Response from Intelsat

Ofcom Consultation on proposed next steps to enable future uses of fixed wireless links

Executive Summary

Several discussions have already taken place with Ofcom on the impact of the legacy deployment of a small number of point-to-point Fixed Service (FS) links in the UK in the 14.25 - 14.5 GHz band, and their disproportionate impact on the future deployment of satellite services operating in the same band. As Ofcom is aware, the entire 14.0 - 14.5 GHz band is globally harmonised for use by the Fixed Satellite Service (FSS) and the Mobile Satellite Service (MSS). Geostationary satellite systems (GSO) -- such as Intelsat, SES, Eutelsat, etc. -- today rely on this frequency band for the provision of uncoordinated and ubiquitous services for fixed and in motion platforms. Since the 14.25 - 14.5 GHz band is relatively lightly used by FS links in the UK, Intelsat requests that Ofcom adopt a strategy to phase out the remaining FS links in this band, and consider licence exemption and free circulation for satellite earth stations for the whole 14.0 – 14.5 GHz band.

About Intelsat

Intelsat is the leading FSS provider worldwide. For the past 50 years, Intelsat has been delivering information and entertainment for many of the world's leading media and network companies, multinational corporations, Internet Service Providers (ISPs) and governmental agencies, among many users. Thousands of organizations serving billions of people worldwide rely on Intelsat to provide ubiquitous broadband connectivity, multi-format video broadcasting, secure satellite communications and seamless mobility services. The end result is an entirely new world, one that allows us to envision the impossible, connect without boundaries and transform the ways in which we live.

Intelsat operates the world's first Globalized Network, delivering high-quality, cost-effective video and broadband services anywhere in the world. Intelsat's Globalized Network combines the world's largest satellite backbone with terrestrial infrastructure, managed services and an open, interoperable architecture to enable customers to drive revenue and reach through a new generation of network services.

Intelsat's Comments

Intelsat is pleased to provide the following responses to Ofcom's Consultation on proposed next steps to enable future uses of fixed wireless links (7 December 2017) (the "Consultation").

Question 1:
Do you agree that we have identified the key drivers likely to have a significant impact on the spectrum demand for fixed wireless links? If not, please provide further detail and evidence to support your answer.
Do you have other comments to make/points to raise with us on these issues**?**

Several discussions have already taken place with Ofcom on the impact that legacy deployment of a small number of point-to-point FS links in the UK in the 14.25 - 14.5 GHz band has on the deployment of satellite services operating in the same band. We note at the outset that the deployment of FS links in the UK in the 14.25 – 14.50 band is very limited, a fact that is not mentioned in the Consultation and is highly relevant in the analysis being conducted by Ofcom.

As Ofcom is well aware, satellite earth stations (such as Transport Earth Stations and Permanent Earth Stations) can only be deployed following coordination with FS stations. In order for FSS operators to effectively use the entire 14.00 - 14.5 GHz band, satellite earth stations need to be implemented on an uncoordinated and ubiquitous basis. The roll out of new applications by the FSS requires increased deployments in the 14.25 - 14.5 GHz band, which are currently limited in the UK by a small number of FS links. Ofcom was made aware in prior occasions of the disproportionate burden placed by these limited FS deployments in the 14.25 - 14.5 GHz band on the proliferation of satellite communications terminals in the same band.

Additionally, Intelsat would like to note that High Throughput Satellites (HTS) are currently being considered as one of the solutions to respond to the envisaged data explosion in 5G networks. By providing a cost-efficient and high capacity alternative for backhauling in future networks, HTS may have a significant impact to the future spectrum needs of FS.

Question 2:
Do you agree with our conclusions on spectrum implications and our proposed strategy/next steps for each band?
Are there any other considerations of significance that you feel we should have included or do you have other comments to make/points to raise with us on these issues?
Please provide as much detail as possible to support your answer.

In the UK at present, there are approximately 121 registered FS links in the 14.25 - 14.5 GHz band. These numbers reflect the relatively low use of the band by FS stations. In addition, since the 14.25 - 14.5 GHz band is closed to new assignments for FS links, the absolute number of links will gradually decline over time. It should also be noted that the 14.25 – 14.5 GHz band is not used for the FS stations across the majority of European countries, where satellite earth stations are deployed on an uncoordinated and ubiquitous basis.

As a follow up to the discussions held with Ofcom in prior occasions regarding FS deployments in the 14.25 - 14.5 GHz band, Intelsat is of the opinion that Ofcom should consider migration of existing FS links from this band.

Question 3:
Do you agree with the items we've identified for further consideration? Are there any other significant areas that you believe should be included? If so, please include all necessary evidence to support your view.

