

DIGITALEUROPE Response to RSPG 5G Opinion

“Public consultation on the Draft RSPG Opinion on spectrum related aspects for next-generation wireless systems (5G)”

Brussels, 30 July 2016

CONSULTATION RESPONSE

Note: The numbering and bolded text below is aligned with Section 2 of the RSPG draft opinion for consultation.

The opinion of the RSPG on the strategic roadmap towards 5G for Europe

This roadmap has been developed to facilitate the launch of 5G on a large scale in Europe by 2020. The goal is that the benefits of 5G-based services are available to all European citizens in a timely manner, driving industrial and societal transformation and economic growth in Europe from 2020 and beyond.

Response: DIGITALEUROPE welcomes progressive goals to enable early deployment of 5G in Europe but we estimate that for Europe to secure a 5G leadership position the 2020 date is not as ambitious, as some other countries outside Europe target earlier dates for first deployments. DIGITALEUROPE believes Europe needs to take into account the competitive threat from outside Europe when it comes to 5G leadership.

One example where access to spectrum suitable for 5G is being progressed expeditiously is in the US where the FCC on 14th July 2016 adopted new rules to enable rapid development and deployment of next generation 5G technologies and services. These new rules open up nearly 11 GHz of high-frequency spectrum for flexible, mobile and fixed use wireless broadband – 3.85 GHz of licensed spectrum (in the 28 GHz, 37 GHz and 39 GHz bands) and 7 GHz of unlicensed spectrum (in the 64-71 GHz band)¹; plus there are others.

1. The RSPG considers the 3400-3800 MHz band to be the primary band suitable for the introduction of 5G use in Europe even before 2020, noting that this band is already harmonised for mobile networks, and consists of up to 400 MHz of continuous spectrum enabling wide channel bandwidth. This band has the possibility to put Europe at the forefront of the 5G deployment.

Response: DIGITALEUROPE agrees 3.4-3.8 GHz may enable early deployment of 5G in Europe but this should not reduce other initiatives to secure access to additional frequencies suitable for 5G both in higher bands above 6 GHz and lower bands below 6 GHz. As the 3.4-3.8 GHz band allows for wide RF channels of 100 MHz or more, it

¹ <https://www.fcc.gov/document/fcc-adopts-rules-facilitate-next-generation-wireless-technologies>

is suitable to consider provision of early eMBB services in this frequency range to substantially improve the user experience.

DIGITALEUROPE requests that options to open up the adjacent 3.8-4.2 GHz band should be explored to further enhance the user experience; however, the bitrates will not reach the levels targeted for mature 5G systems using the new higher frequency bands.

2. The RSPG is of the opinion that 5G will need to be deployed also in bands already harmonised below 1 GHz, including particularly the 700 MHz band, in order to enable nationwide and indoor 5G coverage.

Response: DIGITALEUROPE as a supporter of technology neutrality and service neutrality applauds efforts to enable 5G deployments in existing bands already harmonised for mobile broadband.

If the 700MHz band is not already in use for 4G/LTE, it can provide opportunities for large coverage for specific 5G services including the mMTC and URLL use case families, thus enabling vertical industries to access 5G networks.

DIGITALEUROPE also supports progressing the coexistence initiatives to allow possible access to the 470-694 MHz range for 5G (via Supplementary Downlink/SDL services) recalling that the priority remains to protect incumbents.

3. The RSPG considers that there will be a need to ensure that technical and regulatory conditions for all bands already harmonised for mobile networks are fit for 5G use.

Response: DIGITALEUROPE agrees there is “a need to ensure that technical and regulatory conditions for all bands already harmonised for mobile networks are fit for 5G use” as the technology neutrality enables the most efficient use of existing bands within existing licenses. Thus, existing least restrictive technical conditions should be reviewed and revised as required to fit for 5G use.

