

EUWENA response on consultation RSPG opinion 470-694 MHz band

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Introduction

The Radio Spectrum Policy Group (RSPG) has published a draft opinion for public consultation on the strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU. The association EUWENA has drafted a response on this RSPG consultation.

About EUWENA

EUWENA (European Users Wireless Enterprise Network Association) was founded in 2021. The founding and board members all share EUWENA's common values and goals and represent companies from across Europe: Privinnet and LD expertise (France), Quixoticity and Novamint (United Kingdom), ULWIMO and Strict (Netherlands), Sigma Wireless (Ireland), Opticoms (Germany) and Neutroon (Spain), as well as enterprise user associations, AGURRE (France) and BTG KMBG (Netherlands). More than 30 enterprises and associations became member of EUWENA over the past 2 years, representing more than 200 user organizations throughout Europe, having critical wireless communications needs.

See for more information the EUWENA website: www.euwena.eu

In recent times, all EUWENA participants have experienced first-hand the challenging, often protracted process of requesting and acquiring spectrum for private wireless network use in their home markets. In a few European countries private and local spectrum for enterprise usage is now available; in a few more countries preparations for private spectrum are ongoing; in many others, no spectrum for private wireless networks has been made available at all yet. In addition, the spectrum that has been made available for private and local networks differs between countries; which is detrimental for the eco system. In addition, this deprives multinational companies of a common ground to establish plant automation and industrial mobility solutions at all their facilities across countries etc. This lack of spectrum harmonization across Europe is one of the main drivers for EUWENA. It is also one of the main concerns for enterprises – notably the mentioned pan European ones – that are establishing private wireless solutions to optimize their processes.

Market developments

Mobile connectivity for enterprises in the EU

Mobile connectivity in the enterprise market is a main driver for digitization. The enterprise market and its verticals have specific requirements on mobile connectivity services compared to the consumer mass market. In a healthy market freedom of choice is a prerequisite. In EU countries that have issued relevant spectrum for private networks and verticals it has been proven that the digitization process is accelerating substantially. We see that also in these front runner countries mobile network operators are accelerating with developing specific services for this market segment, due to the fact that there is competition of private networks. In the future plans, RSPG has an important role in addressing this subject to all EU countries and also take care that this need will evolve to more spectrum need. RSPG has taken the initiative for spectrum harmonization in the EU, and assigned band 3,8-4,2GHz for local private broadband networks.

EUWENA members have recognized use cases for harmonization in Europe in the sub GHz band. We can mention already two use cases in massive IoT:

- Support of NB-IoT /eMTC:
 - Current mobile IoT technologies such as NB-IoT /eMTC have been specified in 3GPP Release 13 and are requiring sub-GHz frequency bands in order to support the associated use cases which are implying often deep indoor (such as metering) and in any case for which the power consumption of the device is paramount in order to be able to have a duration of life of such device of more than 15 years without changing the device or the battery.
 - It is worth to note that the frequency bands originally supported for mobile operators for deployment of massive IoT such as NB-IoT or eMTC were the 800 MHz and 1800 MHz frequency bands and mobile operators who had only 1800 MHz (for example in Bulgaria due to the non availability of 800MHz spectrum used for other purpose than cellular) were unable to launch NB-IoT as it was not meeting the expectations of the targeted use cases and their vertical's customers.
 - Therefore, as currently there is no such sub-GHz spectrum allocated to private cellular in Europe, most of the private networks are not able to deploy NB-IoT directly as part of a stand alone private network but as extension of mobile networks operators which is not allowing them to address all their use cases or to provide sufficient coverage for a use in large private areas (such as ports, airports, mainports). Attempts to use unlicensed spectrum such as MulteFire are not successful as there is a limited ecosystem and using unlicensed is an issue for private networks. So, access to 5MHz in a sub GHz frequency band for IoT would be beneficial to enable NB-IoT or eMTC on private networks.
- Future ultralow power IoT (Ambient IoT):
 - 3GPP has now started to work in Release 19 on an ultra low power IoT called Ambient IoT which is about developing power enabled or assisted passive IoT (as a competitor of RFID but working on cellular technology and with higher range).
 - The vast majority of the use cases for this new concept are in fact for verticals use cases in private network either Indoor (automated warehousing, automobile manufacturing, logistics, supply chain) or Outdoor (Airport terminal / shipping port asset tracking, medical instruments management). The scenario currently privileged by 3GPP to support Ambient IoT requires use of licensed spectrum.
 - Furthermore, due to the nature of the type of device targeted (very small, without battery / with energy harvesting), such a device will not be able to support a lot of frequency bands and as many of the use cases are implying the device to move across the globe and to support all regions (for example, logistics, asset tracking...), it will require to support bands from only maximum one band from different regions and definitely in sub-GHz frequency bands.
 - Chinese and US players (operators and verticals such as logistics) have already and definitely expressed a strong interest in supporting and deploying Ambient IoT.
 - Therefore, to be able to have Ambient IoT supported in Europe by private cellular networks will required a dedicated harmonized spectrum in Europe in a frequency band lower than 1GHz. A small part of frequency band 470-694 MHz would be well adapted to provide such support if no lower band could be available as harmonized dedicated spectrum for IoT for private networks.

