

PLEASE NOTE THAT THIS IS AN EARLY DRAFT OF THE PROGRAMME AND SPEAKERS ARE NOT YET CONFIRMED UNLESS EXPLICITLY MENTIONED OTHERWISE.

Spectrum for 5G – Fuelling Europe’s 5G Vision

1st December 2016

Brussels

Session 1: The role of policymakers and industry in pushing Europe to the forefront of 5G developments

Moderator: Janette Stewart, Principal, Analysys Mason (**confirmed**)

09:00 – 09:05 **Introduction from Moderator**

09:05 – 09:25 **The European Commission Action Plan on 5G**

Andreas Geiss, Head of Unit for Spectrum Policy, European Commission (**confirmed**)

09:25 – 09:45 **The role of the RSPG in building Europe’s 5G ecosystem**

Philip Marnick, Chairman, RSPG (**confirmed**)

09:45 – 10:05 **The 5G Manifesto for timely deployment of 5G in Europe**

Stephen Pentland, Group Public Policy Head of Spectrum, Vodafone; & Head of FREQ WG, GSMA (**confirmed**)

10:05 – 10:25 **5G in the review of the EU Telecoms Package - Creating an ‘Investment Friendly’ environment for industry**

Wassim Chourbaji, Vice President, Head of Government Affairs & Public Policy, EMENA, Qualcomm (**confirmed**)

10:25 – 10:50 **High level discussion with this morning’s speakers: Pushing Europe to the forefront of 5G developments**

At Forum Europe’s recent ESMC, only 12% of the audience believed that Europe would win the global ‘race’ to be first mover in launching 5G. This session will explore why this is, and the work that is being done (and that is planned for the future) to tackle this issue and ensure Europe is at the forefront of 5G developments.

- How important is being the first-mover in gaining 5G leadership? Is it more important to ensure that you develop the best plan and the most consensual approach?
- What is it (if anything) that is holding Europe back, and how can these obstacles be overcome?
- To what extent will the policy and industry initiatives currently underway help Europe ensure it is at the front of 5G development?
- To what extent will the measures stated in the review of the EU Telecoms Package help create an environment in Europe that is conducive to investment and drive forward the rollout of 5G networks?
- How far will the Framework Review go in achieving a single policy environment and market for spectrum and 5G investment across Europe?

10:50 – 11:10 **Morning Coffee Break**

11:20 – 12:35 **Session 2: Is 5G an evolution or a revolution, and how does this affect the spectrum that is required and how it is made available?**

There has been much discussion over recent years on whether 5G is a true technology revolution, or whether it is more an evolution of existing 4G and LTE technologies. It is clear that whatever the situation, additional spectrum is going to be required in order to expand capacity and cope with the demands that 5G will bring, but the evolution vs revolution question is hugely important when considering where, when and how this spectrum should be released. This session will focus on this, and some of the questions faced by regulators both in Europe and beyond when finding additional spectrum for 5G.

- Is 5G a new technology or is it just an evolution of existing wireless systems e.g. LTE, WiFi, Satellite HTS etc.?
- To what extent can 5G technologies and solutions be launched in existing 4G bands, in a similar way to which you currently see parallel 2G, 3G and 4G networks running?
- Should we be looking at dedicated 5G spectrum bands and the technologies associated with it, or is a better approach to consider the additional spectrum that is required as being an extension of the 4G/5G ecosystem?
- Should regulators be holding back spectrum in anticipation for 5G technologies to arrive, or should they be looking to release additional capacity as soon as possible so that organisations are ready to exploit it?
- Mobile Network competition has been relatively successful in Europe and served customers well. Will this be maintained in 5G, or will virtualisation, spectrum sharing and increased use of unlicensed spectrum and other wireless technologies result in less distinction and a less structured “network or networks”?
- Should any competition conditions be imposed on the spectrum that is released for 5G?
- How should spectrum for 5G be licensed, and what is the right mix of spectrum that is allocated on a licensed, unlicensed and shared basis?

