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Directorate-General for Communications Networks, Content and Technology  
Electronic Communications Networks and Services  
Radio Spectrum Policy Group  
RSPG Secretariat  
DG CNECT B4: Spectrum – Office: BU33 7/065  
Per e-mail to CNECT RSPG ([CNECT-RSPG@ec.europa.eu](mailto:CNECT-RSPG@ec.europa.eu))

## **GSA Response to the RSPG17-034 public consultation on “Strategic spectrum roadmap towards 5G for Europe – 2nd Draft RSPG Opinion on 5G networks”**

### **About the GSA**

*The GSA (the Global mobile Suppliers Association) is a not-for-profit industry organization representing companies across the worldwide mobile ecosystem engaged in the supply of infrastructure, semiconductors, test equipment, devices, applications and mobile support services. GSA actively promotes the 3GPP technology road-map – 3G; 4G; 5G – and is a single source of information resource for industry reports and market intelligence. GSA Members drive the GSA agenda and define the communications and development strategy for the Association. The Spectrum Group within GSA is the GSA focus group for global policy matters related to the radio frequency spectrum and radio regulatory matters pertaining to the successful evolution of International Mobile Telecommunication (IMT) of ITU and associated administrative, operational and technical aspects. This response is focused on and relevant to the European aspects of 5G spectrum and may not represent the position with other regions. The GSA has recently produced a report on making a success of 26GHz for 5G in Europe and this can be found on the website [www.gascom.com](http://www.gascom.com).*

Dear Sir, Madam,

GSA appreciates RSPG work developing Europe’s leading role in 5<sup>th</sup> generation communication systems via timely spectrum policy decisions. GSA welcomes the opportunity to provide its views on the RSPG public consultation on “Strategic spectrum roadmap towards 5G for Europe – 2<sup>nd</sup> Draft RSPG Opinion on 5G networks”.

In general, GSA appreciates the EU early decision on 5G pioneering bands. This provides good guidelines for the European actions in the WRC-19 preparations and facilitates European leadership in 5G development. GSA notes the following main challenges in 5G deployment in Europe that need to be addressed:

- Defragmentation of 3.4-3.8 GHz is crucial for the 5G implementation in Europe, and should preferably provide each MNO with access to about 100MHz of contiguous spectrum.
- Europe needs to actively support the availability of full 24.25-27.5 GHz for 5G in order to motivate early equipment availability for the band. Despite the technical readiness of industry, decisions regarding commercial availability of equipment will be taken only when it is apparent that operators will have access to spectrum and will deploy.
- MNOs need about 1 GHz contiguous spectrum at 26 GHz band to offer real 5G services. This needs to be kept in mind if a phased approach is used for the spectrum authorisation.

Our response to the individual points of the RSPG opinion are provided below.

1. **The RSPG is of the opinion** that Member States will need flexibility in the way they authorise access to spectrum, for example: appropriate geographical areas (e.g. national, regional, city or hyper-local, e.g. for use in a factory), individual licencing or under a general authorisation framework.

Generally GSA prefers exclusive dedicated licenses to enable QoS and incentivise investments, and believe that this should be the focus for the three European 5G pioneer bands. MNO investments are necessary to establish the market and to generate economies of scale and competition in the infrastructure and terminals market. Verticals with a need for access in more restricted areas, such as factories, stadiums, etc, can be served by MNO's networks using network slicing, sub-leasing and use-it-or-lease-it conditions within this spectrum. Once a competitive 5G market has developed and, at that point in time, if network slicing, leasing and use-it-or-lease-it conditions are not sufficient measures to allow vertical markets to grow, then regulators could consider other measures, e.g. making dedicated spectrum available. This kind of approach could strike a reasonable balance between establishing the 5G market with MNO's and providing a pragmatic solution for verticals.

Although we consider that auction is one way to provide access to spectrum reflecting the market value for the spectrum and enabling spectrum to be assigned to those MNOs who value it most, we do urge caution that auctions should not be designed only to maximise income to Governments. Especially, in the 26 GHz and higher bands the spectrum should be designated in a way that it allows wide enough spectrum blocks for full scale 5G operation and, also, to support earliest possible 5G implementation in the band.

