

Global mobile Suppliers Association

GSA response to the
RSPG Public Consultation on the

Draft RSPG Opinion
“Additional spectrum needs and guidance on
the fast rollout of future wireless broadband
networks”

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GSA very much welcomes the opportunity to provide feedback on this important consultation.

In broad terms, GSA sees a need to ensure timely availability of sufficient spectrum to supporting EU vision/policies in the following areas: the Green Deal, Gigabit Society, Shaping Europe's digital future (5G and beyond, 6G, resilient & secure communications), transport communications, Audio-visual Media.

Given that spectrum planning is a long term process (often taking 5-10 years to get spectrum to become available in the market) it is now the right time to begin planning for future additional spectrum needs to enable future ongoing success of 5G.

GSA believes that spectrum needs assessment is a key step that should be taken today towards the definition of the long-term vision (beyond 2025) that is required to ensure the fulfilment of EU policy goals. While GSA understands that a quantitative spectrum needs assessment is a difficult activity, clear and measurable targets are essential to ensure the fulfilment of the EU policy objectives.

GSA therefore suggests that RSPG includes a recommendation to the Commission and to the Member States to use spectrum needs assessments as a basis for their policy decisions with respect to future availability of new spectrum for 5G and its evolution.

Spectrum needs should be assessed separately for:

- **Licensed and licence-exempt spectrum;**
- **Low-bands, mid-bands and high-bands (considering their complementarity in terms of coverage vs. capacity).**

1) The RSPG "recognises that the current demand in the majority of MS for additional spectrum is mainly for the mid-bands."

NOTE: Given its importance, GSA believes the above information should also be recalled within the RSPG opinion on the RSPP.

GSA notes that the current demand for additional spectrum is mainly in mid- and low-bands¹,

Mid-bands

With balanced coverage and capacity properties, additional spectrum in the mid-bands is critical to help EU to fulfill some of the European goals cost-effectively.

The European Union defines uninterrupted 5G coverage in all urban areas among the EU connectivity goals. In addition, 5G is an IMT-2020 technology and ITU has specified the following vision:

- a) User experienced data rate of 100 Mbit/s in downlink and 50 Mbit/s in uplink;
- b) Area traffic capacity of 0.1 Mbit/s/m².

While goal a) requires mid-bands spectrum, high-bands spectrum is key to reach goal b).

Mid-bands spectrum provides an important contribution for the following scenarios.

¹ Assuming that by 2025-2030, the 26 GHz and 40 GHz bands will be available and in use.

High capacity citywide coverage and smart cities:

GSA believes the user experienced data rates of 100 Mbit/s and 50 Mbit/s, respectively in DL and UL, need to be delivered in urban and sub-urban areas to enhance personal communications “on the move”, which will enhance citizens quality of life. In addition, it will enable the take up of smart cities, increase efficiency, and help reduce carbon emissions in the different industry sectors. This is aligned with the ITU-R IMT-2020 vision.

FWA outside cities:

GSA believes that FWA is playing a role to help Europe fulfil its 2025 target to have every EU household connected with 100 Mbps. FWA should also support the possibility to upgrade the household connection to the proposed 2030 target to have all European households covered by a gigabit network, with all populated areas in Europe to be covered with 5G as stated by the European Commission’s Communication “*2030 Digital Compass: the European way for the Digital Decade*” (March 2021). Spectrum availability should be in line with the need for FWA to cost effectively deliver:

- A minimum of 100 Mbps downlink as per the EU gigabit connectivity goal for 2025;
- Upgrades to fulfil BEREC’s guidelines on Very High Capacity Networks, i.e. a minimum of 150 Mbps downlink and 50 Mbps uplink by 2025²;
- A minimum of 1000 Mbps downlink and 200 Mbps uplink in the longer term, noting that mmWave bands are required to meet this goal³.

Spectrum for connected cars urban connectivity along main transport routes (including highways):

GSA notes that uninterrupted 5G coverage in all urban areas is included within the EU connectivity goals. 5G can help reduce the transport sector’s carbon emissions by minimizing the number of vehicles on the roads and by helping vehicles select the most optimal routes.

Based on a recent study from 5GAA⁴:

- At least 500 MHz of additional service-agnostic mid-band (1 to 7 GHz) spectrum would be required for mobile operators to provide high capacity city wide advanced automotive V2N services.

Concrete actions should be planned for the future availability and harmonization of additional mid-bands spectrum: Countries in Europe (and globally) are assessing the options for additional upper mid-bands (above 3 GHz) spectrum (namely the 3.8-4.2 GHz and upper 6 GHz bands). Given the limited options for additional upper mid bands spectrum, it is crucial that any resulting decisions in Europe do not hinder the realization of the ITU-R IMT-2020 vision. GSA supports studies for the upper 6 GHz band towards an IMT identification at WRC-23. GSA also supports making the 2.3-2.4 GHz band available in countries that have not already done so, based on the CEPT harmonized technical conditions.

² To fulfil the objective of 100 Mbit/s connectivity to 100% of homes in urban or rural environment by 2025.

Criteria 4, BEREC Guidelines on Very High Capacity Networks.