DIGITALEUROPE is of view that Mobile Operators are best positioned to determine when 5G should / could be deployed in existing harmonised frequency bands. We believe that these timescales should not be mandated by the European Commission but operators can be encouraged to re-farm spectrum via incentivising spectrum policies. However, we do not consider that the existing frequency bands already deployed for 2G/3G/4G will be the primary bands for 5G deployment since 5G will not suddenly replace legacy services and availability will vary country by country.

DIGITALEUROPE considers that primary bands for 5G below 6 GHz will be 3.4-3.8 GHz, eventually extended to 3.4-4.2 GHz and 700 MHz. At the same time it is important to note that full 5G capabilities cannot be achieved without harmonising sufficient amount of spectrum above 6GHz.

4. The RSPG stresses that there are many frequency bands above 24 GHz which are of potential interest for 5G in Europe:
 - To give sufficient guidance to industry, the RSPG will aim to identify at the earliest opportunity a suitable band to be made available in Europe. In order to do this RSPG members will prioritize the necessary work to assess what would be involved in enabling access to each candidate band in their country.
 - In this regard the RSPG believes that global harmonisation will be essential for developing 5G.
 - The RSPG will define the timeline for availability of other bands taking into account sharing and transition challenges, for example for mobile access and fixed services (including backhauling).

Response: DIGITALEUROPE supports attempts to achieve global harmonisation above 24 GHz but is disappointed that the 27.5-29.5 GHz band is not identified for study by ITU-R for WRC-19 since it is already the focus of development work and licensing initiatives in some other regions.

While discussions occurring at an international level within the ITU are important, we should equally monitor the progress being made outside of the ITU processes to access other frequency bands, e.g. 28 GHz band in US and Korea (which is also being discussed in Japan and China). DIGITALEUROPE believes it is vital for Europe to take into account the developments in other regions and try to align with these early adopters.

DIGITALEUROPE notes that initial eMBB technology development is taking place in the lower bands below 40GHz. However DIGITALEUROPE believes the RSPG should be cautious about identifying only one suitable band at such an early phase in the technology development cycle and the international radio spectrum investigations for a number of reasons:

- 1) The 24.25-27.5 GHz band is adjacent to the 28 GHz band which is the focus of development work and licensing initiatives in some other regions. DIGITALEUROPE believes a radio with a wide tuning range could span parts or all of the 24.25-27.5 GHz and the 28 GHz band. This would allow for minimum re-development work on equipment based on the 28GHz band. Therefore early deployment in this band may be feasible especially if spectrum just below 27.5GHz is made available for use.

In the case of Korea, where the 26.5-29.5 GHz is envisaged for 5G trials in time for the 2018 Olympic games, there would even be an overlap of 1 GHz with the 24.25-27.5 GHz band as listed in the draft RSPG opinion.

- 2) The band 31.8-33.4GHz is also interesting as it has been proposed for study by all regional organisations at WRC-15 and thus it has high potential for global harmonization. The presence of 800 MHz of passive services below 31.8 GHz and their associated protection requirements (ITU-R RR Footnote 5.340: “all emissions are prohibited in the following bands: 31.3-31.5 GHz (R1,2,3), 31.5-31.8 GHz (R2)”) might lead to some uncertainty about any technical constraints and the final amount of spectrum available for IMT. This may lead to additional development work being required for equipment in this band.
- 3) Parts of the 37.0 – 43.5 GHz range may represent an additional interesting opportunity for Europe: different portions of spectrum within the 37.0 – 43.5 GHz range are now being considered for 5G in various regions (e.g. 37.0 – 40.5 GHz in the USA, 40.5 – 43.5 in Europe). DIGITALEUROPE recommends that consideration of realistic tuning ranges and adjacent frequency bands should be contemplated within the scope of the WRC-19 Work Item 1.13.

- 4) Considering the preliminary results of the eMBB spectrum needs assessment in ITU-R it could be possible that several frequency bands in the range 24.25 – 43.5 GHz will be required over time.

5. The RSPG believes that considerations of bands above 6 GHz for 5G shall be limited to the bands listed by WRC-15 in order to strengthen the global harmonisation opportunities. This work should focus on the frequency bands proposed by Europe, in particular the bands 24.5-27.5 GHz, 31.8-33.4 GHz and 40.5-43.5 GHz. The RSPG intends to identify which one of these could be harmonised in Europe for early implementation.