Where exclusive dedicated licenses are not feasible, there may be some circumstances where complementary ways to access spectrum could be considered i.e. Licensed Shared Access where LSA could be an enabler for mobile operators to access spectrum.

GSA suggests it would be inappropriate and unnecessary to specify onerous rollout and deployment conditions for 5G. An approach that encourages MNOs to provide an appropriate

level of coverage suitable to their business needs is preferred. If Administrations / Governments desire greater geographical coverage, mutually beneficial deployment scenarios (e.g. network sharing, or similar type of solution, where operators could e.g. build one network jointly instead of each MNO building their own network) should be investigated (but not mandated). GSA notes that the EC Action Plan stresses that “all urban areas and major terrestrial transport paths have uninterrupted 5G coverage by 2025”, and that this EC objective may require such action.

2. **The RSPG is of the opinion** that the Commission, together with Member States, should take actions to fully support 5G related policy objectives in rural areas and wide coverage, taking into account the role of satellite in achieving ubiquitous connectivity.

GSA agrees it is important to improve rural broadband coverage and we believe that 5G utilizing various frequency bands will significantly improve connectivity options and connection speeds. It should be noted that already existing terrestrial networks using different frequency bands cover practically all populated areas on the earth.

While satellite might have a complementary part to play in connecting those few areas where terrestrial networks cannot easily provide affordable coverage satellite is not capable of providing the full range of 5G (IMT-2020) services from capacity and user experience point of view.

Integrated satellite and terrestrial access networks have been discussed already in the context of 3G and 4G rollouts but they have not come to fruition due to severe economical, business and technical reasons. Any satellite option should not place any regulatory constraints onto mobile networks and should not delay the standardisation and implementation of terrestrial mobile networks.

The role (if any) of satellite in 5G must be a market-driven and complementary to those services already provided by terrestrial mobile networks.

3. **The RSPG recommends** that the Commission, in its research work-programs, study solutions for improving 5G connectivity and wide area coverage, especially in rural areas, thereby facilitating and progressing technology developments targeting the fulfilment of 5G related policy objectives.

GSA considers that the EU role is more on political side e.g. to recommend a sufficient performance for 5G everywhere and, especially, in rural areas, where market based competition may not work. Another area for the EU side could be to encourage by regulation for network sharing, or similar type of solution, where operators could e.g. build one network jointly instead of each MNO building their own network. MFCN concept already gives a good flexibility to MNO to find suitable solutions for coverage also in rural areas.

4. **The RSPG is of the opinion** that service performance and availability requirements may be relevant for some 5G cross border services to fully function and would need to be defined by

the industry in a timely manner. In some cases an EU coordinated approach could be helpful in this regard to support a common European solution.

As in the previous point, GSA believes that EU role is more on regulating the requirements also in border areas and the technical solution should be left for MNOs.

5. **The RSPG is of the opinion** that coverage obligations can only be derived as a consequence of national policy objectives and characteristics (i.e. population distribution, geographical morphology, industrial and societal needs) and therefore cannot be harmonised on a EU-level.

As detailed in GSA's response to Q1, GSA suggests it would be inappropriate to specify onerous rollout and deployment conditions. An approach that encourages MNOs to provide an appropriate level of coverage suitable to their business needs is preferred. If Administrations / Governments desire greater geographical coverage, mutually beneficial deployment scenarios (e.g. network sharing, or similar type of solution, where operators could e.g. build one network jointly instead of each MNO building their own network) could be investigated but not mandated. GSA notes that the EC Action Plan stresses that "all urban areas and major terrestrial transport paths have uninterrupted 5G coverage by 2025", and that this EC objective may require such action.

6. **The RSPG notes** that solving issues relating to facilitating the efficient deployment of ultra-dense networks is expected to be of high importance for the rollout of 5G in dense urban areas. **The RSPG is of the opinion** that Member States should assess the need for national actions that will enable easier site authorisation and installation, in particular for small cells, in order to make timely 5G deployment possible.

GSA supports this view and encourage Member States to start actions on this. GSA would further stress the need for availability of wireless backhaul spectrum, and put this solution for backhaul on equal level of importance as fibre.

7. **The RSPG is of the opinion** that all commercial licences in frequency bands identified for 5G within the Member States should be subject to trading or leasing to enable new market opportunities.

