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RADIO SPECTRUM POLICY GROUP

Draft for public consultation:

Update of the RSPG Work Programme
RSPG WP "2016 and beyond"

**Update of the RSPG Work Programme
RSPG WP "2016 and beyond"**

Final Draft

This document describes the updated RSPG Work Programme and the relevant work items to be considered by the RSPG#38 (Oct 15) for approval for public consultation.

Further to an initial work done by correspondence, an ad hoc RSPG meeting held the 24 September 2015 reviewed and agreed on a proposal for an updated RSPG work programme.

RSPG WP "2016 and beyond"

RSPG approved its WP "2014 and beyond" in February 2014 and finalized it largely by the end of 2015.

Initial discussions on the next RSPG work programme post-2015 has been launched at the RSPG#37 on the basis of RSPG document (RSPG15-613). It has been agreed in June 2015 to develop an update of the Work Programme accordingly. This draft RSPG WP has been developed by the RSPG by correspondence and during an ad hoc meeting on 24 September 2015.

RSPG identified the following work items to be developed during the next years:
- Digital Single Market – Telecoms Regulatory Framework issues
- Spectrum related aspects for next-generation wireless systems (5G)
- Internet-of-things (IoT) including M2M and ITS
- WRC-19 preparation (common policy objectives for WRC-19)
- "Good offices" to assist in bilateral negotiations between EU countries

Due to the follow up actions initiated by the European Commission further to the publication of the DSM strategy by the European Commission, RSPG agreed to develop an Opinion on the Telecoms Regulatory Framework issues to be adopted before RSPG#39.. The other RSPG initiatives are expected to start after the February 2016 meeting of the RSPG.

This Work program will be updated if needed by the RSPG including to respond to requests from European Commission and/or others entities.

Digital Single Market – Telecoms Regulatory Framework issues

Rationale:

The European Commission published/adopted a communication on a Digital Single Market (DSM) strategy[1] on May 6, 2015, including 16 initiatives[2] aiming at improving the Digital Single Market in Europe. This strategy encompasses three areas of separate initiatives[3] with a multi-annual scope. One of the key initiatives is an overhaul of the telecoms regulatory framework which includes proposals for more spectrum coordination and harmonisation of spectrum assignments on the national level.

This DSM Strategy highlights some of the challenges within the current Telecoms Regulatory framework[4] and raises the question of regulatory consistency and predictability across the EU, particularly for radio spectrum and looks at the conditions regarding investments notably in rural areas[5]. Other than specific proposals regarding the release of the 700 MHz band announced in this strategy, the European Commission intends to present in 2016 an overhaul of the regulatory framework focusing on:

- Spectrum coordination and spectrum assignment on the national level
- Create incentives for investment in high-speed broadband
- Ensure a level playing field for all market players
- Create an effective institutional framework.

This Strategy also calls for a strengthening of the institutional framework suggesting an enhanced role of bodies with representation of member states such as BEREC and RSPG.

The European Commission sent a "*Request for BEREC input for the evaluation of the current framework for electronic communications*" and a "*Request for BEREC Opinion on the review of the framework for electronic communications*"[6] to be answered until December and launched a public consultation on the "Evaluation and the Review of the regulatory framework for electronic communications networks & services" until 7 December 2015[7].

RSPG noted also the conclusion on the telecom single market[8] debate and the scope of the new regulation. Compared to the initial proposal from European Commission, the final regulation focused on main strategic issues outside the scope of RSPG.

RSPG will publish in February 2016 an RSPG Opinion on "The Review of the Radio Spectrum Policy Programme (RSPP)" and a Report on "Efficient use of Spectrum and Spectrum Awards" which include already recommendations addressing some of the DSM objectives.

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[1] http://ec.europa.eu/priorities/digital-single-market/ - COM(2015) 192
[2] http://europa.eu/rapid/press-release_IP-15-4919_en.htm
[3] See DSM Roadmap
[4] https://ec.europa.eu/digital-agenda/en/telecoms-rules
[5] See section 3.1
[6] Letter to Chairperson of BEREC, DG CNECT B2/MM/as, dated 22 July 2015.
[7] https://ec.europa.eu/eusurvey/runner/TelecomFrameworkReview2015
[8] https://ec.europa.eu/digital-agenda/en/connected-continent-single-telecom-market-growth-jobs

RSPG will conduct also some informal exchange of view with the European Commission during the end of 2015.