Moderator: **Richard Marsden**, Senior Vice President, NERA Economic Consulting **(confirmed)**

Panellists:

Philippe Lefebvre, DG CNECT, Head of Unit for Future Connectivity Systems (Unit E.1), European Commission **(confirmed)**

William Webb, CEO, Weightless SIG; President, Institution of Engineering and Technology (IET) **(confirmed)**

Daniela Genta, Global Spectrum Policy, ESOA **(confirmed)**

Dino Flore, Chairman, 3GPP RAN Group **(confirmed)**

Ulrich Rehfuess, Head of spectrum policy, Nokia **(confirmed)**

12:35 – 13:40 **Lunch**

13:40 – 14:00 **Afternoon Keynote Presentation – China’s 5G Perspective**

Dr. Chin-Lin I, Chief Scientist of Wireless Technologies, China Mobile Research Institute (tbc)

14:00 – 15:15 **Session 3: Meeting the challenge of finding the additional capacity for 5G that is required below 6GHz**

The spectrum ecosystem below 6GHz is already scarce and highly crowded, and in order to find the additional capacity that is required for 5G in these frequencies, regulators and industry are both going to have to be creative in the solutions that they use. Alongside this, as the allocation of bandwidth for 5G begins, regulators in Europe and globally have a unique window over the course of the next few years in order to look to co-ordinate and harmonise frequency allocation and avoid the fragmentation and ‘patchwork’ of different bands that has been seen with LTE. This session will focus on the challenges ahead in order to find the additional lower frequency capacity that is required for 5G, and the best way forward in order to achieve a co-ordinated and efficient allocation process in Europe.

- What mix of frequencies are required below 6GHz, and what bands are best suited to provide these?
- How best can regulators and other stakeholders create a harmonised 5G environment in frequencies below 6GHz and avoiding the ‘patchwork’ seen within LTE?
- Is a truly harmonised European or even Global solution for 5G in the lower bands a realistic possibility?
- What solutions, technologies and policies are available to optimise spectrum usage and power consumption in the already crowded lower frequency bands?
- What role will the 700Mhz, 3.4GHz and 3.8GHz bands play in the roll-out of 5G in Europe and how can it be ensured that they are made available in a timely and efficient manner?

Moderator: **Amit Nagpal**, Partner, Aetha Consulting (**confirmed**)

Panellists to include:

Eric Fournier, Chair, ECC, CEPT (**confirmed**)

Branimir Stantchev, Spectrum Policy Unit, European Commission (**confirmed**)

Håkan L. Andersson, 5G Product Strategy, Radio Business Unit, Ericsson (tbc)

Ian Corden, Director, Plum Consulting (**confirmed**)

Representative, Car industry

15:15 – 15:35 **Afternoon Coffee**

15:35 – 17:00 **Session 4: Millimetre 5G bands in Europe and globally – current thinking and next steps**

The thinking in Europe is generally that work around the high-frequency ‘millimetre’ bands should be focused on the candidate bands identified at WRC-15 in order to strengthen global harmonisation opportunities. Taking things a step further, an RSPG opinion in November this year identifying which single band will be harmonised in Europe for early 5G implementation. Elsewhere however other approaches and bands are being considered, with some countries (including the US) taking a different route and

including the 28GHz band - which was not amongst the candidate bands – as one of its millimeter 5G bands for terrestrial mobile. This session will consider the situation both in Europe and globally, the suitability for 5G of the various options in the millimetre band that are being considered, and at the next steps and ensuring the best path forward.

- To what extent is it likely that the band that is identified by RSPG will become harmonised across all member states, and what will be the timeline for this?
- What are the next steps now that the RSPG millimetre proposal has been made, and what will this mean for all the different stakeholders involved?
- What other regions are likely to also adopt the European approach, and what will it take to ensure that this happens?
- What are the consequences for Europe of countries elsewhere moving forward with the 28GHz band?
- What challenges will those rolling-out 5G networks in millimetre bands face, and how can these be overcome?
- Looking forward to WRC-19 and beyond, what is the likely future shape of 5G usage in the millimeter bands and the timeframe ahead?

Moderator: **Steve Green**, Chair, ECC PT1 (**Confirmed**)

15:35 – 15:45 **Introductory presentation from moderator**

15:45 – 17:00 **Panel Discussion**

Panellists to include:

Tasson Lyratzis, Rapporteur for 5G, RSPG (**tb**)

Mindel de la Torre, Chief, International Bureau, FCC (**confirmed**)

Glyn Carter, Senior Spectrum Advisor, GSMA (**confirmed**)

Kumar Singarajah, Director Regulatory Affairs and Business Development, Avanti Communications Group (**confirmed**)

Representative, Huawei (**confirmed – speaker name tbc**)

17:00 – 17:10 **Session Summary: Ensuring that we are prepared for the WRC-19 discussions on millimeter bands**

Colin Langtry, Chief, Study Group Dept., BR, ITU (**confirmed**)

17:10 – 17:30 **Thinking Point...Where next? Spectrum Management Beyond 5G**

Carlos Bader, Professor, CentraleSupélec (**confirmed**)

17:30 **End of Conference**