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The Manager
Spectrum Planning Section
Spectrum Infrastructure Branch

Dear Sir/Madam,

**MEASAT'S VIEWS TOWARDS ACMA PUBLIC CONSULTATION ON PLANNING OF
THE 3700-4200 MHZ BAND**

MEASAT Satellite Systems Sdn. Bhd. (MEASAT) appreciates the opportunity to submit a response to the consultation on "Planning of the 3700-4200 MHz Band". Our comments on this consultation are as attached in Annex 1 of this document.

In summary, we encourage ACMA to give careful consideration to the existing use by Fixed-Satellite service in this band before making its decision. We note that this band was identified for use by wireless broadband (WBB) based on 5G global trends. However, not all administrations, especially in the Asia Pacific region, is supportive of allocating this band for International Mobile Telecommunication (IMT).

We are of the view that, it is not necessary to sacrifice the satellite service in the band 3700-4200 MHz since there are ample other bands could be considered for WBB application including 5G.

Thank you.

Yours faithfully

**For and on behalf of
MEASAT Satellite Systems Sdn. Bhd.**

Chee Conrad
Principal Engineer
Spectrum Management

Issues for comment

1. Are there any other international developments in the 3700–4200 MHz band that the ACMA should be aware of?

MEASAT would like to commend ACMA for the lengthy studies on international developments of the 3700-4200 MHz spectrum allocations around the world. For that matter, we would like to inform ACMA the development in Malaysia and its neighbouring countries for this band.

The Malaysian Communications and Multimedia Commission (MCMC) has established the National 5G Task Force to study on spectrum allocation, infrastructure, regulatory aspects and business case for 5G. Currently the Task Force is recommending 3400-3800 MHz band to be allocated for 5G while 3800-4200 MHz band to remain for Fixed-Satellite Service (FSS). Noting the significant use of communication satellites in Malaysia (the utilisation rate of the MEASAT-3 and MEASAT-3a satellites alone in the 3400-4200 MHz (C-band) currently exceeds 90%), coexistence between FSS and 5G are being studied to determine the feasibility of spectrum re-assignment, including the amount of guard band and technical parameters required for FSS and 5G to coexist. Taking into consideration the outcome of the 5G Task Force and the interests of relevant stakeholders, MCMC may choose to adopt the recommendation partially or wholly.

Notwithstanding the critical services which are already operating in this band, Singapore decided on primary allocation of the 3400–3700 MHz to be changed from FSS to mobile service while 3700-4200 MHz remains allocated to FSS. Additionally, Thailand is planning for field trials in the 3400-3700 Hz to assess the optimal parameters for sharing and compatibility between FSS and 5G stations. Indonesia on the other hand, due to its heavy use and highly reliance to C-band for FSS, allocating 5G spectrum in this band would entail a lengthy and complicated process. These spectrum activities in several countries in Asia Pacific show that satellite needs to have continued access to spectrum in order to support the critical service.

Although the recommendation made in Malaysia for re-assignment of C-band for 5G is from 3400-3800 MHz, coexistence issues will be a great challenge if there is no harmonization in the spectrum bands among Malaysia, Singapore,

Thailand and Indonesia. Implementation of harmonized frequency arrangements will facilitate cross-border coordination and minimize any issues that might arise at the borders. Looking at the current spectrum activities in this region and the reliance of C-band for FSS due to its propagation characteristics, allocation of spectrum for 5G beyond 3700 MHz for 5G will be difficult and possibly at a much later stage.

2. What are the future requirements of point-to-point links and FSS earth stations in the 3700–4200 MHz band? Does this differ by geographical area and/or segment of the band?

We note that from the data provided by ACMA, the FSS earth station apparatus licenses are decreasing particularly with the transition of users to use fiber connectivity. Nevertheless, FSS will continue to provide a multitude of services including: very small aperture terminal (VSAT) networks, internet services, point-to multipoint links, satellite news gathering, direct-to-home (DTH) receivers and feeder links for mobile-satellite service to connect all users regardless of their location especially in areas where all other forms of communication is not possible.

Satellites today support mobile network operators among others, to extend their coverage to areas that is otherwise unserved, offloading traffic to address congestion issues and providing backup links to terrestrial mobile. Satellites will certainly continue to play an important role in future 5G ecosystems to support a number of verticals as expected in 5G networks¹. All of these existing and future satellite applications deserve access to spectrum, just as much as future WBB applications.

The impact of losing C-band for satellite service will affect the economic growth of global and regional satellite industry. Due to its ubiquitous coverage, high availability and instant connectivity, C-band FSS plays a key role on the socio-economic development of many countries to provide vital services and is also crucial for disaster relief operations. For years, satellite service has been an integral part in connecting the unconnected. Therefore, it is vital that FSS services are protected in order for its continued support in providing ubiquitous services all over Australia. It is important to recognize the need to maintain and further develop the country as a highly developed community with telecommunications with different types of services, including terrestrial mobile and satellite to connect all Australian equitably.

