ONLINE SUBMISSION

16 September 2020

The Manager, Wireless Broadband  
Spectrum Planning and Engineering Branch  
Australian Communications and Media Authority  
PO Box 78  
Belconnen ACT 2616

**Re: Planning Options for the 3700 – 4200 MHz Band (IFC: 22/2020)**

Intelsat, the leading provider of fixed-satellite services (“FSS”) worldwide,[[1]](#footnote-1) is pleased to submit comments to the discussion paper on planning options for the 3700 – 4200 MHz band, published by the ACMA in 22nd July 2020.[[2]](#footnote-2)

**Issues for Comment**

In the Discussion Paper, the ACMA itemised a list of specific questions for comment. We address these issues below.

**Comment is sought on the case for action and desirable planning outcomes for the 3700 – 4200 MHz band, including the supporting information at Appendices A, B, and C.**

Intelsat would like to reiterate the summary of our past submissions[[3]](#footnote-3) related to the 3700 – 4200 MHz

band as follows:

1. The decreasing of FSS use in the 3700 – 4200 MHz band:

Intelsat have provided the ACMA with the current FSS use data in the 3700 – 4200 MHz band during the past 5 years in Australia. Please refer to confidential information contained in Intelsat’s submission to IFC-27/2019 to support our position to the ACMA conclusion that FSS use is decreasing in the 3700 – 4200 MHz band simply because fewer FSS earth station apparatus license have been issued. In addition, it could not be concluded that FSS industry will be less interested to use the 3700 – 4200 MHz band due to localized C-band beams adopted in one satellite. It’s a premature conclusion since the confidential information contained in Intelsat’s submission to IFC-27/2019 demonstrates that FSS demand in the band 3700 – 4200 MHz has been growing in the past 5 years and continues to do so.

1. The need of 40 MHz spectrum to deploy terrestrial 5G services:

OFCOM recent findings[[4]](#footnote-4) shown that 40 MHz of C-band spectrum was sufficient to provide all the main services anticipated under 5G services. These facts have been shared in Intelsat’s submission to IFC-09/2020 in response to claims that to enable 5G services you need access to at least 100 MHz per Mobile Network Operator (MNO). See Question 5 of Appendix A.

In addition, such OFCOM findings are backed up by the number of spectrum allocated to MNOs plan to deploy 5G services which is less than 100 MHz of C-band spectrum per MNO. Such information could be referred to Intelsat’s submission to IFC-09/2020.

1. Manage the supply and demand balance carefully:

With the availability of the 300 MHz of C-band spectrum for the deployment of 5G/WBB services in Australia. The ACMA need to avoid inappropriate imbalance of supply and demand. Oversupply would result in inefficient use of spectrum and lower auction proceeds. Intelsat believes that by doing the audit and review on the deployment of terrestrial WBB in Australia after 1 – 2 years of operations, the ACMA would be able to manage the supply and demand balance. Intelsat have shared such idea refer to Intelsat’s previous submission to IFC-27/2019.

**Comment is sought on the proposed options, including appropriate values for frequency segment breakpoints as well as any alternative options.**

With regard to the need for the additional C-band spectrum for WA WBB services in

metropolitan and regional areas, we have several comments on the ACMA’s preferred

Option 3 as follows:

1. Refer to Table 7 in Appendix B of the Discussion paper, Intelsat would like to clarify additional 100 MHz C-band spectrum within the 3700 – 4200 MHz band for the metropolitan areas. Intelsat assumes that the need of 400 MHz C-band spectrum is derived from mobile industry submission requesting 80 – 100 MHz per MNO. It should be worth to quantify the reason why the reference to 80 – 100 MHz per MNO to deploy 5G services is made. Meanwhile, Intelsat would like to emphasize what has been mentioned above with regard to the recent OFCOM findings which has shown that MNOs will be able to deliver all the main services anticipated under 5G including but not limited to connected cars, virtual reality cloud broadband, and live 4K streaming with 40 MHz of spectrum. Therefore an MNO does not need 80 – 100 MHz of C-band spectrum to offer high quality services to remain competitive based on actual world case reality.
2. Mobile operators may want 80-100 MHz of C-band spectrum for optimal performance, but they do not need this to offer high-quality services to remain competitive. Put differently, most of the benefits for the economy and consumers from the deployment of 5G services will be realized through MNOs each deploying the first 40 MHz of C-band spectrum, with much smaller incremental benefits from them deploying any additional spectrum up to 100 MHz that they may acquire.
3. At the early stage of 5G services deployment in the mid-band, 300 MHz of C-band should be more than enough to offer high quality 5G services in metropolitan areas. To support this, Intelsat have gathered some data such as the number of C-band spectrum allocated for 5G services,the total population, and mobile penetration rate between Singapore and Australia metropolitan areas which could be referred to in Table 1 below. Based on Table 1, Mobile Network Operators in Singapore will provide terrestrial 5G services with total amount of 200 MHz of C-band spectrum to a total population of 5.7 million people with mobile penetration rate of 86.4% . While, Mobile Network Operators in metropolitan areas of Australia will provide terrestrial 5G services to a total of population varies between 426 thousands people to 5.3 million people with mobile penetration rate of 88.3%. Based on the provided in Table 1, the 300 MHz of C-band spectrum are more than enough to deploy terrestrial 5G services in metropolitan areas of Australia.

|  |  |  |  |
| --- | --- | --- | --- |
| **Location** | **Population** | **Spectrum (MHz)** | **Mobile Penetration Rate** |
| Singapore | 5,703,600 | 200 | 86.4% |
| Metropolitan (Australia) |  |  |  |
|  |  |  |  |
| Adelaide | 1,359,760 | 300 | 88.3% |
| Brisbane | 2,514,184 | 300 | 88.3% |
| Canberra | 426,704 | 300 | 88.3% |
| Melbourne | 5,078,193 | 300 | 88.3% |
| Sydney | 5,312,163 | 300 | 88.3% |
| Perth | 2,085,973 | 300 | 88.3% |

Table 1. Comparison between Singapore and Metropolitan Areas of Australia[[5]](#footnote-5)

1. Meanwhile, Table 6 of Appendix B of the Discussion paper shows that the total allocation for major regional centres and regional areas are 250 MHz of C-band spectrum and at least 227.5 MHz of C-band spectrum respectively. The available C-band spectrum are more than enough to deliver WBB services in those areas with the consideration that the total population and mobile penetration rate in those areas will be much less than the total population and mobile penetration rate in metropolitan areas.

With regard to the need on the additional C-band spectrum for LA WBB services in

Metropolitan, regional areas, and remote areas, we have several comments on the

ACMA’s preferred Option 3 as follows:

1. Refer to Table 9 in Appendix B of the Discussion paper, in remote areas, the ACMA found that “Nil” spectrum was desired for LA WBB in the 3700-4200 MHz band since 300 MHz had already been made available for such purposes.[[6]](#footnote-6) The 300 MHz of C-band already allocated should be more than enough to meet any conceivable LA WBB demand in remote areas. Intelsat would like to question the need of allocating another 100 MHz of C-band spectrum in the range 3700 – 3800 MHz for LA WBB services in remote areas. In addition, another 100/200 MHz of C-band spectrum in the range 3800 – 3900/4000 MHz could also be used for LA WBB services in remote areas (i.e. Australia Wide). Therefore, there will be 500/600 MHz of C-band spectrum that could be used for LA WBB services in Australia Wide. Such a large allocation for a possible of LA WBB services is clearly unnecessary in sparsely populated remote areas, and far exceeds the ACMA’s own estimates of mid-band spectrum requirements in such areas.
2. Refer to Table 9 of Appendix B of the Discussion paper, in the metropolitan and regional areas (i.e. Australia Wide), Intelsat would like to question the need of allocating another 100-200 MHz of C-band spectrum in the range 3800-3900/4000 MHz for LA WBB purposes. In metropolitan and regional areas, “local area” WBB requirements can be served by the WA WBB licensees. Then, the “local area” nature of LA WBB on campuses, factories, etc. implies lower power levels and/or indoor operations, and therefore much greater scope for spatial frequency re-use. Thus, additional 40 MHz[[7]](#footnote-7) of C-band spectrum in the range 3700 – 4200 MHz can be used and re-used many times to provide LA WBB at multiple sites throughout the metropolitan and regional areas. This amount of spectrum is consistent with Ofcom’s conclusion that spectrum holdings as small as 40 MHz would be able to support a wide range of 5G applications and with the evidence submitted to ACMA that 40 MHz would be the minimum viable block size for LA WBB. This should provide more than enough to accommodate demand for LA WBB services, given the opportunities for spatial spectrum re-use and the anticipated presence of WA WBB licensees in metropolitan and regional areas.
3. Based on the above descriptions, Table 9 in Appendix B of the Discussion paper need to be revisited and reviewed for metropolitan and regional areas.