Response: DIGITALEUROPE doesn't support that "considerations of bands above 6 GHz for 5G shall be limited to the bands listed by WRC-15" since we believe that with wider tuning ranges a single radio spanning multiple bands can help achieving economies of scale as explained in response to Section 2.4. This is particularly valid when considering 26.5-29.5 GHz range. Strictly limiting considerations in Europe to the WRC-15 bands would mean ignoring 5G technology developments in early adopter markets outside of Europe and this would significantly impede the ability of Europe to secure 5G leadership.

6. The RSPG will keep under review whether there is any requirement for European harmonisation measures in bands above 24 GHz before WRC-19.

Response: DIGITALEUROPE supports the objective of identifying widely harmonised frequency bands for 5G; when not successful, we opt for regionally harmonised bands especially if achieving interoperability between two regions is possible via one radio with a sufficiently wide tuning range (able to cover two regional bands).

DIGITALEUROPE supports the objective to identify early harmonised bands for Europe ahead of the WRC but care is needed to be sure that adequate international support is building for any band before final decisions are made.

7. The RSPG will prepare a supplementary opinion elaborating on the implementation of this opinion taking also into account the wider RSPG work programme, in particular the working groups on IoT and ITS.

Response: DIGITALEUROPE notes RSPGs consideration of the vertical markets and welcomes further opportunities to contribute to the development of the supplementary RSPG opinion.

Overall thoughts on the Opinion

Building a roadmap: DIGITALEUROPE supports the ambition to keep Europe in a leading position for 5G roll out and taking into account the state of play regarding 5G system developments along with the uncertainties surrounding the international process, proposes the following high level spectrum roadmap as a way forward to build a strong 5G Action Plan:

- a) By mid-2017 investigate a way to make available and regionally harmonise at least 1GHz of spectrum immediately below the 27.5GHz band. If necessary, consider the use of new regulatory tools such as LSA to facilitate this even if as a temporary solution until the international direction of travel is clearer.
- b) Commit to supporting the studies in the other bands to ensure that, considering the protection requirements of various incumbents, a sufficient amount of spectrum is harmonised for the efficient deployment of 5G above 6 GHz.
- c) In 2018, finalise regional harmonization and release of spectrum in the 26 GHz band ahead of WRC-19 to enable early deployments before 2020.
- d) Early in 2020, formalise the final European strategy for further release in these lower bands (24.25 - 43.5GHz) and review the strategy for higher band release based upon the WRC outcome.

Test Beds: DIGITALEUROPE encourages the RSPG to highlight the potential for early technology trials in the 28GHz band to take advantage of the technology development already underway to address the nearer term opportunities in this band.

DIGITALEUROPE understands that use of this band is a sensitive topic but believes that a pragmatic attitude is required in order to bring Europe into a leading position. This is particularly important to enable new industry sectors early access to 5G systems to help them understand the capabilities and build their requirements into the standards setting process.

DIGITALEUROPE highlights the some parts of the band are already prioritised in Europe for terrestrial services according to ECC Decision(15)01. Over 1GHz (in two 500MHz blocks) of spectrum could be considered.

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For more information please contact:
 Jochen Mistiaen, DIGITALEUROPE's Policy Manager
 +32 2 609 53 11 or jochen.mistiaen@digitaleurope.org

ABOUT DIGITALEUROPE

DIGITALEUROPE represents the digital technology industry in Europe. Our members include some of the world's largest IT, telecoms and consumer electronics companies and national associations from every part of Europe. DIGITALEUROPE wants European businesses and citizens to benefit fully from digital technologies and for Europe to grow, attract and sustain the world's best digital technology companies.

DIGITALEUROPE ensures industry participation in the development and implementation of EU policies. DIGITALEUROPE's members include 62 corporate members and 37 national trade associations from across Europe. Our website provides further information on our recent news and activities: <http://www.digitaleurope.org>

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