³ Criteria 3, BEREC Guidelines on Very High Capacity Networks

⁴ <https://5gaa.org/news/study-of-spectrum-needs-for-safety-related-intelligent-transportation-systems-day-1-and-advanced-use-cases/>

Low bands

The availability of more sub-1 GHz spectrum is also of key importance to fulfil some of the EU 2025 objectives, in particular to connect people in rural areas to address the digital divide, to deliver deeper indoor coverage also in urban environments, as well as to connect people and objects along transport paths (rail and road).

Based on a recent study from 5GAA⁵:

- At least 50 MHz of service-agnostic low-band (< 1 GHz) spectrum would be required for mobile operators to provide advanced automotive V2N services in rural environments with affordable deployment costs.

Even though there are sub-1GHz frequency bands already allocated to the mobile service and identified for use by administrations wishing to implement IMT, those bands will not meet the increased need in the Region in the medium/long term.

WRC-23 Agenda Item 1.5 (470-694 MHz for Region 1) is of high importance, noting the need for flexibility in Europe when releasing spectrum in this range depending on a reduction of broadcasting usage. Such flexibility would be provided by a co-primary allocation of the band to the mobile service and the broadcasting service in Region 1 as a result of WRC-23.

2) The RSPG “recognises that spectrum demand for verticals has been addressed in the mid-bands in a dissimilar way in MS, due to different national circumstances (e.g. priorities for efficient spectrum use).”

GSA believes that harmonized solutions are always preferable and that when looking at potential harmonization, MS should quantify the verticals’ connectivity needs and associated spectrum requirements in low-, mid- and high-bands as a first step and also account for the already available spectrum for verticals in these ranges.

While considering the options, Member States should have utmost consideration for the importance attached to the availability of contiguous large blocks nationwide which implies the need to avoid spectrum fragmentation on a geographic basis as much as possible.

GSA notes the provisions in the European Electronic Communication Code (EECC) allowing the enhancement of secondary markets at national level by means of e.g. sub-leasing to improve cooperation between spectrum licensees and spectrum access seekers.

GSA would also like to point out that the European Commission Recommendation on Connectivity Toolbox (C(2020) 6270 final) recommends spectrum reservations in EU-harmonised radio spectrum for ECS “*only when duly justified*”.

⁵ <https://5gaa.org/news/study-of-spectrum-needs-for-safety-related-intelligent-transportation-systems-day-1-and-advanced-use-cases/>

3) The RSPG “Recognises that there is a demand for vertical use in the mmWaves.”

Need for high bands spectrum

GSA agrees that mmWave bands will play a role to address the verticals’ connectivity needs. However, mmWave bands are also key for 5G networks in areas with very high traffic density demand (e.g. adding capacity in zones with a high concentration of users, such as train/bus stations, central business districts and around landmarks). In addition, mmWave bands can be deployed to provide fixed broadband to businesses and residential homes in suburban neighbourhoods (5G FWA). GSA anticipates that the demand for high band spectrum will accelerate as these bands are required to meet the 5G/IMT-2020 vision of the ITU as well as the EU gigabit connectivity targets.

GSA recommends that Member States and the European Commission adopt policies which:

1. ensure that MNOs will be able to address their non-industrial use cases;
2. ensure that MNOs can address the connectivity needs of 5G industrial/business users (through network slicing and – where necessary – through spectrum leasing);
3. depending on local conditions, consider local licensing. This should be available to all interested parties and should not compromise the availability of nationwide licensed spectrum in large contiguous blocks.

4) The RSPG “Recognises that there is no specific spectrum need for FWA in the mmWave bands, although operators should also have the possibility to address this application within their spectrum.”

GSA agrees that the current MFCN regulatory framework allows MNOs to provide either mobile or FWA services and would like to emphasize that mmWave bands can be deployed to provide fixed broadband to businesses and residential homes in suburban areas (5G FWA).

These high spectrum bands combined with mid- and low-bands would deliver enhanced capacity with improved coverage for more demanding scenarios, in particular for the ‘Wireless fiber’ segment.

5) The RSPG “Recognises that different type of authorisation methods facilitate innovation and different technologies.”

GSA notes that the existing spectrum authorization frameworks based on individual licensing (including local licensing) and license-exemption in distinct frequencies, as available today, are sufficient to cater for all foreseen innovative use cases and technologies.

6) The RSPG “Recommends to investigate the possible use of the band 3.8-4.2 GHz for local vertical applications while protecting receiving earth stations and other existing applications and services.”

