



Europe

GSMA Europe Response to the RSPG consultation on:

**RSPG Opinion on the ITU-R World Radiocommunication Conference
2019**

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About the GSMA

The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, Mobile World Congress Americas and the Mobile 360 Series conferences.

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1. Introduction

The GSMA welcomes the opportunity to comment on the Draft RSPG Opinion on WRC-19. Our response focuses in particular on WRC-19 Agenda Item 1.13 (see Section 2), a successful outcome from which will be vital for the success of 5G. We also provide comments on other WRC-19 agenda items that are discussed in the RSPG Opinion that are of potential relevance for the mobile industry.

2. Agenda Item 1.13

WRC-19 Agenda Item 1.13 is considering the identification of spectrum above 24 GHz for IMT / mobile broadband, as part of the spectrum that will be required in a number of different frequency ranges to enable 5G networks, services and applications. 5G will be an essential enabler for Europe's Digital Single Market, and it is critical that national regulators recognise the importance of taking a coherent and pro-investment approach to 5G across all Member States. Significant new widely harmonised mobile spectrum is required to enable 5G services to meet future expectations and deliver on the full range of potential capabilities. 5G will need spectrum within three key frequency ranges in order to provide widespread coverage and support all use cases, namely sub-1 GHz, 1-6 GHz and above 6 GHz.

Within the frequency bands/ranges that are being considered under Agenda Item 1.13, the GSMA supports that the following frequency bands/ranges should be identified for IMT on a global basis at WRC-19:

- 24.25-27.5 GHz ('26 GHz band')
- 37-43.5 GHz ('40 GHz band')

26 GHz

The 26 GHz band has been adopted as a 'pioneer band' for 5G in Europe, and is also gaining traction and increasing support in other parts of the world, including Africa, the Middle East, and parts of Asia and the Americas. The 26 GHz band is adjacent to the '28 GHz band' (27.5-29.5 GHz) which will be the first millimetre-wave 5G band in the US, South Korea, Japan and Canada, and the first for which equipment will be available. Initial equipment for the 28 GHz band will cover the frequency range 26.5-29.5 GHz, and this will help enable wide harmonisation, low handset complexity, economies of scale and early equipment availability for the top part of the 26 GHz band in Europe.

It is important that technical conditions for the 26 GHz band (and any other 5G band) are not over-restrictive and do not stifle the development and implementation of 5G networks and services, and are aligned with other parts of the world to enable Europe to benefit from global economies of scale. We are concerned that some of the conditions that have been proposed/adopted for the 26 GHz band will severely constrain use of the 26 GHz band for 5G. In particular, the unwanted emissions limit for IMT base stations that has been adopted in the ECC Decision for the 26 GHz band will make the lower part of the band unusable for outdoor 5G networks, and have significant negative impact on performance of 5G systems in other parts of the band. This will make it very difficult for Europe to compete globally with other countries that are giving themselves the flexibility and conditions needed to make their industries leaders in 5G, such as the US and Korea. Other countries that are supporting the 26 GHz band, including in the Middle East and Africa (as well as China and other countries outside Region 1) are also favouring less restrictive conditions than those that are being adopted for Europe.

40 GHz

The GSMA also supports the identification of 37-43.5 GHz for IMT on a global basis. This would provide a globally harmonised frequency range for 5G, within which different countries/regions can select different portions to be used in their parts of the world. Identifying the whole band for IMT at WRC-19 allows flexibility for different countries/regions to choose which parts to implement, whilst providing for harmonisation of equipment to drive economies of scale and lower equipment costs.

We therefore support the position in Europe for 40.5-43.5 GHz to be identified for IMT on a global basis and used for 5G in Europe, as part of a wider global frequency range 37-43.5 GHz to be identified for IMT for use in different countries/regions as appropriate for them. This will enable Europe to use 40.5-43.5 GHz for 5G, and at the same time facilitate usage of other portions of 37-43.5 GHz in other countries/regions, both below 40.5 GHz (e.g. as in the case of the US) and in frequency ranges that extend both above and below 40.5 GHz (e.g. as being proposed in some countries in APAC). This can create a mutually advantageous 'win-win' situation at WRC-19, providing flexibility for different countries/regions to achieve their required objectives, whilst enabling harmonisation and economies of scale.

