



Ofcom call for Input: 5G spectrum access at 26 GHz and update on bands above 30 GHz

Response by the Radio Society of Great Britain

September 2017

This response to the above Ofcom Call for Input (CFI) is from the Radio Society of Great Britain (RSGB, www.rsgb.org) on behalf of its members and the wider Amateur Radio community in the UK. The latter includes both individual operators as well as a variety of special interest groups, including the UK Microwave Group (UKuG), AMSAT-UK and British Amateur Television Club (BATC) who have a particular interest in this frequency range.

The RSGB is recognised as one of the leading organisations in the world in the field of amateur radio. It collaborates with its fellow national societies via the International Amateur Radio Union (IARU) through IARU Region 1 (www.iaru-r1.org).

Amateur radio is a science-based technical hobby enjoyed by over three million people worldwide. From a statutory point of view, it is fully recognised by the International Telecommunication Union (ITU) as a Service and is listed in the ITU Radio Regulations as the Amateur Service and the Amateur Satellite Service.

Whilst recognising that there is a requirement to formally identify frequencies to facilitate 5G, we see no need to allocate additional spectrum in the ITU Radio Regulations, and that the interests of existing and future amateur and amateur satellite Primary Users be fully taken into consideration.

In our more detailed answers overleaf, we have particular concerns with respect to primary amateur 24 and 47 GHz allocations where we have active use including weak signal long-distance terrestrial communications, Earth-Moon-Earth (EME, aka moonbounce), propagation beacons and other applications.

RSGB Response to the Ofcom Call For Input:

Questions Section 2:

RSGB Response: No comment.

Question 3.1: Are there any other aspects related to the existing use of 26 GHz not covered in this CFI that you believe need to be considered?

RSGB Response: Yes.

Section 3 considers only in-band services using the spectrum between 24.25 and 27.5 GHz. In addition there are sensitive services just outside the band and the RSGB is particularly concerned about the protection of the primary amateur and amateur satellite service spectrum band at 24 to 24.05 GHz. The upper end of this small allocation is just 200 MHz below the lower edge of the proposed 5G band.

The RSGB is aware that in the international WRC-19 preparatory activities there are ongoing studies from other sensitive adjacent services (e.g. passive space research and earth exploration services) at 23.6 - 24 GHz that indicate difficulties with the levels of out of band emissions proposed for 5G technologies. The bandwidth for 5G systems (which envisages 200 MHz bandwidth channels) implies that unwanted and spurious emission levels will be widespread across the amateur and amateur satellite service allocation.

Based on difficulties observed in other amateur frequency bands, the RSGB considers that these digital services have the potential to degrade the radio environment (noise floor) for the reception of low flux density amateur transmissions in this range. This will degrade the utility of the bands for amateur experimentation and operation.

Therefore the RSGB supports:

- 1) Consideration that 5G services in this region of the spectrum should be allocated only in the existing mobile service allocation between 25.25 and 27.5 GHz.
- 2) The development of technical conditions for the use of these bands for 5G that include properly considered out-of-band emission regulations to properly protect sensitive services in adjacent frequency bands.

Questions 3.2 and 3.3:

RSGB Response: No comment.

Questions 4.1 to 4.7:

RSGB Response: No comment.

Question 5.1: Should Ofcom consider licensing options other than the 3 examples set out above (licence-exempt, shared coordinated and area defined) for the 26 GHz band? If so what other options do you consider should be included?

RSGB Response: We would be particularly concerned if the highest power systems, including base stations were licence-exempt, as this would create serious complications for the resolution of interference issues.

Questions 5.2 to 5.5:

RSGB Response: No comment.

Comments on Section-7 - Further Bands for 5G:

The RSGB supports the IARU position¹ in the international activities preparing for WRC-19 against the allocation of the 47-47.2 GHz band to the mobile service.

Whilst not an amateur band, we also agree with the focus on 66-71 GHz. Our reasoning is based on the synergies with the adjacent 60GHz exempt band, which is a more appropriate location for many exempt devices (including short range Wi-Fi). This may go some way to relieve the untoward pressure on amateur and amateur satellite service allocations at 2.4 and 5 GHz that have had their utility undermined by Wi-Fi expansion.

¹ Regarding 47.0 - 47.2 GHz:

This narrow primary allocation is the only spectrum in which amateur experimentation with millimetre wavelengths can be conducted without practical constraints imposed by sharing with other services. Therefore, the IARU opposes additional allocations in this band to other services, including the mobile service. If either or both of the bands that are adjacent to 47.0 - 47.2 GHz are identified for the terrestrial component of IMT, suitable emission limits must be included in order to ensure the protection of existing and future amateur and amateur-satellite stations in the 47.0 - 47.2 GHz band.