RSPG established also some forms of cooperation with BEREC, including a recent workshop on Spectrum awards. However, a co-operation with regard to the spectrum related aspects of the framework for electronic communications is yet pending.

Scope of RSPG activity

Taking into account, among others, the RSPG deliverables including the draft RSPG Opinion on "The Review of the Radio Spectrum Policy Programme (RSPP)"and the draft RSPG Report on 'efficient use of Spectrum and Spectrum Awards', the RSPG plans:

- To develop an RSPG Opinion in response to spectrum issues raised by the public consultation on the "Evaluation and the Review of the regulatory framework for electronic communications networks & services" and the DSM initiative.
- To develop a follow up advice on spectrum issues to be addressed in the future Telecom Framework

RSPG will coordinate its activity with BEREC as appropriate.

This work item could be improved later in 2016 as appropriate.

Planned type of deliverable: RSPG inputs (Position paper, Opinion) on the Telecom Review with regards to spectrum issues.

Time Schedule

- RSPG Opinion January 2016
- RSPG Opinion draft June/ final November 2016

Spectrum related aspects for next-generation wireless systems (5G)

Rationale

The European Commission launched in December 2013 the 5G Infrastructure Public Private Partnership (5G-PPP)[9] to deliver solutions, architectures, technologies and standards for the ubiquitous next generation (wireless and wireline) communication infrastructures thereby ensuring Union's leadership within the global context. The 5G-PPP released in February 2015 its 5G vision[10], which also contains considerations on spectrum requirements for access and backhaul, including for wireless broadband above 6 GHz as well as spectrum management methods. Work on 5G specifications has gained global momentum within the ITU (on network standards and spectrum regulation)[11] and the 3GPP (on wireless/mobile standards)[12] with the participation of Member States and 5G-PPP members. The agenda of WRC-15 will address spectrum for IMT-2020 (5G) systems, and the follow-up activity leading up to WRC-19 is expected to assess spectrum needs and identify appropriate frequency bands on a global scale. In this regard, it is important that Europe develops and proposes its own spectrum strategy to respond to the 5G challenges. Therefore, a coherent spectrum strategy including a roadmap is needed, which addresses human and IoT communications at various levels (connection speed, mobility, latency, duty cycle, reliability etc.), and ensures a smooth transition from currently evolving wireless systems and spectrum usage.

RSPG outlined initial consideration on 5G spectrum issues in its Opinion on the Radio Spectrum Policy Program. RSPG notes that 5G deployment is envisaged from 2020 onwards.

Recent deliverables published in 2015 which have already addressed spectrum challenges arising from the development towards 5G:

- The RSPG Opinion on the future of the UHF band: within this Opinion the RSPG stated that it is too early to assess the effect of the current research projects on the ability of 5G networks to enable efficient delivery of broadcast services in UHF band.
- The RSPG Opinion on WRC 15 invited Member States to support generally a future Agenda item addressing "the spectrum needs for the fifth generation of mobile networks (commonly known as 5G) with the focus above 6 GHz".
- The RSPG Report on "Awards and efficient usage of spectrum" highlights how the current harmonised spectrum in Europe could respond to some early and future 5G challenges. Europe benefits from a strategic opportunity of already 1 GHz of harmonised spectrum and near the mid of the decade of 1200 MHz of harmonised spectrum to support further ECS evolution.
- The RSPG Report on "Wireless backhaul" recognised that some frequency bands that might be considered for 5G mobile radio access are currently used or targeted to be used for fixed links. Sufficient backhauling spectrum is needed to support the growth of 5G. The possible future usage of the same spectrum for access and backhauling appears as a major challenge and shall be addressed by the European Commission and Member States during the coming years.

In consequence, RSPG will continue its efforts and contribute actively to the development of Europe's spectrum policy strategy regarding 5G.

