TIM's response to the "Draft RSPG Opinion on spectrum related aspects for next-generation wireless systems (5G)"

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Introduction

TIM welcomes the opportunity to express its view on the "Draft RSPG Opinion on spectrum related aspects for next-generation wireless systems (5G)" and its objective to "facilitate the launch of 5G on a large scale in Europe by 2020".

TIM believes that 5G would benefit from 3 typologies of new frequency bands: bands below 1 GHz, bands between 6 and 24 GHz (often referred to as centimeter bands) and bands above 24 GHz (so called millimeter bands).

TIM shares the RSPG's view, expressed in RSPG opinion 3, that 5G will also include a smooth evolution of existing radio interfaces/technologies, favored by a technology neutral approach in all bands already harmonized for mobile networks. Therefore, a non-mandatory, complete reuse in 5G of the currently used frequencies should be permitted and encouraged as it maximizes the spectrum usage efficiency.

As far as identification of new frequency bands is concerned, spectrum above 24 GHz will be needed to allow the full deployment of Enhanced Mobile Broadband (eMBB), massive Machine Type Communications (mMTC), and Ultra-Reliable and Low Latency (URLL) use cases envisaged for 5G. However, the previously cited frequency band typologies that will complement the offering of evolved mobile services and provide wide area and indoor coverage should not be neglected. Therefore, to fully leverage on 5G promise, a comprehensive harmonization plan will require addressing all the cited spectrum typologies for 5G, as soon as possible.

TIM welcomes the involvement of RSPG in the identification and analysis of spectrum related challenges such as spectrum sharing, usage and license conditions, rural areas, policy implementation, incentive regulation, technology and service neutrality and the reuse of already harmonized spectrum to support the transition towards 5G.

Furthermore, TIM would like to take this opportunity to emphasize the importance that a greater harmonization and simplification of rules, the removal of barriers such as the simplification and harmonization of sites and antennas permissions, and the definition of predictable and harmonized electromagnetic field (EMF) emissions limits will have in the 5G infrastructure deployment.

Specific comments on RSPG Opinion Items

TIM shares the view expressed in RSPG opinion 1 that the 3400-3800 MHz band can offer good possibilities for the early introduction of 5G services in Europe before 2020. Although the available bandwidth is limited to 400 MHz, thus not allowing the multi gigabit connections expected at higher frequency bands, TIM believes that this band provides the best harmonized solution for high speed services below 6 GHz at European level.

Nevertheless, to exploit the full benefit of 5G from this band, it is necessary that Member States manage the coexistence with current services before the opening of the band to 5G applications.

Moreover, the rapid development of 5G services could be hampered if the 3400-3800 MHz would be assigned to previous generation services, to Wireless Broadband Applications and/or to non-standard solutions. Such choices would pre-empt the use of the resources with a consequent delay in the availability of 5G services.

Therefore, the EC should recommend that Member States support regulatory efforts towards harmonized conditions of use of the 3400-3800 MHz band for 5G services and refrain from any action that might hinder or impede the deployment of such application in that sub-band.

TIM shares the view expressed in RSPG opinion 2 that also the 700 MHz band will be a key band for the provision of a nationwide 5G service layer with good indoor coverage. Moreover, the carrier aggregation of the 700 MHz band with the 1452-1492 MHz band, already harmonized in Europe for SDL systems, would increase the total available downlink bandwidth.

TIM agrees that a prompt identification of new frequency bands would help the introduction of new 5G services and shares the view expressed in RSPG opinion 4 that not all bands considered at the WRC-19 show the same potential in terms of sharing and transition challenges.

At the same time, there are some bands that have been excluded from the WRC process, like the 28 GHz and some bands below 24 GHz, which may have comparable and sometimes even better potentialities, especially taking into account the industrial 5G initiatives in progress outside Europe (e.g. the US and Asia) in certain frequency bands, as explained below.

For this reason, TIM does not agree that the consideration of bands should be limited to the WRC-19 bands (as expressed in RSPG opinion 5) and RSPG should not refrain from pursuing studies relevant to all suitable frequency bands even if not included in the WRC-19 process.

Furthermore, TIM claims that, among the proposed bands above 24 GHz, suggested by the RSPG opinion 5, the 31, 8 – 33, 4 GHz band seems to have many advantages compared to the other two.

First, the 32 GHz band would show synergies with the 28 GHz band that has been identified in North America and part of Asia, allowing the deployment of equipment with tuning ranges covering both bands. If the goal for Europe is to become 5G leader in the world, it is mandatory to find a solution compatible with the extra-EU bands already identified. The same compatibility advantage is also offered by the 24 GHz band but this band is already heavily used all over Europe, while the 32 GHz band is unused almost everywhere and does not present compatibility problems with the satellite community.

Furthermore, the 1, 6 GHz bandwidth available at 32 GHz would allow a fast deployment of eMBB services, providing around 400/500 MHz for each operator.

The main disadvantage of the 32 GHz band is its proximity to a passive service band (31, 5-31, 8 GHz) where all the emissions are prohibited and that needs to be protected.

To find the proper solution to this problem, studies should be promoted to verify the technical feasibility of the new filters needed.

Failing to reach this objective may lead to lack of equipment for the European market, with consequent delay in delivering the service and increased costs.

TIM shares the view expressed in RSPG opinion 6 that the RSPG should enhance the spectrum policy harmonization process in Europe. A European harmonization in bands above 24 GHz well ahead of WRC-19 is highly envisaged.

Finally, TIM agrees with the view expressed in RSPG opinion 7 on the need of a supplementary opinion to define the harmonization measures for licensed spectrum for ITS, V2X, and IoT as soon as possible.