Considering the use cases at the basis for the need for additional mid-bands spectrum described above, the important role of nationwide assignments in the 3.8-4.2 GHz spectrum should also be taken into account when evaluating the options for addressing the connectivity needs of local vertical applications in this band:

- The 3.8-4.2 GHz band is an important band that could help to meet the identified need for additional upper mid-bands spectrum in Europe; The adjacency of the 3.8-4.2 GHz band with the 3.4-3.8 GHz 5G primary band makes the 3.8-4.2 GHz particularly valuable for cost efficient citywide deployments by MNOs;
- Verticals' uses cases will require different authorisation models: transport use cases are likely to require nationwide assignments; depending on their business model, utilities may require spectrum at national, geographical, and potentially local level. Smart city use cases can also rely on different authorisation models. Focusing on local spectrum assignments only would therefore reduce the potential use cases to mainly real estate type deployments;
- Nationwide licensing, in sufficient contiguous amounts, is fundamental to creating momentum for 5G service deployments;
- By allowing MNOs to utilise spectrum for both nationwide coverage and local services either directly (via network slicing) or via leasing models, an efficient use of spectrum can be ensured; The fact that some European countries, have already assigned parts of the 3.4-3.8 GHz spectrum on a local basis for vertical applications should be considered.

Decisions on making available the 3.8-4.2 GHz spectrum on a local basis could restrict the ability to address the needs for nationwide spectrum, which in turn may hinder achieving the IMT-2020 targets and affect the EU vision/policies.

Nationwide licensing should therefore be pursued as much as possible to support the future evolution of mobile operators' 5G networks and beyond, where this is compatible with the need to protect incumbent users.

GSA recommends the RSPG to investigate:

- a. The verticals' connectivity requirements and associated spectrum needs;
- b. The possible harmonization of the band 3.8-4.2 GHz (or part thereof) for MFCN (including macro cellular and small cells deployments) targeting nationwide applications taking into account incumbents' use;
- c. Depending on the results of the work under item b) above, the possible authorization models with specific reference to the nationwide and local assignment of the individual usage rights. Taking into account incumbents' use, spectrum fragmentation and appropriate impact assessment.

Noting that national licensing allows MNOs to have the opportunity to utilise spectrum for both nationwide coverage and local services either directly (e.g. through network slicing) or via leasing models.

GSA therefore recommends that the European Commission further studies the above. This can be realized by means of an EC mandate to CEPT to trigger the work on item b) above, in conjunction with any needed ETSI work in relation to item a) above.

GSA also recommends to study the costs, and other logistical challenges, of re-locating Satellite Earth Stations away from areas of 5G demand (cities, industrial areas, research campuses, transport paths etc.) to more remote areas so that both Satellite Earth Stations and terrestrial 5G can share the same spectrum through geographical separation, leading to more efficient use of the spectrum. Furthermore, experiences in other countries such as the US, Australia, etc. could also be considered.

7) The RSPG “Recommends that options should be developed for addressing vertical needs in the mmWaves, in order to facilitate consistent approaches.”

GSA agrees on the need to develop consistent approaches throughout Europe for addressing vertical needs in the mmWave bands. Such approaches should take into consideration the MNOs’ needs and interest in the bands. For instance, in the 26 GHz, contiguous 1 GHz per operator is recommended, which can be used for nationwide, local, as well as FWA deployments. A possible approach could be to make the needed nationwide spectrum available for MNOs while making available the remaining part at the lower end of the band on a local basis to enhance efficient use of the band.

GSA would also like to point out that the European Commission Recommendation on Connectivity Toolbox (C(2020) 6270 final) recommends spectrum reservations in EU-harmonised radio spectrum for ECS “*only when duly justified*”.

8) The RSPG “Recommends that MS publish for transparency any available results of EMF exposure measurements.”
9) The RSPG “Recommends that MS publish for transparency any available results of equipment SAR measurements.”

GSA agrees with the RSPG recommendations on publishing any available results of EMF exposure measurements and SAR measurements, as transparency and information sharing on these topics can help address potential concerns. The RSPG and BEREC should continue to work in this field and counter misinformation on EMF and mobile technologies.

10) The RSPG “Proposes to the European Commission to update EU Council Recommendation 1999/519/EC in order to take into account the revision of the ICNIRP guidelines.”

GSA supports updating the EU Council Recommendation 1999/519/EC to take into account the revised ICNIRP guidelines. Additionally, and aligned with the recommendation in the Article 68 of the EECC, GSA encourages Member States to apply the EU recommendation and avoid imposing more stringent limits than those recommended by ICNIRP.

The latest measurement results should be taken into account which show EMF levels significantly below the ICNIRP limits in practice. It should also be considered that Member States are starting to apply IEC standards for EMF evaluation of 5G Massive MIMO.

With regard to EMF and IMT deployment, the stricter EMF limits (not based on scientific evidence) have multiple drawbacks, including degraded network capacity, unnecessary densification, leading to additional deployment costs, and to difficulties in fulfilling coverage obligations (when these exist).

GSA suggests that the Commission/Council evaluate the opportunity to upgrade the EMF Recommendation to a Decision and to encourage Member States to conform with standards from CENELEC and IEC.

Future spectrum for backhaul

In addition to the more traditional frequency bands allocated to the fixed services below 42 GHz and the harmonized E-Band (71-76 – 81-86 GHz), the following bands are expected to play a key role for addressing backhaul traffic for 5G and beyond:

- W-band: within the 92 – 114.25 GHz range
- D-band: within the 130 – 174.8 GHz range

There are discussions ongoing in the research community (e.g. EU projects such as HEXA-X) whether these bands should also be considered for mobile use / 6G.