17th European Spectrum Management Conference

Hybrid event (Brussels and online)
8-9 June 2022

Moderator: **Andy Hudson**, CEO, Spectrivity

09:00 – 09:20   **Keynote Presentation**
Rita Wezenbeek, Director, Connectivity, DG CONNECT, European Commission

09:20 – 09:40   **Keynote Presentation: An overview of the new RSPG work programme**
Eric Fournier, Chairman, RSPG

Session 1: A new Radio Spectrum Policy Programme for 5G and beyond
The current Radio Spectrum Policy Programme has been instrumental in shaping spectrum policy and thinking in Europe since it was launched in 2012. Technological developments and societal challenges over the past decade mean that the world today is a very different place to how it was then, and whilst many of the general themes of the RSPP remain valid, work is now being done on the release of a newly updated spectrum roadmap that will help guide the evolution of next generation technologies and the path ahead. This session will look at what needs to be done to ensure a future-looking roadmap that builds on both the original RSPP and the spectrum policy elements of the European Electronic Communications Code, and ensures an efficient spectrum framework that supports broader European policy priorities and targets such as the European Gigabit Society, the European Green Deal and Europe's Digital Decade.

- What new challenges and opportunities have emerged in the decade since the release of the original RSPP, and how can spectrum be best used to tackle these?
- What should be the overall aims and priorities of the new RSPP?
- How can it be ensured that the new RSPP contributes to forward looking and futureproof spectrum frameworks that provide co-ordination, flexibility and choice, and delivers secure and resilient networks?
- How should access of spectrum for vertical sectors be handled within the context of the new guidelines?
- What role can spectrum sharing play in helping to meet ever increasing demand for spectrum as we move beyond 5G, and what role can the RSPP play in helping to encourage this and the more efficient use of spectrum more broadly?
- Where should the balance lie between decision making at a European and a member state level when it comes to spectrum policy, and how should this be reflected in the new RSPP?
- How can the new RSPP help ensure that spectrum policy contributes to, and is aligned with, the broader European political priorities such as the European Gigabit Society, the European Green Deal and Europe's digital decade?
- What will be the next steps following the release of the RSPP, and how can EU policymakers, member states and industry representatives come together to ensure a co-ordinated approach to implementation?

Moderator: **Andy Hudson**, CEO, Spectrivity

09:40 – 10:45   **Panel Discussion**
Julija Varnaite-Kamstra, Policy Officer, Radio Spectrum Policy Unit, DG Connect, European Commission
Eric Fournier, Chairman, RSPG
Petra Vorwig, Global Spectrum & Regulatory Policy, GSOA
Luigi Ardito, Senior Director, Government Affairs EMEA, Qualcomm
Maarit Palovirta, Senior Director, Regulatory Affairs, ETNO

10:45 – 11:05   **Morning Break**

Session 2: The path towards WRC-23 – progress, challenges and opportunities in Europe and across Region 1

Despite the challenging environment created by the global pandemic, preparations for WRC-23 are in full swing. Both within Europe and elsewhere in Region 1, positions are starting to emerge and good progress on preparatory studies is being seen. The first Inter-regional Workshop was held at the end of last year and provided the first formal opportunity for different regions to come together to discuss these emerging positions. This session will look at the progress that has been made in the six months since that, and more broadly provide an update to the preparatory work that is being done in key bands up for discussion in Region 1 (including the 470—960 MHz, 3.3 - 3.8GHz and 6GHz bands). With some of the preparatory meetings now finally able to return to an in-person format, this session will also look at the challenges that still lie ahead, and the work that needs to be done to ensure a successful outcome for European stakeholders at WRC-23.

- What impact has the pandemic had on preparation for WRC-23, and what progress has been made on the key agenda items in Europe and other regions?
- Are we on track with regards to the preparatory studies that have been taking place and the drafting of text for the CPM?
- Are we seeing consensuses starting to emerge with regards to the development of a European Common Proposal (ECP) across any of the key agenda items?
- What key takeaways emerged from the inter-regional workshop at the end of last year?
- Which issues are expected to be the most challenging in finding agreement both within Europe and across region 1 more broadly?
- What are the key challenges ahead, and how can these be addressed as meetings hopefully start to move back to an in-person format?