The use of the 14.25 - 14.5 GHz band by FS stations in recent years has been in constant decline in the few Administrations across Europe where such deployments had been allowed, and it is important to note that no new FS deployments are currently authorised. A survey conducted by CEPT in October

2016 indicates that from the 25 CEPT administrations that responded to the questionnaire[1] on, only five (5) administrations have FS links deployed in the band 14.25 - 14.5 GHz. These administrations are:

Country	Number of FS deployments
UK	121 FS links
France	141 FS links
Germany	< 50 FS links
Russia	30 FS links
Italy	1089 FS links

In the countries listed above, the 14.25 - 14.5 GHz band is not opened for ubiquitous use of uncoordinated FSS and MSS earth stations, thus limiting the potential growth and use of this band by FSS and MSS operators.

Question 4:
Do you agree with our proposal to change the authorisation regime in the 64 – 66 GHz band to licence exempt to create a common authorisation approach across the 57 – 66 GHz band for fixed outdoor installation use and that this would be a benefit to UK citizens and consumers?

No comments.

Question 5:
a) Do you agree with the proposed new technical conditions in Table 6 to facilitate equipment intended for fixed outdoor installation in the 57 – 66 GHz band? Please provide evidenced views /alternatives if you disagree with our proposal. Do you consider any additional conditions should be mandated as part of a licence exemption to manage the interference environment?
b) Do you agree with our assessment that the proposed changes in technical conditions will have minimal impact on existing use and are appropriate to manage the future outdoor interference environment?
c) Are there likely to be any fixed outdoor installation use cases that will require operation at eirp levels above 55 dBm? If so, please provide evidence of how the coexistence with the different outdoor users could be ensured?

No comments.

Question 6:
a) What are the use cases and technical parameters envisaged for the 66 - 71 GHz band? Are they likely to be similar to those in the 57 – 66 GHz band? If so, what are your views on extending the same or similar technical conditions as described above for the 57 – 66 GHz band (both existing wideband data transmission (SRD) and new fixed outdoor technical conditions) to the 66 – 71 GHz band to facilitate both fixed and mobile use cases.
b) Please provide your view on whether the technical parameters of wideband data transmission (SRD) as shown in Figure 4 are suitable to facilitate mobile/portable equipment including use outdoor? If you

[1] SE19(16)58rev6, " Summary of results of questionnaire on revision of ECC Report 173", ECO, Updated March 2017

do not consider they are suitable, what alternative technical parameters do you think should be considered?
Please provide as much detail to your answer as possible and your considerations on the co-existence aspects.

A number of mmWave bands in higher parts of the spectrum will be considered for 5G / IMT-2020 terrestrial mobile services under WRC-19 Agenda Item 1.13, including the 66 - 76 GHz (66 GHz) and the 81 - 86 GHz (81 GHz) frequency bands. Intelsat believes that it should be possible at WRC-19 to identify adequate spectrum in these frequency bands to meet terrestrial 5G requirements, without contending with existing and planned uses of spectrum in mmWave bands by satellite services and applications.

The 66 GHz band, in particular, is considered very good prospects for international harmonization for 5G terrestrial mobile services, given the limited existing and planned use of this band by other radio services. The 66 and 81 GHz bands in the "high" end of the mmWave bands should yield about 15 GHz of spectrum in contiguous blocks of at least 5 GHz, which could support very wide-band 5G/IMT-2020 carriers.

Question 7:
Do you agree that there is a continued need for future low capacity fixed link applications?
If so, please provide information to support your view and what alternatives you would consider appropriate should the upper 1.4 GHz band no longer be available.
Please provide clear evidence to support the reasons for your views.

No comments.

Question 8:
Do you consider there is merit in considering making the bands 52 GHz and 55 GHz available under alternative authorisation approach(es)such as block assignment? If so, what would you consider to be the best approach(es)? Please provide detailed views support your response.

No comments.

Question 9:
Do you think we should review our authorisation approach to any other band used for fixed wireless links?

The 14.25 - 14.5 GHz band is relatively lightly used by FS links[2] and has been closed to new assignments for more than 15 years. The number of FS links deployed in this band in the UK is in decline, and it is estimated that currently only 121 links are registered with Ofcom. Therefore, Intelsat is of the opinion that the entire 14.00 – 14.50 GHz band should be made available for uncoordinated and ubiquitous deployment of Ku-band satellite earth stations. This spectrum is a vital resource for satellite uplinks (Earth-space) and supports new and growing FSS applications.

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[2] *See* https://www.ofcom.org.uk/__data/assets/pdf_file/0030/96735/Statement-Space-Spectrum.pdf / Section 3.38.

On the basis of the above evidence, Intelsat respectfully requests that Ofcom adopt a strategy to phase out the remaining FS links in the 14.25 – 14.5GHz band by no later than 1 July 2020, and that it consider licence exemption and free circulation for Ku-band satellite earth stations in the whole 14.0 – 14.5 GHz band from 1 July 2020.