Association for International Broadcasting

Briefing Note
C-band for Broadcasters
November 2014

Executive Summary

The mobile telecommunications industry is seeking additional spectrum at WRC-15, the international conference that assigns and reassigns frequencies to users globally.

One key target is the C-band that is used for, among a range of other services, broadcasting. The broadcasters' use includes, but is not limited to, satellite news gathering, programme distribution chains, international programming feeds, live links for sports and other major public events, feeding terrestrial transmission networks and providing programming to cable head-ends.

C-band is vitally important to the broadcasting industry and to other current users of this spectrum as it is immune to rain-fade in tropical and sub-tropical regions of the world. Broadcasting – and other infrastructure services – requires extremely high levels of reliability and only C-band can provide the certainty of uninterrupted links.

The proposals from the mobile industry to reallocate this spectrum will impact severely and negatively on broadcasters and other critical users of this spectrum.

This paper sets out some of the background to this issue and acts as a call to action by broadcasters – public and commercial, national and regional – to raise the issue with their national regulator to ensure that at WRC-15 in November 2015, government delegations do not accede to the mobile industry's requests.

Context

The World Radiocommunication Conference in November 2015 has on its agenda a request to reallocate part of the C-band spectrum currently used by satellite operators to the mobile industry.

This looks, on paper, an innocuous request given that mobile use is increasing dramatically in many parts of the world. However, the request puts services on which broadcasters rely at significant risk. There is potential negative impact on their businesses that will be caused by any reallocation. Perhaps more importantly, there could be significant adverse effects on citizens who rely on broadcasters to deliver – consistently and reliably – information, education and entertainment.

This document sets out some of the reasons that broadcasters must work with satellite operators to ensure that the broadcast industry continues to have access to this part of the frequency spectrum.

Firstly, we should note what services the broadcasting industry uses that are carried on C-band satellites.

- Contribution circuits – providing reliable links between remote points and broadcaster studio complexes
- Sport contributions – providing reliable links between sports arena and broadcaster studio complexes
- News gathering – providing reliable links between remote newsgathering units (SNG) and broadcaster studio complexes
- Transmission distribution – providing reliable links between studio complexes and remote terrestrial transmission towers
- DTH services – in certain parts of the world, C-band remains the principal means of providing DTH services to consumers

Secondly, we should understand why C-band is the most suitable part of the radio frequency spectrum for these broadcast-related uses.
C-band is almost completely immune from "rain fade" and remains reliable in the most challenging tropical environments where heavy rain causes loss of signals to satellite services in other frequency bands (Ku and Ka, for example).
Broadcasters require consistent, reliable networks to ensure that programming can be broadcast, whatever the weather. C-band provides the level of reliability required by national, regional and local broadcasting, both for programme contribution and news gathering, and for delivery of channels to citizens.

Thirdly, we should look at the public purpose that broadcasting delivers in nations throughout the world. Broadcasters – both those funded by the public or by the state, and commercial – are the prime sources of information across nations. Programming, whether information, entertainment or education, is delivered to entire populations in ways that other media cannot replicate. Broadcasting plays a vital role in nation-building, bringing citizens across whole nations together in shared experiences, enabling them to hear about politics, for example, as well as being entertained. Broadcasters are also

uniquely placed to provide essential information in times of emergency – citizens' reliance on broadcasting at times of crisis is significant.

Broadcasters have been entrusted by governments with the provision of services across nations, across regions or across local areas. In a majority of countries, access to the radio frequency spectrum is provided at no cost to broadcasters by governments as a direct result of the public purposes of broadcasting.

The challenge

The mobile industry, led by its international trade association GSMA, is seeking that C-band spectrum between 3.4 and 4.2GHz be allocated to mobile services with a significant portion used for IMT [4G]/mobile broadband. GSMA claims that "the size of this band provides a unique opportunity to deliver very fast mobile broadband services in small hotspots, such as coffee shops and train stations, where mobile networks are under pressure from rapidly growing data usage".[i]
GSMA goes on to suggest that it is possible for mobile and satellite services to exist in separate parts of the band.

AIB challenges the assumptions made by GSMA. It is accepted that there is an explosive growth in the amount of data that consumers are using on handheld and portable devices, such as tablets and mobile telephone handsets. However, much of this data is provided by local Wi-Fi hotspots, not via mobile data provided by mobile operators. It is likely that this is due to the fees charged by mobile operators to consumers that remain unrealistically high in many parts of the world.

There is no doubt that demand for bandwidth-hungry services – such as video provided by broadcasters and other online platforms and social networks – will grow in all parts of the world. However, it is unlikely that this data usage will be fed by mobile services. Instead, consumers will use Wi-Fi as their preferred, low-cost (and often more reliable) data service.

