

January 11, 2018



Radio Spectrum Policy Group - Secretariat  
DG CNECT B4: Spectrum - Office: BU33 7/55  
European Commission  
B-1049 Bruxelles, Belgium

**Re: RSPG Public Consultation on Draft RSPG Second Opinion on 5G Networks**

The APWPT is pleased to provide its comments on the draft RSPG Second Opinion (“Consultation”). APWPT is an international not-for-profit organization, representing the needs of all users of the Programme Making & Special Event (“PMSE”) sector ([www.apwpt.org](http://www.apwpt.org)). The members of APWPT include PMSE organizations, users and manufacturers. The APWPT directly and indirectly represents over 25,000 members of the PMSE community in Europe and beyond.

The APWPT agrees with many of the RSPG’s findings and in general encourages and promotes any efforts whereby the 5G standard can be defined in a manner that will allow PMSE to operate and fulfil the required and expected high-quality standards increasingly demanded of wireless production tools. Given the growing use of very high-quality wireless production technologies across many sectors, any future work on 5G standards needs to consider the following issues:

**1. 5G Standardization is a work in progress that will likely only provide a limited relief (if at all) to the PMSE spectrum losses in other bands.**

Currently, 5G is still an evolving concept. 5G is not identical to IMT-2020 where the current candidates are 3GPP standards and DECT-2020. In the future, using the term IMT-2020 for discussions around 5G would be preferable as it is technology neutral and is not restricted to purely mobile broadband.

While it is already clear that potential 5G applications could stretch far beyond traditional mobile broadband services, the currently discussed 5G assumptions have not been tested and in many cases, have not been analysed and, as such, are not fully understood. 5G standardization is an ongoing work item. Work on 5G standardization “Release 16” has just started (<http://www.3gpp.org/release-16>), and it is currently unclear to what extent the technical and spectrum requirements of PMSE may be included in this process. In any event, the APWPT will be pleased to contribute to further 5G standardization discussions its experience and expertise. As an example, the PMSE community is currently engaged in the ongoing PMSE xG project in Germany.) (<http://pmse-xg.research-project.de/>). This is an R&D project funded by the German government tasked with identifying 5G as a potential technology for possible future PMSE applications.

However, APWPT advises the RSPG to exercise caution and not jump to the conclusion that 5G will directly influence the design and purchase habits of PMSE devices. PMSE users will continue to demand wireless microphones and cameras that satisfy their high-quality requirements. It remains to be seen if 5G devices for mobile broadband, once they become available, will satisfy these demands in an economical manner, and in any event, will require many years of product development and testing. Therefore, it should not be expected that an overlap of multifunctional 5G devices with PMSE capabilities will be available in the near future. It is highly unlikely that enhanced smartphones, tablets and other popular wireless devices will serve as replacements or substitutes for UHF Band IV and V PMSE devices, even under ideal reception conditions.

On a more positive note, however, 5G could open new frequency ranges with potential for PMSE applications and facilitate the coordination of multichannel systems. To this end, 5G could provide some degree of relief to the spectrum crunch resulting from the significant loss of PMSE spectrum in the 700 and 800 MHz bands that will kick in as early as 2019. Television services and audio PMSE applications currently operate between 470-790 MHz. Audio PMSE operates in the ‘white spaces’ where frequencies are not used for television transmissions. However, both television and audio PMSE services are now being forced to vacate the 700 MHz band because of the so-called “Digital Dividend 2” – the clearance of 694-790 MHz to facilitate the roll-out of wireless broadband. In some EU Countries, this clearance is underway, or has already taken place. The process is proving to be highly disruptive for both the broadcast and audio PMSE sectors, causing much uncertainty, which in turn holds back investment decisions. Therefore, any solution for 5G must ensure the long-term viability of PMSE through regulatory certainty and stability in the remaining UHF spectrum below 700 MHz (470 - 694 MHz) at least until 2030 as communicated within the *Lamy* report.<sup>1</sup>

## **2. PMSE widely accepted, high quality demands must be protected under 5G**

The current vision of the European Commission (“EC”) on 5G is still somewhat vague. It would seem that there will not be a single 5G national mobile network. The EC will thus need to determine how it intends to integrate the various affected industries (“verticals”) into this process, with customers that may have very different demands on spectrum reliability and freedom from interference, such as;

- Media and Entertainment, including content production
- Industry 4.0
- eHealth
- Agriculture
- Driverless cars
- Home applications (intelligent devices), etc.