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[9] www.5g-ppp.eu
[10] https://5g-ppp.eu/wp-content/uploads/2015/02/5G-Vision-Brochure-v1.pdf
[11] http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/imt-2020/Pages/default.aspx ,
http://www.itu.int/en/ITU-T/focusgroups/imt-2020/Pages/default.aspx
[12] http://www.3gpp.org/news-events/3gpp-news/1614-sa_5g

The RSPG plans to develop a strategic roadmap towards 5G for Europe and make recommendations where appropriate. This requires to:

- Assess the spectrum related aspects (such as spectrum requirements) for 5G in the long-term. The considerations will include aspects related to system architecture (as wireless network densification, network resilience and convergence), technology enablers and the heterogeneity of services (as automotive, transport/logistics, healthcare, broadcasting, energy management, smart manufacturing/industry ,4.0, etc.); 5G-PPP will be invited to present the status of its work;
- Identify and analyse the spectrum related challenges such as: spectrum sharing, usage and licence conditions, rural areas, policy implementation, incentive regulation, the principle of technology and service neutrality, the reused of already harmonised spectrum to support the transition towards 5G;
- Assess/address appropriate frequency bands for 5G, in particular additional bands above 6 GHz:
  - o provide a roadmap of their availability taking into account the evolution of spectrum use including access/backhaul convergence issues and the potential of global/regional footprint;
  - o focus on and prioritize those bands having the best potential for European and global harmonization.
  - o take into account likely variations in demand between and within Member States, noting the need to meet the needs of all European consumers

RSGP should give utmost attention on the worldwide development and give recommendations on cooperation issues with others on 5G spectrum[13].

It is noted that RSPG will also develop common policy objectives for WRC-19 including on a relevant IMT agenda item to be identified at WRC-15 in another work stream. RSPG will also develop recommendations on Internet of Things. Coordination between those RSPG activities should be ensured, as appropriate.

Planned type of deliverable: RSPG Opinion (if needed accompanied by a Report)

Time Schedule:

- Interim Opinion in February 2017
- draft Opinion in November 2017 / Final Opinion in February 2018

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[13] See cooperation current/future joint declarations with Korea, Japan, China

**Internet-of-things (IoT) including M2M and ITS
Spectrum strategy**

Rationale

Internet-of-things (IoT) including Machine-to-machine communication (M2M) and Intelligent Transport Systems (ITS) will impact the economic growth and social development. There is a need to strategically review those topics. RSPG is aiming at supporting the on-going transformation at its best in compliance with the EU policies for the digital society and economy, transport as well as innovation and competitiveness.

IoT is used e.g. for remote monitoring, management in warehouses, remote control, telemedicine and telemetry. Additionally within traditional industries, such as logistics (eFreight), automated manufacturing and retail, intelligent objects facilitate the exchange of information and increase the effectiveness of the production cycle. It involves sensors, RFID, Wi-Fi or cellular links. OECD expects that about 50 billion devices in 2020 will be connected to the internet. Hence the predicted growth of IoT applications would put pressure on the use of existing SRD bands, especially in frequency bands below 1 GHz. As 5G is very suitable for the requirements of M2M which are low latency and high availability it should be considered as important technology for IoT.

ITS means systems in which information and communication technologies are applied in the field of transport and traffic telematics including infrastructure, vehicles and users, traffic management and mobility management. Many areas within this sector are still at the research stage, but may have a potential to play a significant role in the area of road safety and traffic management. Within EU Commission Decision 2008/671/EC "on the harmonised use of radio spectrum in the 5875-5905 MHz frequency band for safety-related applications of Intelligent Transport Systems (ITS)" harmonises the conditions for the availability and efficient usage of this frequency band for safety-related ITS. In addition, the frequency band 5855-5875 MHz is available in some countries for non-safety related ITS applications.
Spectrum requirements for transport are evolving rapidly due to the growing need for mobility as well as the increasing level of automation, but it should also be considered in the context of 5G.

In consequence, transport-focussed legislation could benefit from a spectrum strategy that shows coherence across various EU public policy objectives related to spectrum for transport.

- With the advancements in automated driving, vehicle connectivity and C-ITS (cooperative intelligent transport systems) the landscape in the automotive sector is changing towards "connected and automated driving". This will raise new consumer demands, new services, new players and new business models, just to name a few of the most obvious changes. Relevant spectrum resources in coherence with standardisation will be a core element to support European competitiveness in the global market. RSPG already in its previous Report on Strategic Sectorial Spectrum Needs concluded that the IoT/M2M-sector should forward its spectrum needs via the ETSI-CEPT process.

- In the railway sector, the Railways communications system GSM-R has led to coexistence issues. In the recent years, ETSI and CEPT contributed actively to the process to clarify the solutions to be implemented at national level (coordination between GSM-R and public mobile systems) and by the standardisation (improved GSM-R receivers). Efforts are on-going also at national level. Strategic consideration

is needed on the next generation of Railway communication systems to avoid a repetition of this situation.