**Comment is sought on possible variations to the proposed options and implementation considerations.**

With regard to the possible variations to the proposed options on the replanning of the 3700 – 4200 MHz band, the ACMA need to reflect the following items which being summarized below:

1. There is no need to add C-band spectrum for WA WBB services in the metropolitan and regional areas.
2. There is no need to add C-band spectrum for LA WBB services in the remote areas.
3. LA WBB services only need additional 40 MHz of C-band spectrum to support their need in the metropolitan and regional areas.

**Comment is sought on the discussion and outcomes of the assessment of options, including the cost benefit analysis and its assumptions. This includes any evidence for the value placed on the band for WBB and FSS use.**

The assessment of options including the cost benefit analysis need to be reviewed and revisited since Table 7 and Table 9 in Appendix B need to be reviewed and revisited with the reasons have been mentioned above.

**The ACMA invites comment on its preliminary preferred option.**

Intelsat’s comments on the ACMA preferred Option 3 could be refer to our comments in item 2 above.

**Concluding Comments**

Based on the above explanations, below are the summary of our feedback on the replanning of the 3700 – 4200 MHz options paper:

1. There is no need to add C-band spectrum for WA WBB services in the metropolitan and regional areas since the 300 MHz of C-band spectrum are more than enough to deploy terrestrial 5G services in the metropolitan and regional areas.
2. There is no need to add C-band spectrum for LA WBB services in the remote areas since the ACMA have indicated that there is no additional spectrum needed for LA WBB services in remote areas refer to Table 9 in Appendix B.
3. LA WBB services only need additional 40 MHz of C-band spectrum to support their need in the metropolitan and regional areas.

Intelsat stands ready to provide additional information on any of the topics discussed in this contribution.

Respectfully submitted,



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Senior Manager, Spectrum Policy

1. 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 and governmental agencies, among many users. Intelsat Asia Carrier Services, LLC, a subsidiary of Intelsat US LLC, holds an Australian carrier licence under subsection 56(1) of the Telecommunications Act 1997. [↑](#footnote-ref-1)
2. See, Discussion Paper, Planning Options for the 3700 – 4200 MHz band (hereafter “Discussion Paper”), available online at <https://www.acma.gov.au/consultations/2020-07/planning-options-3700-4200-mhz-band-consultation-222020> [↑](#footnote-ref-2)
3. See, Intelsat past submission to IFC 27/2019 (<https://www.acma.gov.au/consultations/2019-09/planning-3700-4200-mhz-band-consultation-272019#submissions>) and to IFC 09/2020 (<https://www.acma.gov.au/consultations/2020-04/draft-five-year-spectrum-outlook-2020-24-consultation-092020>). [↑](#footnote-ref-3)
4. https://www.ofcom.org.uk/\_\_data/assets/pdf\_file/0020/192413/statement-award-700mhz-3.6-3.8ghz-spectrum.pdf [↑](#footnote-ref-4)
5. See, <https://profile.id.com.au/australia/about?WebID=270>, <https://www.singstat.gov.sg/find-data/search-by-theme/population/population-and-population-structure/latest-data>, and https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/07/GSMA-State-of-Mobile-Internet-Connectivity-Report-2019.pdf [↑](#footnote-ref-5)
6. Options Paper at 59-60. [↑](#footnote-ref-6)
7. Options Paper at 59 (identifying 40 MHz as the minimum spectrum requirement for a single LA WBB operator). [↑](#footnote-ref-7)