

SBS RESPONSE TO AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY PLANNING OF THE 3700 – 4200 MHz BAND OPTIONS PAPER SEPTEMBER 2019

Key points

- Utilisation of the 3700–4200 MHz band (**C-band**) is vitally important to the Special Broadcasting Service Corporation (**SBS**), both for the reception of international news programs in more than 30 languages, as well as the extensive range of other international content on SBS.
- Due to the potential for interference, changes in this band could delay or prevent the delivery of core SBS content, which delivers on SBS's Charter obligations.
- Public benefits should be key considerations in planning the band's re-allocation. These include SBS's ability to deliver on its Charter by continuing to reliably provide its highly valued services to all Australians.
- C-band facilities are materially more cost effective than current alternative technologies. This efficiency is material for a public broadcaster.
- SBS would require a sufficient period and funding to procure alternative-technology feeds to replace its current C-Band ingest.
- Capacity contention and reliability remain a material risk for the carriage of live content on SBS services and other public networks.
- Wireless Broadband (**WBB**) and 5G services should be exclusively licensed within a sub-band and not share spectrum with FSS.
- SBS supports the excision of the ESPZs near Moree (NSW), Quirindi (NSW), Roma (Qld) and Uralla (NSW) from spectrum licensing.
- SBS supports in-principle the proposed re-allocation timeframe of up to seven years for earth stations.
- Future licensees, who would significantly benefit from their access to the spectrum, should fund ongoing costs arising from relocation of earth stations.
- The protection of existing FSS receiver services is of paramount importance, and will need to form a key component of any plan to introduce WBB and 5G services into adjacent sub-bands arising from the segmentation of the 3700–4200 MHz band.

Introduction

The Special Broadcasting Service Corporation (**SBS**) appreciates the opportunity to comment on the Australian Communications and Media Authority's (**ACMA**) *Replanning of the 3700–4200 MHz Band Options Paper* (the **Options Paper**).

As Australia's only nationally available multilingual and multicultural broadcaster, it is the principal function of SBS to provide radio, television and digital media services that inform, educate and entertain all Australians and, in doing so, reflect Australia's multicultural society.¹

SBS reaches almost 100 per cent of the population through its six free-to-air TV channels (SBS SD, SBS HD, SBS VICELAND HD, SBS World Movies, SBS Food and National Indigenous Television (NITV)) and seven radio stations (SBS Radio 1, 2 and 3, SBS Arabic24, SBS PopDesi, SBS Chill and SBS PopAsia). Servicing 63 languages including SBS Arabic24, SBS Radio is dedicated to the nearly five million Australians who speak a language other than English at home, while the three music channels (SBS PopAsia, SBS PopDesi and SBS Chill) engage all Australians through music and pop culture from around the world.

SBS's reach is being significantly extended through SBS's digital services, including SBS On Demand, the SBS Radio App and portals which make online audio programming and information available to audiences at a time and place of their choosing.

SBS acknowledges that the Options Paper represents the next step in the review of potential planning arrangements for the 3700–4200 MHz band—in the context of increasing demand for spectrum for wireless broadband (**WBB**) and 5G services; and of the ACMA's decision to change of the planning status of the band to preliminary replanning.²

We note that other administrations—e.g. the FCC in the US and Ofcom in the UK—are well advanced in the reallocation of some, or all, of this spectrum band, whether on a shared or exclusive basis. There is also an increasing international demand for WBB applications to be facilitated in this band. The preliminary planning approaches set out in this Options Paper should give weight to the Asia-Pacific climatic environment of high rainfall, which is materially different from that of Europe and North America.

The merits of 3700 – 4200 MHz band (C-band)

The C-band has been used for several decades to facilitate fixed-satellite service (**FSS**) downlink facilities for long-distance content exchange between media outlets and broadcaster hubs. One key point of difference in the Asia-Pacific region compared to that of more temperate climatic areas in the use of C-Band spectrum is that it affords materially less susceptibility to rain-fade impacts. This is particularly significant in tropical and sub-tropical regions with intense rainfall than is the case for higher frequency blocks such as Ku Band. Furthermore, the cost per unit bandwidth at C-Band is also less than the Ku band alternative.

While there is a gradual trend towards the use of fibre for international content exchange, there is a need to continue the use of this spectrum band for receipt of

¹ SBS Charter.

² Options paper – page 17

overseas content well into the future. This includes SBS's vitally important use of C-band FSS for receiving its international content.

SBS utilisation of C-band FSS

The 3700–4200 MHz band is vitally important to SBS, for the timely and efficient receipt of programs from overseas media outlets. In particular, *SBS World Watch* services, which provide international news programs in more than 30 languages are received in this way, as well as a range of other international content. Timeliness and reliability are of course important for all international content, but particularly for the international news services, which often have a short turnaround time between receipt and broadcast by SBS.

There is a significant risk that the introduction of WBB and 5G services under any of the proposed Options into the 3700–3900/4000 MHz sub-band would materially affect the delivery of international content to SBS. Due to the potential for interference, changes in this band could delay or prevent the delivery of core SBS content, which delivers on SBS's Charter obligations. This content is also highly valued by SBS audiences, including those who speak languages other than English as it provides up to date television news services in their preferred languages; it also provides, in English, international perspectives on daily news.

The ACMA's approach to various forms of reallocation and sharing across the 3700–4200 MHz band, as set out as Options 1, 2 and 3, would mean that some manner of access by WBB and 5G services is inevitable. However, WBB and 5G services should be exclusively licensed within a sub-band and not share spectrum with FSS.

