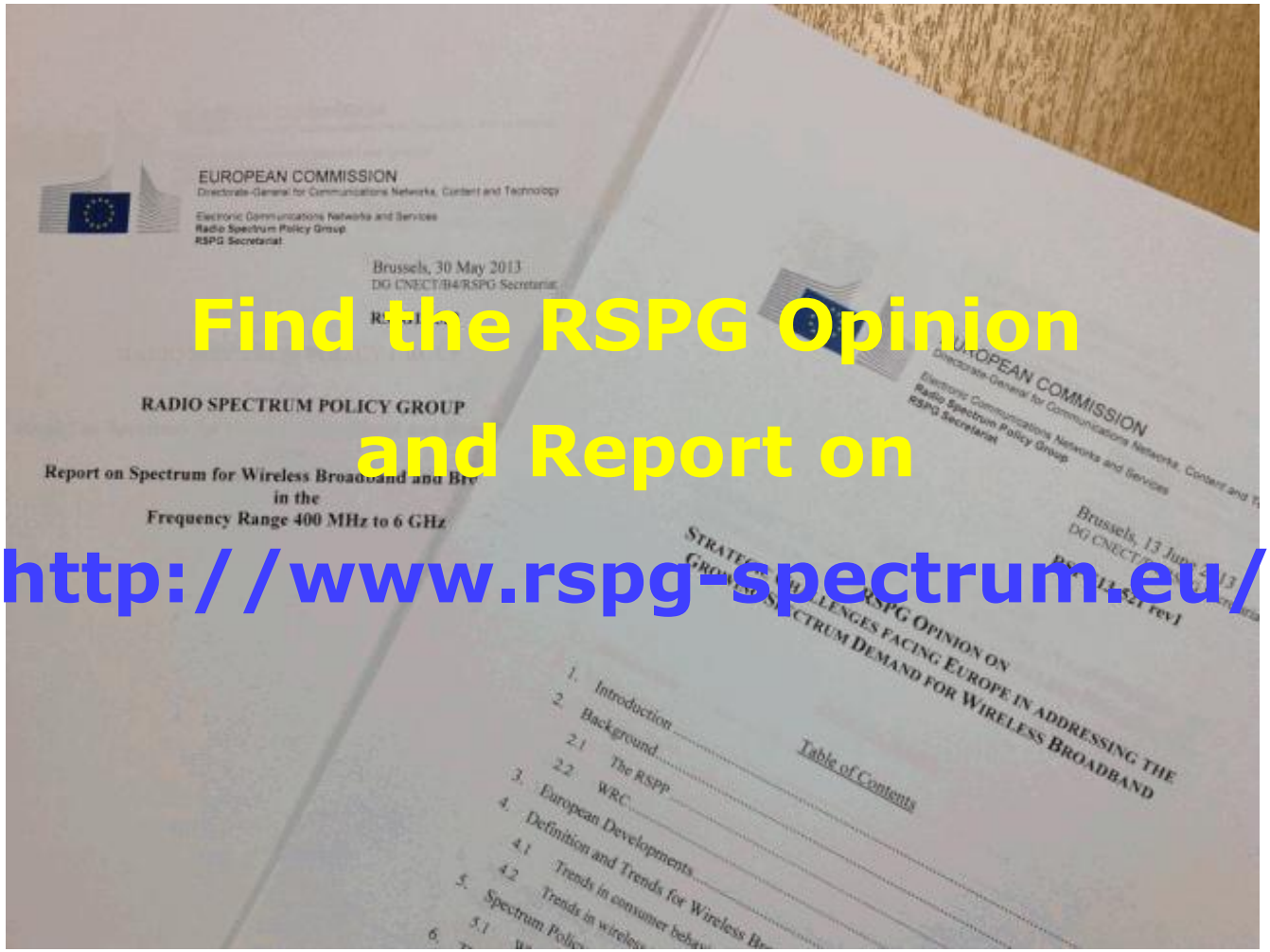
- **higher capacity backhaul networks** and with closer proximity to essential elements such as base stations;
- **more dense radio access networks**, e.g., smaller cells including pico- and femto-cells;
- use of **LTE Advanced** (including carrier aggregation techniques);
- **more spectrum**, both for capacity and coverage applications;
- **increasing use of data offload** (Wi-Fi, femto cells, etc), integrated mobile broadcast channels (broadcast of video content overlaid on a cellular network using broadcast technologies);
- **satellite networks**, e.g., mobile solutions such as the 2 GHz MSS bands or fixed-satellite provision directly to mobile base stations