11:05 – 11:15   **Keynote Presentation**
Mario Maniewicz, Director, Radiocommunication Bureau, ITU

11:15 – 12:15   **Panel Discussion – State your case (the view from key industry stakeholders)**
Key industry stakeholders will have 5 minutes to 'state their case' on their key hopes for WRC-23, which will then be followed by a panel discussion. Each panellist will also be asked to pose one question or challenge for the policymakers in the next session to discuss.

Moderator: **Mario Maniewicz,** Director, Radiocommunication Bureau, ITU

Panel:
Glyn Carter, Future Spectrum Director, GSMA
Paul Deedman, Global Spectrum & Regulatory Policy, GSOA
Jean-Pierre Faisan, Chair, Communications Working Group, BNE
Alex Roytblat, Vice President, Worldwide Regulatory Affairs, WiFi Alliance

12:15 – 13:00   **Fireside chat – Policy responses in Region 1**
This session will provide policymakers from Region 1, who are responsible for preparation for WRC, the opportunity to respond to discussions in the previous session and to the challenges and questions that have been posed by the industry representatives.

Moderator: **Mario Maniewicz,** Director, Radiocommunication Bureau, ITU

Alexandre Kholod, Chairman, CEPT Conference Preparatory Group
Tariq Al Awadhi, Chairman, ASMG
Kezias Mwale, Radiocommunications Coordinator, ATU

13:00 – 13:50   **Lunch**

Session 3: Unlocking the potential of next generation connectivity – time to embrace a new era of sharing and co-operation?

Governments all around the world are under pressure to respond not only to an enormous amount of interest in spectrum bands, but also to a wide variety of potential uses. As wireless technologies move towards the next generation of connectivity - 6G, WiFi7 & beyond, next-gen satellites and more, this pressure is only going to increase. In order to meet these needs, some suggest there is a need for a rethink in terms of how spectrum is allocated and used, not just from regulators but also from the various industry players. Traditionally, connectivity providers have competed against each other for access to spectrum in order to provide, in the main, their own standalone service offerings. But should the future be more collaborative? The next 2 sessions will be centred around the increased importance of spectrum sharing and the scope for connectivity providers to swap competition for collaboration. What role can innovative new approaches and flexible, collaborative and forward-looking models of accessing spectrum play in helping to maximise the efficiency of the available spectrum and meeting the future connectivity needs of Europe?

13:50 – 14:10   **Thinking Point: Lessons and experiences from the US CBRS sharing model**
Dante Ibarra, World Radiocommunication Conference Director, FCC

14:10 – 14:30   **Thinking Point: The benefits of independent model of wireless infrastructure sharing**
Torsten Kreitlow, Head of Legal, American Tower Germany, on behalf of EWIA

Session 3i: Towards a spectrum sharing roadmap - Building the 'European' approach to sharing

This session will focus on specific approaches to spectrum sharing that are being seen in Europe, and at how stakeholders can work together to develop a European approach to sharing. It will explore how emerging technologies can be leveraged to develop a spectrum sharing roadmap that both maximises the efficiency of key spectrum bands and is specifically built around the needs of European stakeholders.

- What approach to spectrum sharing has been seen in Europe to date? Is there a need to be more adventurous in our approach and the mechanisms that are used, particularly related to the exploration of automated sharing techniques?
- What needs to be done to develop an environment that encourages sharing, and how can perceived barriers to sharing such as access to spectrum, the lack of a viable ecosystem and the development of viable business cases be overcome?
- How can Europe learn from spectrum sharing experiences so far (both here and in other regions), to develop a forward-looking 'European' approach to sharing spectrum? What bands and technologies can be used?
- What should be the balance with regards to making spectrum available on a licenced and unlicenced basis; and of spectrum sharing vs exclusive licences?
- How can European and national regulators work together to develop a future spectrum sharing roadmap that maximises the potential of sharing technologies and the efficiency of the available spectrum for all?