Unlike future applications mentioned on this list, PMSE is already offering a very important value-added service for content creation that has operated successfully in the entire EU for many years. Its undisputed significance for the EU economy has been recognized by RSPG in the past in

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<sup>1</sup> <https://ec.europa.eu/digital-single-market/en/news/report-results-work-high-level-group-future-use-uhf-band>

various documents. PMSE will continue to require a high level of reliability and protection against interference – likely more than many other (new and untested) industry applications. Full reliability of events under difficult geographic conditions has been a key demand of all PMSE users, and those citizens and consumers that rely on the services that PMSE delivers. The critical demand for a high level of quality spectrum distinguishes PMSE from many other applications listed above: PMSE may need to access spectrum with a significant bandwidth at different locations and different times that are not always fully predictable (for instance in the case of news and film crews that must rely on PMSE for their services). PMSE devices must work at short notice and be reliable whenever they are needed. A speech of a dignitary or coverage of sports event cannot be repeated because the wireless microphone or the wireless camera was out of service for a few seconds. It remains to be seen if Licensed Shared Access will prove itself to be a workable solution to meet the needs of the PMSE sector.

### **3. 5G should enable and ensure local networks, customer-driven solutions and local applications with physical network control by the customers.**

4G and 5G are vastly different. 4G is a telecommunications standard; 5G is expected to be much more, for many reasons. There will not be one or even several “5G” national networks, but, in all likelihood, a host of industry applications that could (and should) benefit from 5G. APWPT’s experience has been that it is currently difficult under 4G to obtain clean spectrum for local wireless networks (e.g. campus-based or event-based wireless broadband connections) from the European mobile network operators. 5G should be an opportunity for the entire EU to take the helm and steer away from national mobile providers merely “selling wireless contracts” and standard spectrum sharing solutions towards much more flexible business products and a more granular regulatory approach, that fits the local and sector-specific demands of users.

This move to a bottom up solution will be not only a key requirement for PMSE, but also for eHealth and many IoT (Industry 4.0) applications that will connect robots, fleets, and other fixed or mobile devices. For many new applications, a sufficient level of reliability of the 5G spectrum will only be achievable if the network control, resource and frequency management are managed directly by the local customers, and not by the national mobile providers with “one size fits all” solutions. Providing mere virtual 5G networks will not be sufficient to cope with the diverse and extensive user demands, as many applications will require physical control. The applications (or verticals) will require a shift of network control from “top-down” to “bottom up” solutions. This approach would also be a key demand of the PMSE industry, whose skilled engineers and technical support teams have managed large and small events for many years. If network control and spectrum management are not guaranteed at a local level, access to 5G spectrum would be largely useless for accommodating wireless microphones and cameras.

The EC should thus seize the unique opportunity at this early stage in the development of 5G and promote this potential paradigm shift and free 5G from exclusive spectrum control by large national wireless broadband providers. The EC should address these challenges and their possible consequences directly with national regulators and the mobile broadband providers as early as possible so that 5G solutions will meet the requirements of the /new verticals within the future planning process.

Obviously, such a shift in favour of network and spectrum control by local customers will have a significant impact on how the spectrum will be licensed and administered. It will also impact the design of spectrum leases and spectrum trading conditions that currently, in spite of various well-intended efforts of the EC, only play a minor role in the European market. At the same time, as 5G technology is likely to be allocated a specific amount of spectrum by Member States, sharing or network slicing needs to be part of the frequency management concept to begin with, supporting the requirements for reliability and spectrum access of PMSE applications.

To sum up, the jury is still out as to whether 5G will have the technical and practical capabilities to fulfil the needs of PMSE equipment users. Many more details need to emerge before it can be established whether 5G will provide a suitable platform for PMSE applications in the future. widely accepted, high quality PMSE requirements must be recognised and applied within the 5G standard in order for the platform to be deemed suitable for PMSE applications. Further, EC policies should foster development of 5G in order to ensure local networks, customer-driven solutions and local applications with close physical network control by the customers. In the meantime, APWPT agrees with the RSPG, that UHF bands IV and V will remain the ‘core’ band for audio PMSE applications for the foreseeable future.

APWPT will be pleased to continue the dialogue with the RSPG on these issues.

Respectfully submitted,

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