Outside the EU there is competition in the digitization process

In the US and far east developments are speeding up. Europe thinks that it is a front runner in the digitization process on world level. For enterprises we see in regions outside Europe much more harmonization of spectrum and due to that acceleration in digitization compared to the scattered situation in Europe. This puts Europe and European companies at a competitive disadvantage relative to other regions of the world.

Related to the climate change initiatives

Generous allocations of spectrum for local private networks that are sufficient for enterprises and industries to carry out their digital transformations will play a significant role in increasing energy efficiency and allowing such industries to reduce their carbon footprints, as well as keeping sensitive data on-site, improving compliance with GDPR and security regulations.

EUWENA earlier suggestions to RSPG

- Identify for EU harmonization a number of frequency bands that should be allocated for private usage within the EU. Ideally such frequency bands should also be available on a global scale to support multi-national enterprises with global activities and to enlarge the eco system of infrastructure equipment and mobile user/terminal devices.
- Develop an approach that allows flexibility in the synchronization of private, local TDD networks with a purpose to properly support the varying uplink – downlink ratios as seen for different verticals/enterprises/use cases. Compared to the public mobile networks of mobile network operators (MNO's), in most private networks the capacity need is much more uplink driven. Such approach should optimize spectral efficiency and avoid the one-size-fits-all limitations.
- Make use of interest groups to develop a better understanding of the various critical communication needs of enterprises and other organizations.
- Solicit the input and feedback from the – unfortunately fragmented – verticals by actively soliciting input from the mentioned associations and notably EUWENA

Response on RSPG opinion 470-694MHz band

Enterprise user organizations with a need for critical mobile communications have a time horizon that is related to the coming 3-5 years. In EUWENA we have recognized that spectrum is a strategic asset that needs to be planned with a time horizon of at least 5-10 years. We are discussing with our members how we can translate the business developments into future spectrum needs. We know for sure that, with the present exponential growth of mobile data communications, the future need for spectrum will also grow in the critical enterprise domain.

The RSPG has recognized that Member States have different opinions on the future of the 470-694MHz band. Broadcast spectrum bands are in principle perfect bands for European wide harmonization because they are already harmonized for broadcasting applications. In the transition of public broadcast to on demand video, the need for public broadcast spectrum will decrease. The service, and hence the frequency need is shifting from broadcast to on demand, so it is logical that the vision on longer term spectrum allocation is moving in the direction of mobile broadband for this band.

EUWENA sees for the longer term a demand bundling in the area of mission- and business critical wireless needs. PPDR needs private spectrum and mission critical enterprises needs private

spectrum, by working together both markets can benefit and have a more efficient use of spectrum and network resources.

EUWENA endorses the position of TCCA in this and recognizes the additional spectrum needs of critical communication users. This means that a co-primary allocation of the frequency band 470-694 MHz to Mobile Services should be considered, and a further consideration should be given for how this spectrum could best be used by mobile services to help meet the additional spectrum needs of mission-critical users, especially PPDR organizations, globally and, in particular, ITU Region 1. This additional mobile allocation would allow the critical communications sector, especially PPDR organizations, to better meet the growing need for spectrum in response to developing environmental, socio-economic and geopolitical challenges facing governments and societies that are evident today.

The RSPG remark in their conclusion about market demand and business cases: “No established market demand or business case identified so far for most of the Member States” is interpreted by EUWENA as a lack of demand articulation and a lack of verticals working together to bundle their needs. The need for critical communications in enterprises and in PPDR environments truly exist. We expect that the joint articulation of critical communications needs will lead to a clear need for more spectrum for private mobile broadband networks.

The technology scenarios the RSPG is proposing like: Implementing mobile SDL, 5G Broadcast, Implementation of a full FDD band plan... is in our opinion too much in detail. The challenge for RSPG is to harmonize spectrum in Europe on vision level and let the Member States decide on which speed they want to implement this vision. The EUWENA motto is: “Create space for the front runners and don’t forget the laggards”. The RSPG can create flexibility in the EU, which maximizes the freedom of choice for Member States, by assigning parts of the band to TDD broadband technology. The individual member states can then determine the up- and down link ratio that matches their local needs.

Closing remark

With this we encourage RSPG to further enhance their spectrum policy role in the EU specifically for verticals. EUWENA, as a representative body of European private wireless users and -experts is available for further input and reflection. RSPG is welcome to use EUWENA as a ‘voice of the industries’ in this sense.