Moderator: **Robert Yates**, Co-President, LYA

14:30 – 15:35   **Panel Discussion**
Chris Woolford, Director of International Spectrum Policy, Ofcom
Monica Paolini, Principal, Senza Fili
Jennifer McCarthy, VP, Legal Advocacy, Federated Wireless
Reza Karimi, Vice President, Corporate Strategy, Huawei
Tim Harrington, Chairman of the Board, UWB Alliance

15:35 – 15:55   **Break**

Session 3ii: A futuristic vision for connectivity - seamless connectivity and hybrid networks
This session will explore the growing interest in the introduction of hybrid networks involving different technologies and connectivity providers. It will look at the extent to which collaborative models of this type could help to bridge connectivity gaps and enable seamless 'always on' connectivity for consumers and businesses, and at how innovative new approaches for licencing and accessing spectrum could be used to facilitate these.

- Is it time for the mobile, satellite and Wi-Fi communities to realise the mutual benefits that can be had from convergence of services?
- What challenges are restricting the development of integrated hybrid networks involving different technologies that offer consumers seamless connectivity e.g. to their handsets?
- What work is being done to leverage emerging technologies to help facilitate the development of hybrid networks for both consumer and business users?
- How are satellite operators starting to work alongside MNOs to support communications directly to mobile handsets and what spectrum bands are being used?
- Could 6G finally see the emergence of a converged 'network-of-networks', bringing together terrestrial and non-terrestrial-based technologies?
- What mix of licenced and unlicenced spectrum and what access models could be used to help facilitate hybrid networks of this kind? How can this help to increase the efficiency of the spectrum that is being used?

Moderator: **Richard Womersley**, Managing Director, LS telcom

15:55 – 16:40   **Fireside Chat**
Michael Daum, Director of Technology Policy, Microsoft
Stephen Pentland, Head of Market Structure & Networks Policy, Group Policy & Public Affairs, Vodafone
Mindel de la Torre, Chief Regulatory & International Strategy Officer, Omnispace

Session 4: What role can legacy bands play in powering the evolution of 5G?
Having initially designated the 700 MHz, 3.5 GHz and 26 GHz bands as 5G "pioneer" bands, the Commission recently took a step towards the harmonisation of spectrum for the next wave of 5G evolution and expansion by updating the technical and regulatory conditions for the 900 MHz and 1800 MHz bands. This session will look at what this decision might mean for future 5G evolution in Europe, and for ensuring a co-ordinated approach to the identification of frequency bands for the next wage of 5G expansion. More broadly, it will look at the extent to which the refarming of legacy 2G and 3G bands in this way can be used to help meet future demand for additional bandwidth for 4G and 5G, and at how this process can be managed to maximise the efficiency and value of the available spectrum.

- What is the situation regarding the 900MHz and 1800MHz bands across Europe, and to what extent are countries moving forward with the allocation of these for 5G?
- Alongside these bands, what plans are emerging across Europe for the refarming of other legacy 2G and 3G bands, for 4G and 5G services?
- How important is it that a coordinated approach is taken to the phase-out of older generation legacy networks, and to what extent do national differences and different stages of development of wireless technologies in Member States need to be considered?
- What role can refarming in this way play in helping to meet future 4G and 5G requirements, and is there a need to increase technology neutrality in order to facilitate this?
- How can regulators and industry stakeholders work together to manage the refarming process and ensure that aspects such as the changing of terminals can take place in a timely and efficient manner?
- How can it be ensured that the needs of IoT and M2M companies who still extensively use 2G and 3G services, are taken care of moving forward?
- With several core bands and licences up for reallocation across many member states in the next 5 – 10 years, how can regulators best manage this process to ensure that the spectrum is utilised as efficiently as possible moving forward?

- Looking longer term, to what extent are we going to see the convergence of 4G and 5G networks, and how may this occur? Should regulators be looking to allow the deployment of 4G and 5G networks in the same band, and how can this be enabled?
- What impact has advancements in technology since the days of 2G and 3G had on the way in which spectrum is both used and licenced? Is there an argument that we should be looking towards moving towards indefinite licencing models as we enter the 5G era?