SBS welcomes the ACMA's intent to retain full protection to FSS in the Earth Station Protection Zones (**ESPZ**).³ Nevertheless, any relocation of existing FSS earth stations to an ESPZ well away from major population centres would be costly and take significant time to implement. SBS supports the excision of the ESPZs near Moree (NSW), Quirindi (NSW), Roma (Qld) and Uralla (NSW) from spectrum licensing.⁴ Subject to the responses to this Options Paper by operators of major earth station facilities, SBS broadly endorses the proposed re-allocation timeframe of up to seven years for earth stations, as was the outcome following review of the 3.6 GHz band.

Funding implications – of access to the spectrum by WBB/5G licensees

Funding of earth stations' relocation costs should be a requirement of access to the spectrum, for successful WBB/5G applicants. There would also be arising costs which affect SBS and other users of these relocated facilities, including additional year-on-year backhaul costs—to bring the downlinked content back from the relevant, more distant ESPZ to the respective broadcaster ingest hubs.

In the context of the cost benefit analyses (particularly for Options 1 and 3), future licensees, which would significantly benefit from their access to the spectrum, should fund these ongoing costs. This could be managed through an annuity provision or annual payments by WBB/5G licensees to affected broadcasters for the duration of the accessor's spectrum licence.⁵

Timing of changes

³ Options paper, page 13

⁴ Options paper, pages 54–55

⁵ Options Paper – Appendix F, pages 94–110

SBS welcomes the ACMA's commitment to 'reduce the impact so that incumbent licensees are provided with a clearly defined and adequate period to make the changes'.⁶ SBS would require a sufficient period and funding to procure alternative-technology feeds (e.g. international fibre and IP-distribution) to replace its current C-Band ingest sources in those segments that are no longer protected or viable.

Whilst there is a gradual industry transition to backhaul content for ingest using international fibres and, in some cases, IP delivery over the public internet; SBS is, and for some time will remain, reliant on a range of C-band FSS satellites. These satellites are positioned in orbital slots over the arc 100–166 degrees East, utilising transponders operating in the range 3660–4161 MHz (centre frequencies). In aggregate, the satellites comprise over 150 C-band transponders, and provide very extensive uplink/downlink footprints.⁷

Given the geographical spread of satellite operators, most of which are based outside Australia and each with a large client base, it would be very complex to attempt to coordinate a restack of the transponder service feeds to Australia into a reduced segment block of 3900 or 4000–4200 MHz. Nevertheless, given the growing international demand for WBB/5G access to this spectrum, there is now greater incentive and mutual benefit to drive this restack plan. In practice, management of these ingest services in the future is likely to include a mix of a migration to alternative technologies together with a restack of a lesser number of FSS C-Band services.

SBS recommendations and position

The study of FSS earth station sharing and areas of WBB spectrum denial highlights the vulnerability of earth station facilities to interference from itinerant WBB users.⁸ SBS and other television receive-only (**TVRO**) operators are already experiencing interference from users of the lower adjacent band of 3400–3700 MHz. High-pass filter protection often does not afford adequate protection due to low-noise block (**LNB**) overload from the nearby itinerant 'unwanted' signal. Therefore, even with the segmented approaches described in each of the three Options, there will remain a material risk of interference to TVRO systems located in developed areas (or areas close to arterial roads) outside of the ESPZs.

SBS, therefore recommends that the ACMA reconsiders its position, which currently does not support nor provide subsequent licensed protection for unlicensed FSS TVROs, gateways and VSATs in the medium term.⁹ A minimum protection period should be available, on application, aligning to the suggested period of up to seven years, for the relocation of earth stations to an appropriate ESPZ.¹⁰

The inclusion of technical studies, outlining the impacts of sharing and co-existence between various operating systems, is a valuable inclusion in the Options Paper. The ACMA should continue to monitor domestic and international studies as well as outcomes of overseas implementations of spectrum reallocation in this band (including those in the UK, US and Japan) as part of its ongoing preliminary planning of this band.¹¹

⁶ Options Paper – page 18

⁷ East Africa, Middle East, Asia and Asia-Pacific, and West coast North America;
<https://www.satbeams.com/satellites?status=active>

⁸ Options Paper, Appendix D – FSS earth station sharing study, pages 77–83

⁹ Options Paper, page 13

¹⁰ Options paper, pages 54–55

¹¹ Options Paper, Appendix C – Technical issues, pages 71–76

As noted above, WBB/5G licensing should be exclusive to the nominated sub-band (i.e. 3700–3900 or 4000 MHz); FSS and WBB cannot practically co-exist in shared spectrum without material risk to the reliability of essential and cost effective FSS broadcast services.

Conclusion

Utilisation of the 3700–4200 MHz band is vitally important to SBS to source international news programs in more than 30 languages, as well as a range of other international content which underpins SBS's Charter obligations and is now reaching more Australians than ever before.

C-band facilities are materially more cost effective than current alternative technologies (e.g. ESPZ backhaul, Ku-band, fibre), notwithstanding the reducing cost difference between C-band and fibre technology.

Capacity contention and reliability remain a material risk for the carriage of live content over public networks.

A shared spectrum arrangement between WBB/5G and FSS will not be viable in respect of providing high levels of protection to existing (restacked) FSS receive services.

The protection of existing FSS receive services is paramount and will need to form a key component of any plan to introduce WBB and 5G services into adjacent sub-bands arising from the segmentation of the 3700–4200 MHz band.

An adequate timeframe is needed to facilitate re-allocation of the band and to allow relevant relocation of earth stations to ESPZs. Careful consideration should be given to establishing 'grandfathering' arrangements, including around funding of costs, for certain incumbent FSS licensees.

Public benefits should be key considerations in planning the band's re-allocation. These include SBS's ability to deliver on its Charter by continuing to provide its highly valued services to all Australians.