Bands above 45 GHz

In addition to the 26 GHz and 40 GHz bands, we believe that bands above 45 GHz should also continue to be considered for possible IMT identification, including bands around 45/50 GHz, due to the large amounts of spectrum that will be needed for 5G services in the future. Sharing and compatibility studies should continue to investigate the feasibility of being able to use these bands for IMT.

The 66-71 GHz band also holds strong interest for the mobile community. The FCC decision to use this band for 5G adds momentum to the existing support for this band in Europe, Africa and RCC. The GSMA supports the identification of 66-71 GHz for IMT, and that it should be available for use by 5G systems with flexibility to allow different licensing regimes, enabling both IMT and non-IMT technologies. The nature of 5G usage and licensing in this band is expected to be different than in other bands, and it represents a complement rather than a substitute for spectrum in the 26 GHz and 40 GHz bands.

3. Other agenda items

AI 1.5 – ESIM (Earth stations in motion)

The GSMA believes that careful consideration is needed for all aspects of this agenda item, given the importance of the spectrum bands under consideration to the mobile industry for existing allocations to both fixed and mobile services in different parts of the world. ESIM must be designed and operated so as to be able to accept the interference caused by terrestrial services and not cause unacceptable interference to terrestrial services operating in accordance with the Radio Regulations. Any regulatory provisions that are adopted under this agenda item must ensure that ESIM do not cause interference to or claim protection from terrestrial services.

It is necessary to break down the different types of ESIM in order to do this. Maritime and Aeronautical ESIM may be able to share with FS/MS under appropriate technical and operational conditions, such

as limiting maritime operations to certain distances from the coast and aeronautical operations to a pfd limit. Land-based ESIM, however, present a more complex sharing scenario, given their ability to be present at any geographical location within the FS/MS network, which means that site/geographical coordination would not be possible. Given the likelihood of harmful interference in cases of operation in close proximity to terrestrial stations, land-based ESIM should only be considered on a non-interfering basis.

Unlike 19.7-20.2 GHz and 29.5-30.0 GHz, the bands being studied under Agenda Item 1.5, 17.7-19.7 GHz and 27.5-29.5 GHz, are allocated to fixed and mobile services and their protection needs to be guaranteed. Within Europe, the use of ESIM within the frequency bands 17.3-20.2 GHz and 27.5-30.0 GHz is harmonised according to ECC Decision (13)01. Under this ECC Decision, in conjunction with ECC Decision (05)01, the 27.5-29.5 GHz band is effectively segmented into portions that can be used for FS and those that can be used for uncoordinated FSS earth stations (including ESOMPs), as follows:

- 27.8285-28.4445 and 28.9485-29.4525 GHz are designated for the use of FS systems;
- 27.5-27.8285, 28.4445-28.9485 and 29.4525-29.5 GHz are designated for the use of uncoordinated FSS earth stations.

The above FS bands are heavily used by operators for fixed services, and this usage needs to be protected.

It should also be recognised and due account taken of the fact that, unlike other FSS earth stations, ESIM terminals are not 'fixed' but 'in motion', and may move across international borders.

Agenda Item 1.6 – Non-GSO FSS in 40/50 GHz bands

Agenda Item 1.6 is concerned with non-geostationary FSS systems in certain frequency bands, namely 37.5-39.5 GHz, 39.5-42.5 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz. Our main interest in this agenda item arises from the fact that these frequency bands that are being considered under Agenda Item 1.6 are also being considered under Agenda Item 1.13 as potential bands for IMT. This could potentially lead to additional complexity for Agenda Item 1.13 when considering these overlapping frequency bands, and it is important that this does not cause additional complication and confusion. Furthermore, there is extensive existing usage of some of these bands for fixed links, and this usage needs to be protected. Any actions that may be taken under Agenda Item 1.6 in relation to the possible operation of NGSO FSS systems in these frequency bands should not lead to additional constraints on terrestrial usage of these bands, and should not restrict the possible use of IMT in these bands. Existing use of these bands by terrestrial services should not be impacted, and existing regulatory provisions for such use should remain unchanged.

Agenda Item 1.12 – ITS (Intelligent Transport Systems)

The GSMA agrees with the RSPG's recommendation to support 'No Change' to the Radio Regulations for this agenda item, since development of an ITU-R Report or ITU-R Recommendation would suffice.