Moderator: **Amit Nagpal**, Partner, Aetha Consulting

16:40 – 17:45 **Panel Discussion**
Anestis Gikopoulos, Policy Officer, Unit for Radio Spectrum Policy, European Commission
Aleksander Sołtysik, Head of International Telecommunication Policy Unit, The Chancellery of the Prime Minister, Poland; Vice-Chair, RSPG
Miran Gosta, Executive Director, HAKOM
Stefan Zehle, Chairman & CEO, Coleago Consulting
Javier Domínguez Lacasa, Head of Spectrum Policy, Telefónica S.A.

Day 2

09:00 – 09:20 **Thinking Point: Automated and dynamic spectrum access for scalable and on-demand private networks**
Wolfgang Bilz, Head of Spectrum & Regulatory Affairs, Europe, Shure Germany, on behalf of WInnForum

Session 5: Managing co-existence between users across the increasingly crowded C-band frequencies
The C-band has been one of the most hotly contested frequency bands over the last decade or more, and this trend looks very much set to continue. Traditionally a satellite band, it has also become one of the key bands for the rollout of national 5G networks, and more recently, is seeing allocation across parts of the band for localised vertical use (eg industrial and for enterprises), with countries across Europe taking a number of different approaches to this. This session will look at the evolving shape of services in the band and at how co-existence between key users can be managed. It will discuss the decision at the end of last year to mandate CEPT to study the shared use of 3.8 - 4.2 GHz for localised 5G deployments by vertical users, and at the questions that this raises for those countries who have already set aside part of the spectrum in the 3.4 - 3.8 GHz band for this. It will also look at the extent to which coexistence between these low to medium power networks and incumbents in this part of the band (such as earth stations and terrestrial fixed links) is possible, as well as with spectrum users in adjacent bands (such as radio altimeters on aircraft using 4.2 - 4.4 GHz).

- Where should the balance lie between satellite and 5G users in the C-band frequencies in Europe, and how can the needs of all these key services be met?
- Is there a need to look at harmonising the approach and frequencies being used for the provision of local licences across Europe, and to what extent are the sharing studies being carried out by CEPT in the 3.8 – 4.2GHz portion of the band a move towards doing this?
- What does this move mean for those countries who have already set aside spectrum in the 3.4 - 3.8 GHz band for vertical use?
- Where should the balance lie between the allocation of 5G licences on a local and a national basis in the C-band frequencies?
- To what extent is coexistence possible between industrial low-to-medium power 5G networks and incumbent users in the band (satellite earth stations and terrestrial fixed links) as well as spectrum users in adjacent bands (such as radio altimeters on aircraft using 4.2—4.4 GHz)?
- How can this be managed and how can the future of key satellite services in the band also be protected?
- What is the situation regarding the challenge by Inmarsat to the reallocation of spectrum in the 3.5GHz band in the Netherlands, and what solutions are being put forward?

Moderator: **Johanne Lemay**, Co-President, LYA

09:20 – 10:25   **Panel Discussion**
Gilles Brégant, Director General, ANFR
Alexander Kühn, Head of Spectrum, BNetzA
Emma O'Toole, Senior Manager, Spectrum, GSMA
Dave Wright, Head of Global Wireless Policy, HPE
Hazem Moakkit, Vice President of Corporate and Spectrum Strategy, Intelsat

10:25 – 10:45   **Thinking Point: The use of extended C-band, planned C-band, and the 7025-7075 MHz band for satellite services**
Pacome Revillon, CEO, EuroConsult

Session 6: Fireside Chat - The future of the upper 6GHz band (6425-7125 MHz) – decision time approaches
Following many discussions around the use of the upper 6GHz band in the last couple of years, over the next few months it is likely that the future shape of the band should finally start to become a little clearer. The RSPG opinion on the band is expected to be adopted at the next plenary meeting which will take place just a few weeks after this event; and it is expected that a proposal for the European Common Position relating to discussions on the future use of the band in region 1 at WRC-23 should also be received around a similar time. Bringing together speakers representing both the mobile and the unlicenced perspective alongside a key policy position, this interactive discussion will look to take stock of the national positions that are emerging, the expected outcomes of these 2 key elements, and some of the work that is being done to study the best way to maximise the economic benefits that the band can offer. What might all this mean for the likely future shape of the band, and what impact would this have on the key users that are battling over access to it?

