GSA[1] Response to UK Ofcom Consultation "Improving consumer access to mobile services at 3.6GHz to 3.8GHz"

GSA welcomes the opportunity to provide comments on Ofcom Statement and Consultation "Improving consumer access to mobile services at 3.6GHz to 3.8GHz".

Question 1: Do you agree with our proposed approach towards registered fixed link and satellite earth stations users of the 3.6GHz to 3.8GHz band?

Response: The GSA supports the assessment carried out by Ofcom on current use of the band and on the potential associated with the future utilization of the band by IMT and by 5G IMT-2020.

The GSA agrees with the need to ensure unconstrained access to the 3600-3800 MHz band for mobile services across the UK providing additional capacity to support higher data rates for large numbers of connected devices. The GSA therefore supports Ofcom' provisional conclusion and proposed approach "removing existing authorisations for the transmitting fixed links in the 3600-3800 MHz band and no longer taking registered receiving satellite earth stations into account for frequency management purposes". The GSA agrees with the proposed policy on new applications in the band with regards to the closure of the band to new applications for fixed link licences, PES licences and grants of RSA for ROES for satellite earth stations with a receiver component in the band.

One key merit in the proposed approach lies in its simplicity which is needed to incentivize operators' initial investments in the new 5G IMT-2020 technology and the fast take-up of the related innovative services.

Ofcom's proposal is aligned with the fact that the 3400-3800 MHz band was identified by the Radio Spectrum Policy Group (RSPG)[2] as the primary band for 5G IMT-2020 services in Europe, supporting the UK Government target to be a global leader in 5G to support the delivery of productivity and growth benefits, as well as enhanced lifestyles.

The GSA would like to underline few aspects to be considered while executing the next steps[3]:

Timely availability of 3400-3800 MHz primary spectrum for 5G

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[1] *The GSA (Global mobile Suppliers Association) develops strategies and plans, and contributes studies and technical analysis to international, regional and individual country policy-makers and regulators to facilitate the timely availability of spectrum for use by mobile network operators. GSA has a focus group for spectrum topics for technical and regulatory matters of radio spectrum pertaining to the successful evolution of International Mobile Telecommunication (IMT) and associated radiocommunication systems and comprises a team made up of spectrum and regulatory affairs specialists from GSA Executive Member and GSA Member companies. The GSA Spectrum Group is participating in the study work leading up the World Radiocommunication Conference meeting in 2019 (WRC-19). In addition GSA reports regularly on global spectrum harmonisation efforts and developments including auctions, assignments, allocations, and re-farming activities.*

[2] "Strategic Roadmap Towards 5G for Europe; Opinion on spectrum related aspects for next-generation wireless systems (5G)".

[3] Further information on the opportunities in the 3400-3800 MHz are provided in the GSA paper (June 2017): "THE FUTURE OF IMT IN THE 3300-4200 MHz FREQUENCY RANGE", https://gsacom.com/paper/future-imt-3300-4200-mhz-frequency-range/

5G trials and interoperability testing (both LTE Evolution and 5G-NR) in the 3400-3800 MHz range will start late in 2017. GSA expects commercial readiness of the 5G-NR ecosystem in 2018, targeting broader commercialization from 2019.

In line with the above timelines, the GSA believes that Ofcom's next steps should ensure that the 3600-3800 MHz band (and the 3400-3600 MHz band) will be made available for mobile use as soon as practicable (before 2020) and in as many areas as possible. This would allow the UK to be ahead for 5G roll-out and reap the benefits of a leading country advantage.

It is important to ensure that the changes to be applied to the operation of existing users are carried out efficiently to minimize costs and impacts on the rollout of mobile services. For example, some satellite earth stations, located in less densely populated areas, could continue operating on a licence exempt basis without marked degradation of spectrum quality; such sites could also accommodate service that will not be provided in the future in the sites in more densely populated areas. In order to facilitate the process, while not supporting the application of current coordination mechanisms for satellite earth stations situated in rural areas, the GSA would support further technical analysis on the possibility to apply localised restrictions in future mobile licences around a limited number of Earth stations in remote areas, provided that any constraint to mobile deployment should be kept to a minimum, without adding material impacts on mobile deployment in the area affected.

Availability of wide channels

The 5G New Radio (5G-NR) is being designed to inherently take maximum advantage of wideband channels to deliver improved spectral efficiency, higher capacity and improved user experience. Wide contiguous nationwide spectrum assignments to operators in the order of 100 MHz would allow operators to reap the full benefits of the 3400-3800 MHz frequency range for 5G.

The future availability of the 116 MHz of spectrum in the 3600-3800 MHz band for mobile services will represent an important step towards the availability of the whole 400 MHz of continuous spectrum in the 3400-3800 MHz range (to be made available with consistent regulatory conditions). This would enable 100 MHz wide channels for mobile operators.

Cost effective wide area 5G coverage

The GSA believes that 5G will need to deliver its innovative services and applications broadly across the whole country and that the 3400-3800 MHz band will play a key role in this.

The proximity of the 3400-3800 MHz frequency range to existing bands used for IMT networks provides potential for macro cell wide area coverage using the existing infrastructure in areas where dense networks are deployed, thus delivering enhanced capacity without incurring network densification costs. The adoption of macro cell base stations implementing massive MIMO will boost peak and average downlink cell throughput with affordable complexity; the 64T64R massive MIMO technology is commercially available and has been successfully tested in the 3400-3600 MHz band[4].

Therefore, in agreement with statements provided by the leading mobile operators during the previous consultation, the GSA believes that the macro layer coverage will be a clear priority for mobile operators allowing to support wider, faster and cost effective roll out.

In line with Ofcom's understanding, the GSA recognises that small cell based deployment is more likely to be able to coexist with satellite earth stations. However, constraining future mobile deployment to only permit low power services or deployment using small cells in wide areas would significantly increase the cost and complexity of mobile deployments on a UK wide basis leading to a worse outcome for consumers.

With reference to possible alternative approaches exploiting sharing opportunities in this band, the GSA strongly agrees with the following statement from Ofcom: "we recognise that dynamic sharing approaches offer new opportunities for spectrum management and have considered the proposals

[4] The available lower frequencies (e.g. 1800, 800, 900, 700 MHz) may be used in combination with 3400-3800 MHz 5G-NR connectivity to provide additional coverage improvement, facilitating the reuse of existing sites.

put forward. Overall, we do not consider that such an approach would deliver the same benefits as enabling mobile services in the 3600-3800 MHz band on a nationwide basis".

Future availability of the 3800-4200 MHz

As a second step, the GSA considers that, additionally, access to 3800-4200 MHz for 5G would bring significant benefits to UK citizens and consumers. While designing the future use of the 3600-3800 MHz and 3400-3600 MHz bands in order to maximize the social and economic benefits for citizens, the GSA believes it would also be beneficial to account for future scenarios in the 3800-4200 MHz range (eventually based on sharing with existing incumbents).

For example, the existing satellite services could still be offered by alternative technologies (e.g. fibre connections), by migrating Earth Stations to alternative sites in remote areas with low population density or could be migrated to frequencies outside the 3400-4200 MHz range.

The GSA believes this approach is in line with the UK Government's 5G Strategy, which set out that the Government will work with Ofcom to assess the feasibility of 5G sharing in the 3800-4200 MHz range.

Question 2: Do you have any comments on our assessment of the likely costs and benefits of our proposed approach?

Response: The GSA agrees with the outcomes from the impact assessment that show how the unconstrained access for future mobile services including 5G to the 3600-3800 MHz band benefits would outweigh the costs leading to greatest net benefits for citizens and consumers while promoting competition and innovation.