Therefore, a need to strategically review the current status on IoT including M2M and ITS with the aim of developing a spectrum strategy has been identified, taking into account the individual requirements.

RSPG addressed the Internet-of-things (IoT) including Machine-to-machine communication (M2M) and Intelligent Transport Systems (ITS) in its report on "sectoral needs".

Scope of RSPG activity:

Taking into account the RSPG report on 'sectoral needs", the RSPG plans to develop a spectrum strategy including:

- A review of "state of the art", regulatory issues, the provision of access to spectrum and, as appropriate, to address spectrum and connectivity needs for IoT including M2M. Various types of IoT devices and applications should be considered such as smart meters/grids, automated manufacturing and various forms of e-health devices (RFID tags, remote control, etc.). The impact on the sector from 5G should be also addressed.
- A review of "state of the art", regulatory issues, the provision of access to spectrum and, as appropriate, to address spectrum and connectivity needs for Intelligent Transport Systems, also covering various forms of usage as medium/long term Transport and Traffic Telematics (TTT) applications like remote enforcing and road tolling, car 2 car, "connected/automated car" and various connectivity applications and especially the impact on the sector from 5G.
- Assessing requirements for a new generation rail communication and traffic management system including spectrum issues ;

RSPG will cooperate with relevant entities, e.g. the European Railway Agency, in developing this strategy.

Planned type of deliverable: RSPG Opinion (if needed accompanied by a Report)

Time Schedule:

- draft Opinion in November 2016
- Final Opinion in February 2017

WRC-19 preparation (common policy objectives for WRC-19)

Rationale:

WRC-15 will end on 27 November 2015. One of the decisions taken by WRC-15 will be the agenda for WRC-19. RSPG should start to identify common policy objectives on items which are of particular importance for EU policies as early as possible in the process of preparation of WRC-19, similarly to the processes successfully carried out for past WRCs.

Moreover a review of the WRC-15 decisions should provide a follow-up of the common policy objectives adopted in the Council conclusions and assess how the preparation of ITU World Radiocommunication Conferences could be improved in order to update, if needed, the recommendations provided in RSPG Opinion on "The preparation of ITU World Radiocommunication Conferences"[14].

Scope of RSPG activity:

The RSPG plans to:

1. Review the outcome of WRC-15 including the Agenda for WRC-19 and identify any issues of relevance for EU spectrum policy;
2. Assess the preparation of ITU World Radiocommunication Conferences in order to update, if needed, the recommendations provided in the RSPG Opinion on "The preparation of ITU World Radiocommunication Conferences";
3. Assist the European Commission in formulating Common Policy Objectives;
4. Identify actions for the European Commission in order to provide political support to promote common policy objectives in regular meetings between EC and non-EU countries.

The working group could propose a separate RSPG deliverable to address the task 2 and propose a revision of the time schedule according to the progress of the work.

Planned type of deliverable: RSPG Opinion

Time Schedule:

- Interim Opinion February 2017
- Draft Final Opinion February 2018/ Final Opinion June 2018

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[14] RSPG09-294 ; http://rspg-spectrum.eu/wp-content/uploads/2013/05/rspg09_294_preparation_itu_wrc.pdf

"Good offices" to assist in bilateral negotiations between EU countries

Rationale:

RSPG "Good Offices" have been established in 2012 to assist in bilateral negotiations between EU countries.

When one or several Member States have difficulties in cross-border coordination or from harmful interference with another EU country, they may request the RSPG Chairman to put the matter on the agenda of a RSPG meeting. They would report their difficulties during the meeting and ask for RSPG to bring its good offices to bear on the issue. RSPG may decide to respond positively to this request and set up relevant actions.

During the last years, few Member States requested the "Good Offices". The RSPG "good offices" mainly applied in cases of broadcasting coordination. For one Member State, this was necessary to make the 800 MHz band available for Mobile Broadband. During the last months, a new focus emerged on FM interference.

Scope of RSPG activity:

In the context of RSPG "good offices":
- The RSPG "good offices" WG should investigate the coordination issues, including harmful interference issue, and propose a balanced approach or solution to the concerned countries.
- The use of the good offices of the RSPG does not provide for any "enforcement" and still relies on the good will of the EU Member States.

Planned type of deliverable: The results of the working group shall be presented to the RSPG for consideration and the RSPG will report the results to the Commission.

Time Schedule: depending on the cases – permanent activity