Mobile networks / IMT technologies should be able to provide commercial ITS services within mobile/IMT bands, as well as safety-related ITS applications in spectrum that has been set-aside for ITS (e.g. 5850-5925 MHz in many countries). Intelligent Transport Systems are a major focus for the mobile industry, and it is essential that there is a supportive regulatory environment that enables the use of mobile/IMT bands for commercial ITS services, and the use of the 5.9 GHz band for non-commercial, safety-related ITS applications (which has been set-aside for this purpose in many markets).

In addition to Agenda Item 1.12, the GSMA also supports 'No Change' to the Radio Regulations for Agenda Item 1.11 (railway train-to-track communications) and Issue 9.1.8 (machine-type communications), and we believe that an ITU-R Report or ITU-R Recommendation would suffice for both of these agenda items also. These agenda items risk setting a precedent for additional requests for dedicated spectrum for specific applications, which is something we believe would be undesirable, and would lead to inefficient use of spectrum / lack of flexibility.

Agenda Item 1.14 – HAPS (High Altitude Platform Stations)

Some of the frequency bands that are being considered for HAPS under Agenda Item 1.14 are also being considered under Agenda Item 1.13 as potential bands for IMT, in particular 24.25-27.5 GHz (in Region 2) and 38-39.5 GHz (globally). Any consideration of these overlapping frequency bands under Agenda Item 1.14 should not limit the possibility to identify these bands for IMT on a global basis under Agenda item 1.13, and should not lead to restrictions on possible usage of IMT in these bands.

Any use of HAPS, if identified in bands being considered for IMT under Agenda Item 1.13, or other bands used by mobile networks, should not impact IMT identification or in any way limit the potential of mobile 5G networks. There must not be any constraints on IMT in the Radio Regulations related to sharing with HAPS, and HAPS should not cause interference to or claim protection from IMT. It is thus necessary to establish technical and regulatory provisions for HAPS to be able to avoid interference to IMT and other applications in the mobile service.

In addition to future use for mobile/5G, many of the fixed service bands being considered for HAPS under Agenda Item 1.14 are also used by mobile operators for fixed links. These include the bands 24.25-26.5 GHz and 38-39.5 GHz mentioned above, and also the bands 6440-6520 MHz, 6560-6640 MHz and 27.9-28.2 GHz where there are already some provisions for HAPS usage but the extent and scope of such usage is being considered to be expanded. Any such measures to expand possible HAPS usage in these bands should ensure protection of and not restrict usage of these bands by mobile operators under the fixed service.

Agenda Item 1.16 (and 9.1.5) – RLANs in 5 GHz bands

The GSMA generally supports the usage of RLANs/WiFi in the bands between 5150 and 5925 MHz that are being considered under Agenda Item 1.16. Regarding some of the particular bands within this range that are being considered on a band-by-band basis, we support the following:

- 5150-5250 MHz: RLAN operation is currently restricted to indoor use only. We support removal of the indoor only restriction in order to permit outdoor use.
- 5725-5850 MHz: There is currently fairly widespread use of this band by RLANs/WiFi in many countries, without any DFS, indoor or low power restrictions. We support that there should be no new restrictions on RLAN operation in this band in countries where such operation is already permitted.
- 5850-5925 MHz: We support no change to the Radio Regulations in this band, where there is already a primary mobile allocation.

Regarding Issue 9.1.5, any updating of versions of relevant ITU-R Recommendations referenced in the Radio Regulations must not introduce retrospective limitations on existing RLAN devices.

Agenda Item 10 – Agenda items for WRC-23

GSMA supports the Agenda Item 2.5 that is already included in the preliminary agenda for WRC-23 that was agreed at WRC-15 "to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235". This agenda item was part of a delicate compromise and agreement that was made at WRC-15 between different parts of Region 1, and this agreement should be respected.

Furthermore, we believe that also other bands should be considered under WRC-19 Agenda Item 10 as the identification process is complex and time-consuming. The GSMA is reviewing the bands below 24 GHz globally to be proposed for consideration under this Agenda Item, taking into account different situations in the various regions. In particular, special attention in Europe should be given to the 3.8-4.2 GHz band due to the proximity to the 3.4-3.8 GHz priority 5G band.