GSA supports this view, and further notes that use-it-or-lease-it clauses may be introduced in the licensing agreements. This could also solve, at least partly, the needs of verticals.

8. **The RSPG is of the opinion** that Member States should consider appropriate measures to defragment the 3.6 GHz band, the primary 5G band, in time for authorising sufficiently large blocks of spectrum by 2020.

GSA supports all efforts to introduce 5G at a pan-European level as expeditiously as possible in the 3.4-3.8 GHz band due to already being harmonised for mobile networks with up to 400 MHz of contiguous spectrum. It is likely that 3.6 GHz band is the first spectrum band, where full scale 5G services can be offered. Also, 3.4-3.6 GHz will be almost globally available for 5G facilitating it to become the ‘core band’ for 5G. We agree that Member States need to plan specific actions to address current spectrum fragmentation. The ways of achieving this are expected to vary from one country to another and might include:

- facilitating progressive migration from paired to unpaired assignments, including allowing and encouraging existing license holders to swap their licenses;
- defining appropriate auction rules to facilitate wide enough blocks (around 100 MHz) of contiguous spectrum to winners;
- defining plans to relocate incumbents (FS/FSS) to other frequency bands– sharing solutions could also be considered in the short term to avoid delays in the auctioning process

**9. The RSPG is of the opinion that** in relation to the 26 GHz pioneer band (24.25 - 27.5 GHz):

- the focus of 5G authorisations in the 26 GHz band should be on an individual licence regime. However, the possibility of a general authorisation regime under sharing conditions that protect the other users of spectrum in this band (e.g. EESS/SRS) is not excluded.

As mentioned in our response to Q1, GSA prefers exclusive dedicated licenses for the 26 GHz band while noting that geographically defined licences may also be appropriate in the longer term under certain circumstances. We do not support General Authorisation Regime for this European 5G pioneer band of 26 GHz.

- the Commission should include as part of any technical harmonisation for the 26 GHz band, in high level terms, the requirements to maintain the possibility for continued development of incumbent satellite services (FSS and EESS/SRS). Future earth stations should be authorised based on transparent, objective and proportionate criteria to safeguard their future operations and ensuring that they are unlikely to have a significant impact on 5G deployment and coverage. Member States will remain fully responsible for granting or rejecting authorisation to a new satellite earth station application.

GSA proposes that future earth stations should use other frequency bands than 26 GHz whenever possible. Should this not be possible, it is recommended to limit deployment to areas where they can be protected without limiting 5G deployment.

However, too stringent emission limits to protect EESS(passive) below 24 GHz may severely complicate deployment of 5G in the 26 GHz band, possibly even prevent it.

- Member States should make by 2020 a sufficiently large portion of the band, e.g. 1 GHz, available for 5G in response to market demand, taking into account that 5G deployment in this frequency range is expected to be used for local coverage.

GSA suggests that countries in Europe should do their utmost to make the whole 26 GHz band available for 5G use before ITU WRC-19. In countries where the lower part of the band 24.25 – 27.5 GHz is heavily used e.g. for extensive FS deployments, the upper part 26.5 – 27.5 GHz as a minimum should be licensed in a first phase during 2018. Selection of the uppermost 1 GHz will further provide harmonization and enable benefits from the economies of scale, also considering the 5G developments in the rest of the world.

- Regulatory flexibility for the progressive release of the 26 GHz band will facilitate an efficient introduction of 5G without having an unnecessary negative impact on the current users of the band. Member States should plan any migration of fixed links necessary for ensuring the availability of the band for 5G, taking into account the geographical dimension of the market demand for 5G.

GSA supports this view, but would also like to stress that in case of a two-step approach it is crucial to provide a long-term plan at an early stage to avoid the risk of fragmentation of the 26 GHz band. One option for sharing with FS could be that MNOs, who are usually the users of FS as well, can choose by themselves, how to use the band for both 5G and FS.

10. **The RSPG is of the opinion** that general authorised frequency use can be an important breeding ground for innovation and contributes towards a dynamic market environment. The application of a general authorisation regime is foreseen in the 66-71 GHz band which could be an important band for 5G.

GSA supports the view that 66 – 71 GHz may become an important band for 5G