- What national positions are starting to emerge on the upper 6GHz band, both in Europe and around the rest of the world?
- What economic benefits would be offered by making the spectrum in the upper 6GHz band available on an unlicenced or a licensed basis respectively? What approach would provide the best option to maximise these benefits for stakeholders across Europe?
- How close are we to seeing the release of the RSPG opinion on the future of the band and also the adoption of a Common European Position ahead of WRC-23? What impact could these key decisions have on the future shape of the band both in Europe and elsewhere?
- Is there a solution available that would deliver a win-win for all parties, and ensure that sufficient spectrum in the band is available for both WiFi and IMT users?

Moderator: **Jonathan Wall**, Manager, Aetha Consulting

10:45 – 11:30   **Fireside Chat**
Alexander Kühn, Chairman, RSPG Working Group on WRC-23
Guillaume Lebrun, Global Connectivity Policy Manager, Meta
Jan-Hendrik Jochum, Vice President, Spectrum policy & Projects, Deutsche Telekom (on behalf of Ericsson, Huawei, Nokia, ZTE)

11:30 – 11:50   **Break**

11:50 – 12:10   **Thinking Point: Approach to the 600MHz band in Saudi Arabia**
Abdulhadi Al Harthi, General Manager, Radio Spectrum Monitoring, CITC Saudi Arabia

Session 7: Plotting the future shape of the 470-694 MHz band in Europe up to 2030 and beyond
The future of the sub-700MHz (470-694 MHz) band is set to be one of the key issues for discussion at WRC-23. However, alongside the WRC discussions, there is also specific European legislation that governs access to the band. This guarantees priority access to the band for terrestrial broadcasting and PMSE services until 2030 at least, but also includes the opportunity for flexibility on a national level to introduce other services, on the condition that there is no interference to broadcast services. This session will look at the discussions that are taking place around the future of the band in Europe, both in the period up to 2030 and beyond. It will look at the extent to which the 'conditioned national flexibility' included in the current regulation, provides sufficient scope for regulators to consider national differences when making decisions on the band.

- What recent trends and developments are relevant when considering the future use of the 470-694 MHz band?
- How can the national differences that are seen regarding the current use of the band be best handled within a co-ordinated European approach, and how can countries take the current EU legislation into account when taking decisions on the band?
- Is there the opportunity to introduce 5G and/or other services into the 470-694 MHz without affecting DTT services, particularly in those member states in which the band is not heavily used by broadcasters?
- To what extent is this permissible under the 'conditioned national flexibility' clause that is included in the current legislation? Is there an argument to explore a modification in some way, prior to 2030?
- How are broadcast services evolving, and what scope is there for the band to be used for the future deployment of LTE-based 5G terrestrial broadcast services?
- What work is being done at an RSPG level to study the long-term future use of the 470-694 MHz band?
- What should be the long-term balance of services and users in the band across Europe, and how can meeting these be balanced with the need to ensure the most efficient use possible of this valuable spectrum?

Moderator: **Chris Nickerson**, Manager, Analysys Mason

12:10 – 12:15   **Opening Remarks from the Moderator**

12:15 – 13:20   **Panel Discussion**
Umberto Mascia, Chairman, Working Group on UHF beyond 2030, RSPG
Ulrich Rehfuess, Head of Spectrum Policy, Nokia
Elena Puigrefagut, Senior Project Manager, Technology & Innovation, EBU
Anita Debaere, Director of PEARLE* Live Performance Europe, on behalf of the Wider Spectrum Group

13:20 – 14:20   **Lunch**

Session 8: The next frontier - Spectrum for future connectivity for 6G
6G technologies are expected to be up to 100 times faster than 5G, provide 20 times higher capacity and be able to support one microsecond-latency communication. Given how crowded spectrum frequencies today have already become, delivering the bandwidth to meet the needs of this future gigabit society is going will require innovative thinking from policymakers and connectivity providers alike. This session will look at how the overall spectrum requirements of 6G will differ from those of 5G and at the overall 'portfolio' of low, medium and high frequency bandwidth that may be required. With the demand across all frequencies that is expected to be seen be seen, it will look at the different spectrum bands, technologies and tools that will be available to regulators and connectivity providers in order to meet the 20 times increase in capacity that is expected to be required to fully enable the multitude of new use cases that come with 6G.