¹ See European Communications Committee, ECC Report 280, *Satellite Solutions for 5G* (2018), at <https://www.ecodocdb.dk/download/e1f5f839-ba17/ECCRep280.pdf>.

For that matter, we believe that no changes are required regarding the existing arrangement of 3700-4200 MHz spectrum. However, if further required after all other available spectrum for WBB has exhausted, the arrangements to support shared access to the entire 3700-4200 MHz band for both FSS and other services is highly preferable since this could enable the incumbents to have continued access to the band as well as enabling usage for new services. This method would yield the most efficient use of spectrum without sacrificing the incumbents.

We agree that FSS earth station should continue to be afforded protection if they are licensed. In this regard, necessary mitigation techniques should be considered by ACMA prior to review of arrangements in the 3700-4200 MHz band.

3. If licensed point-to-point links and FSS earth stations are affected by replanning activities in the 3700–4200 MHz band, what alternative deployment options could be considered?

As commented above.

4. In the event arrangements are made for new services in the 3700–4200 MHz band, do stakeholders have any comments on the ACMA's proposal to maintain the existing arrangements for Radiodetermination and LPD devices, and the existing policy around TVRO systems?

We note that existing arrangements allowing TVRO to operate on an opportunistic basis and no protection is afforded with regards of any interference unless licensed. Since the deployments for new services in 3700-4200 MHz will definitely impact the TVRO systems given its ubiquitous operating nature which would diminish its capability in receiving signals, we would like to recommend for ACMA to consider partitioning a portion of the band for TVRO specific use in order to allow for its continued use as no practical mitigation method is feasible to mitigate interference in co-channel basis.

With band partitioning, TVRO system will be required to employ necessary mitigation techniques to ensure continued operation in the adjacent channel and this can be done by allowing a transition period for TVRO operators to implement system upgrade.

5. What are the future requirements for WBB services in the 3700–4200 MHz band and what arrangements should be considered? Does this differ by geographical area and/or segment of the band?

We note that spectrum band at 3.6 GHz has been allocated to 5G in Australia. We believe that the band is sufficient for early implementation of 5G. Should more spectrum is needed, we believe that there are plenty of other bands being considered by WRC-19 and will soon be available to support 5G applications. MEASAT recommends that detailed study on spectrum needs for WBB application should be conducted to avoid over allocation and warehousing the spectrum that are being used by satellites and would be detrimental to the growth of satellite industry. Moreover, the benefits to using the 3700-4200 MHz for satellite backhauling to 5G services in Regional areas should be looked into.

6. What WBB deployment scenarios should be considered for the 3700–4200 MHz band? Should use be limited to one scenario or should more flexible arrangements be implemented?

No comments.

7. What is the current and planned availability of fixed and mobile WBB equipment in the 3700–4200 MHz band?

No comments.

8. Is there interest in the use of other new service types in the 3700–4200 MHz band?

No comments

9. What services/applications should be accommodated in the 3700–4200 MHz band?

MEASAT recommends the band to be exclusively allocated to FSS unless all other available spectrum for WBB has exhausted, and any planning of arrangements in this band should take into account the continued use of FSS service in this band.

10. Which frequencies ranges should be made available for these services/applications?

Refer to response in Question 9.

11. Which geographic areas should be made available for these services/applications?

Refer to response in Question 9.

12. On what basis should access be provided? Should access be granted on an exclusive or shared basis, on a coordinated or uncoordinated basis, et cetera?

Refer to response in Question 9.

13. What licensing mechanisms are appropriate (spectrum, apparatus or class licensing)?

Refer to response in Question 9.

14. If arrangements for WBB specifically are implemented in the 3700–4200 MHz band, are the proposed interference management techniques with services in the 3.6 GHz band suitable? Are any other techniques proposed? Are there any other compatibility issues with the 3.6 GHz band the ACMA should consider?

No comments.

15. Should the ACMA consider extending existing apparatus and spectrum licence arrangements in the 3.6 GHz band into the 3700–3800 MHz band or another segment of the 3700–4200 MHz band?

We note the interest in gaining more frequency for 5G in order to gain access to 100 MHz of contiguous spectrum. However, we would like to emphasize the importance of ensuring the spectrum already made available for WBB applications is fully utilized before any new spectrum is allocated especially when there is still an incumbent use. We believe that there is no need to extend the existing apparatus spectrum license arrangements in 3.6 GHz band into any segment of 3700-4200 MHz as there is ample other spectrum to meet the WBB requirements without disrupting satellite services and investments.

16. Is there any additional information available that would assist the ACMA in assessing compatibility of potential new WBB services in the 3700–4200 MHz band with WAIC and radio altimeter systems in the 4200–4400 MHz band?

No comments.