Commission for Communications Regulation

RSPG Report on WBB: Conclusions

- The general conclusions of the Report included the following:
  - **Below 1000 MHz**, the main issue for access to spectrum in the future is that of the impact on broadcasting & associated services
  - **Between 1 and 3 GHz** there are future possibilities in the bands 1375-1400, 1427-1452, 1452-1492, 1880 – 1900, 2300 – 2400 MHz.
  - **Above 3000 MHz** the spectrum is more suitable for capacity needs rather than coverage with medium term potential for WBB in 3800-4200 MHz, and potential to achieve contiguous blocks of spectrum for Wi-Fi type applications in the 5 GHz range
  - There is likely to be some **impact on incumbent services** in all the bands considered for WBB applications, either through sharing with the new service or through the need to be refarmed to another band

Commission for
Communications Regulation



Find the RSPG Opinion

and Report on

http://www.rspg-spectrum.eu/

Commission for
Communications Regulation

White spaces

- **Potential (M2M, rural broadband, BB hotspots?)**
- **Issues:**
  - avoiding interference to primary services
- **Implications**
  - Need for dynamic spectrum management tools
  - Geographic databases – who and how?
- **Gamechanger in long term?**
  - Spot markets, dynamic spectrum assignments

Commission for
Communications Regulation

EC proposals on Single Market for Electronic Communications

Commission for Communications Regulation

EC proposals on Single Market for Electronic Comms

EC says one of the objectives of the Single Market proposal is:

- *to ensure the **availability and highly efficient use of radio spectrum**, whether subject to general authorisation or to individual rights of use, **for wireless broadband services** in support of innovation, investment, jobs and **end-user benefit***

Proposals include:

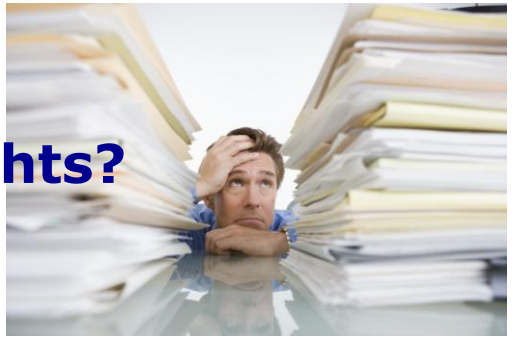
- *Single EU Authorisation*
- *Coordination of authorisation process for WBB spectrum*

Commission for Communications Regulation

Single EU Authorisation

A Good Idea?

- European electronic communications provider (EECP) can be authorised in one (Home) Member State and then deploy in other (Host) MSs
- Non-compliance in a Host MS must be referred to the NRA in the Home MS
- Only Home NRA may withdraw rights of use, etc
- Could become legal nightmare?
- What about the end-user and their rights?
- Home MS shopping by operators?



Commission for Communications Regulation

Coordinating WBB spectrum authorisation process

- **National proposals must be notified to EC and all MSs – *after the national public consultation process***
- **Possibility of EC veto**
- **Trend to 'one size fits all'?**
- **What about regulatory certainty?**

Commission for
Communications Regulation

What's the problem?

- **What is the problem that the EC is trying to fix – is it a *real* problem?**
- **Reports from EC, OECD, and others show EU compares well with USA in terms of broadband speeds, prices, etc.**
- **For sure, need to continue to make spectrum available in harmonised manner to meet WBB (and other) demands**
- **Current framework allows for most of these spectrum objectives to be achieved, e.g further harmonisation, synchronised timeframes, etc**

Commission for
Communications Regulation

Thank You!

QUESTIONS?