- What mix of spectrum in the low, mid, mmWave and terahertz frequency bands may be necessary to deliver the required connectivity for 6G?

- Where is current research around 6G spectrum bands being focused, and what frequency ranges are likely to be the most important as we move towards 2030 and beyond?
- Is all the current hype around terahertz frequencies for 6G justified, or are we more likely to see a similar trend to 5G where lower band frequencies (7GHz – 15/20/24GHz) become the mainstay of 6G systems?
- In this case, how can the needs to existing users in these bands be balanced with the needs for 6G?
- How may regulators have to adapt traditional methods of assigning and licencing spectrum and what innovative new ways of using the spectrum in these bands could be used?
- To what extent can advancements in technologies such as Next Generation Massive MIMO & AI Driven Systems help to optimise connectivity system performance and contribute to enabling the 6G future?
- How can regulators ensure that in an increasingly crowded spectrum ecosystem, there is space for both existing applications and future applications to grow?
- What role will spectrum sharing play in helping to meet the needs of all users in these bands, and what sharing models and techniques could offer the best approach to maximise spectrum efficiency?

Moderator: **Andy Hudson**, CEO, Spectrivity

14:20 – 15:25   **Panel Discussion**
Jonas Wessel, Director, Spectrum Department, PTS
Umair Javed, Chief Counsel to Chairwoman Rosenworcel, FCC
Philip Marnick, Director General, TRA Bahrain
Eliane Semaan, Director, Spectrum and Technology Regulation, Ericsson
Hazem Moakkit, Vice President of Corporate and Spectrum Strategy, Intelsat

15:25 – 15:45   **Break**

Session 9: Finding the spectrum to power an increasingly crowded satellite sector – spectrum needs and policy considerations
The evolution of the satellite sector continues at pace, with an increasing number of next generation satellite technologies, including Non-Geostationary Orbit (NGSO) constellations and Very High Throughput Satellites (VHTS), emerging alongside more traditional GSO networks. In addition, the Commission is pushing forward with its own satellite broadband mega constellation, which is planned to be launched by 2028 with the aim of enabling coverage of both Europe and Africa for commercial and governmental services. This increase in services will bring exciting new opportunities, but also a dramatic increase in satellite demand for spectrum and orbital slots. This session will look at the regulatory challenges that this may create, including with regards to the way in which spectrum is allocated to satellite operators and the way in which interference is managed. It will look at the extent to which current rules and regulations governing access to spectrum are still sufficient in this rapidly evolving sector, and the role of both national regulators, ITU and 3GPP in the development of a framework that drives forward the Satellite Component of IMT-2020/5G. In an increasingly crowded and competitive market, what is the best way forward to ensure a future-proof and flexible spectrum licencing system to protect all users and allow the next generation of space-based connectivity to flourish?

- What licencing models and rules currently guide access to spectrum for satellite systems and how can it be ensured that sufficient spectrum is available for all users in a rapidly evolving sector?
- What role can the ITU play in providing a coordinated framework and more harmonised frequencies for current and future satellite systems?
- With the current framework designed for GSO satellite networks, are they still appropriate for more complex NGSO systems?
- What role can satellite systems play in emerging 5G wireless ecosystems? Is low latency satellite signal transmission necessary for all 5G system applications?

- Is a first come, first served (FCFS) licensing procedure still appropriate in this rapidly evolving and fast moving sector?
- How can increasingly crowded satellite spectrum bands be best managed to accommodate the needs of all stakeholders - traditional GSO operators, new NGSO operators, and those new networks yet to launch (including the EU mega constellation)?
- Who should have priority, and how can it be ensured that interference between all these varied systems is managed?

Moderator: **Manuel Marti**, Programme Manager, UK Spectrum Policy Forum & Satellite, techUK

15:45 – 16:50   **Panel Discussion**
Dominic Hayes, Spectrum and International Relations Manager, DG DEFIS, European Commission
Justin Moore, Head of Space and Spectrum Strategy, Ofcom
Patrick van Niftrik, VP Spectrum Development EMEA, SES
Kim Baum, VP Spectrum Engineering, OneWeb
Elodie Viau, Director of Telecommunications and Integrated Applications, ESA