Anecdotal evidence gathered by AIB during discussions with mobile operators suggests that even in the Middle East where there are high levels of income, consumers use Wi-Fi rather than mobile data services to access the web and video services on portable devices. **The growth in data on mobile devices is being fuelled by access to low-cost Wi-Fi services, not by mobile data services**.

It is important to note also that frequency allocations for mobile broadband that have been made in many regions in the last few years remain under-utilised. There appears to be a tendency for the mobile industry to overstate its needs when it comes to frequency requirements.

The public purposes of broadcasting

It is impossible to overstate the importance of the role that television and radio plays in binding nations together and, in the developing world, spreading knowledge and information. A good example of this is India where studies[ii] have shown that television has significant effects on attitudes in rural areas. "After cable [and satellite television] is introduced to a village," one study finds, "women are less likely to report that domestic violence towards women is acceptable."

The introduction of television appears to reduce gender discrimination in Indian villages, resulting in greater economic value being generated. This is an important benefit of television and radio and must not be endangered by loss of the radio frequency spectrum used by broadcasting through satellite services.

In many countries, particularly in the developing world where C-band is most important because of its immunity to rain-fade, television and radio is essential to bind nations together, to provide education and to inform citizens when there are natural disasters or significant health crises (such as the present Ebola epidemic in West Africa]. Since television viewing and radio listening are shared experiences in these regions and one-to-many rather than one-to-one communications systems, their importance to governments is paramount.

News bulletins, whether from state-funded or commercial broadcasters, provide information about national politics with reports of the activities of presidents, prime ministers and other senior politicians. These are often made from remote locations and fed back to broadcasting hubs using C-band links.

Sporting events such as football [soccer] tournaments across regions or continents are covered using C-band links that must operate with 100% reliability and without interference from other users of the radio frequency spectrum. National events require similar levels of reliability that must be guaranteed.

It is AIB's contention that any sharing of frequencies will remove the level of reliability that broadcasters – and consequently states – require to maintain services to citizens across entire countries.

Other users

It is important to note that there are many other users of C-band satellite services – including the mobile industry which is laying claim to C-band frequency spectrum. As we have observed, there is extreme robustness of signals carried by satellite at C-band. This reliability is of vital importance not only to broadcasters but to other infrastructure-related users, including, but not limited to, banking, government communications, marine communications, oil and gas industry communications and monitoring systems, and mobile "backhaul".

Reduction in the amount of C-band spectrum available to the satellite industry – or sharing where interference is likely to result – will have a negative impact on these important government and industry communications services.

In Benin, the government has in 2014 signed a multi-year lease for C-band capacity to support the country's tax collection system, much of which is beyond the reach of terrestrial communication systems.

Indonesia has more than 75,000 cash dispensers – or ATMs – that are connected via C-band. These dispense cash totalling around US$400m every day to customers, many of whom are in rural areas. In these remote locations it is not possible to connect cash machines via alternative methods. C-band fulfils a vital role in maintaining access to cash for Indonesian citizens.

The mobile industry continues to contract with satellite operators for capacity for mobile backhaul – which ensures that calls can be made across mobile networks. A major mobile communications company has in 2014 signed a multi-year agreement for C-band capacity to meet its needs in Africa.

These examples demonstrate the significance of C-band satellite capacity *in addition* to the essential uses made by national broadcasters of the capacity.

Broadcasters need to act

This document sets out the case for C-band spectrum being protected for satellite services [FSS] at WRC-15. It is essential for broadcasters to add their voice at the most senior levels to the debate, impressing upon national regulators the pressing need to maintain C-band allocations in their current form.

AIB requests its members – and the wider broadcasting industry – to lobby national regulators on this key issue. There is a significant danger to broadcasters' operations should C-band spectrum be reallocated to the mobile industry, or sharing of frequencies permitted.

This danger includes – but is not limited to – inability to gather news reliably via SNG in remote areas; inability to move programming and channels from region to region, or country to country, with guaranteed reliability; inability to reliably feed DTT networks; inability, in some areas, to maintain C-band DTH services.

AIB asks that broadcasters take immediate action to ensure that national administrations that will take part in WRC-15 are briefed on the case that exists for maintaining and protecting existing allocations in C-band.

AIB stands ready to assist its members and the wider industry in ensuring that the existing frequency allocations that are used by the broadcasting industry in C-band are maintained. AIB can help with draft letters to regulators, and take part in meetings between broadcasters and regulators if required.

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[i] GSMA Public Policy Position *Mobile spectrum requirements and target bands for WRC-15* p 7
[ii] Robert Jensen and Emily Oster *The Power of TV: Cable Television and Women's Status in India* [NBER working paper 13305], August 2007