

**GSA[[1]](#footnote-1) response to ACMA consultation on**

**“Future use of the 3.6 GHz band”**

**Summary**

The GSA (Global mobile Suppliers Association) is an international organization of leading mobile communication suppliers.

GSA welcomes the opportunity to make this submission to the ACMA in response to its Future use of the 3.6 GHz band.

GSA appreciates the efforts of ACMA to consider replanning the band of 3575-3700 MHz (3.6 GHz band) to facilitate the spectrum moving to its expected highest value use.

The 3300-4200 MHz frequency range will be the primary band in the spectrum below 6 GHz for the global introduction of 5G, offering an optimal balance between coverage and capacity, which will support a broad range of 5G applications. Wide contiguous nation-wide spectrum assignments to operators in the order of 100 MHz or more will allow operators to reap the full benefits of the 3300-4200 MHz frequency range for 5G.

Exclusive national licences has been a key underpinning of the phenomenal success of mobile services, and give the mobile operators certainty that they can deploy their networks when and where there is demand from their customers. 3.6GHz bands is vital for MBB deployment to provide both capacity and coverage including connecting remote unconnected areas and people. Given the ACMA’s assessment of the benefits and costs of the different options, we support Option 3C, which gives spectrum licence for Area 3 high demand areas, and point-to-multipoint apparatus licences outside Area 3 which could be sufficient for low demand areas.

Whilst not delaying the process of re-farming of the 3.6 GHz band as set out in this consultation, we believe it is important for ACMA to also address the possibility of making nationwide contiguous blocks in the entire range 3400-3700 MHz, and further investigate the possibilities to extend the band to cover the whole or parts of the range 3700-4200MHz, in order to enable 100 MHz or more contiguous spectrum per operator.

If the ACMA requires any clarification to our response, please do not hesitate to contact:

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1. Should the 3.6 GHz band be progressed from the preliminary replanning stage to the re-farming stage in the ACMA’s process for considering additional spectrum for MBB services? Why/Why not?

**GSA response:**

GSA strongly encourages ACMA to progress the 3.6 GHz band from the preliminary replanning stage to the re-farming stage.

Following on from the decisions of WRC-15 to substantially broaden the spectrum identification for IMT in this frequency range, a number of countries and regions across the world are now moving forward in designating and making available parts of the 3.3-4.2 GHz frequency range for MBB services to enable 5G deployments.

Europe has identified the 3400-3800 MHz band as a primary band suitable for the introduction of 5G-based services in Europe even before the year 2020 and is currently developing the technical conditions to be finalised by mid-2018 so that counties can proceed with making the band available in a way that is suitable for early 5G deployments. Discussion on possible use of 3800-4200 GHz in future on a shared basis with incumbent systems is ongoing in the United Kingdom. Africa is currently working on making the 3300-3600 MHz band available for MBB services to enable both LTE and 5G deployments across the continent. The Middle East and Northern Africa region is already supporting the 3400-3600 MHz band for IMT and is currently considering the 3600-3800 MHz band as well, for which the ASMG has issued a questionnaire to assess the current usage in the region.

In the Americas, a number of countries are currently working on making spectrum in the 3300-3700 MHz band available for IMT and CITEL has recently adopted a Recommendation on “*Frequency arrangements for the terrestrial component of IMT in the bands 3300-3400 MHz, 3400-3600 MHz and 3600-3700 MHz, or combinations thereof*”. USA is now exploring the options for MBB usage on 3700-4200 MHz in its latest *Inquiry Into New Opportunities In Mid-Band Spectrum*[[2]](#footnote-2).

In the Asia-Pacific region, India is in the process of updating the National Frequency Allocation Plan to include identification of the 3300-3600 MHz band for IMT. The Republic of Korea plans to auction the 3400-3700 MHz band in 2018 or 2019. Japan is already using the 3400-3600 MHz band for IMT and the 3600-4200 MHz band has been decided by the Ministry of Internal Affairs and Communications of Japan for 5G trials starting from April 2017. In China, the MIIT is currently consulting on allocating the 3300-3600 and 4800-5000 MHz bands for 5G.

With all this momentum developing globally for the 3.3-4.2 GHz frequency range[[3]](#footnote-3), now is the right time for ACMA to take the next step to make spectrum in that range available for 5G in Australia. We understand that this consultation is limited to the 3575-3700 MHz band and consideration of possible changes (including reconfiguration) of planning and licensing arrangements in the 3400–3575 MHz band is outside the scope of the consultation as spectrum in the 3400–3575 MHz band is already subject to a combination of apparatus and spectrum licensing in metropolitan and regional areas.

However, we would like to point out in this context that in order to reach the full benefits of 5G in mid-band spectrum like the 3.3-4.2 GHz frequency range, wide contiguous nation-wide spectrum assignments in the order of 100 MHz or more per operator will be required. Whilst not delaying the process of re-farming of the 3.6 GHz band as set out in this consultation, we believe it is important for ACMA to also address the possibility of enabling such wider channels in this spectrum range to facilitate the development of 5G. In Europe, CEPT is currently addressing a similar issue by developing guidance to administrations for defragmenting the existing authorizations in the 3.4-3.8 GHz band as set out in item A.2 of the CEPT Roadmap for 5G[[4]](#footnote-4). And it’s also suggested ACMA to further investigate the possibility to open up the 3700-4200 MHz band for MBB services to enable sufficiently wide channels for 5G in the future, which also further align with the spectrum situation in Europe, Japan and potentially other countries as outlined above.

The 3300-4200 MHz frequency range will be the primary band in the spectrum below 6 GHz for the global introduction of 5G, offering an optimal balance between coverage and capacity, which will support a broad range of 5G applications, including: Augmented Reality/Virtual Reality (AR/VR) and Ultra-High Definition (UHD) video, smart home, smart manufacturing, health care and drones; the 3300-4200 MHz range will provide both mobile connectivity “on the go” and Fixed Wireless Access (FWA) for domestic and business applications. 3GPP is working on the 5G-NR channel arrangements for 3300-4200 MHz, and the first release of 3GPP 5G standard (Rel-15) is scheduled to be finalized by June 2018, including both of the standalone and non-standalone systems. GSA expect that 5G NR initial ecosystem for 3.3-3.8 GHz will be commercially ready in 2018.

1. Do the areas identified in this analysis cover the likely areas of high demand for access to the 3.6 GHz band? Would smaller or larger areas be more appropriate? Why?

**GSA response:**

We agree that Area 3 as defined by ACMA represents the most likely areas for high demand for access to the 3.6 GHz band for 5G/MBB services.

1. If any part of the 3.6 GHz band is re-allocated for the issue of spectrum licences is seven years a suitable re-allocation period? If not, what period of time would be appropriate?

**GSA response:**

We understand the need for a suitable re-allocation period but would like to suggest that the required time should be assessed on a case-by-case basis in order to minimise the transition time and enable wide channel 5G/MBB usage as early as possible, taking into account that many other countries and regions are looking at 5G deployments in the 3.3-3.8 GHz range in the 2020 timeframe.

1. Should different re-allocation periods be considered for different areas? For example, should a longer period be considered for services outside Area 1?

**GSA response:**

As stated in our response to Question 3 above, we believe it is important to assess the required re-allocation periods on a case-by-case basis and ensure that they are as long as required in each specific case but also as short as possible in order to facilitate early 5G deployment possibilities in as many areas as possible to align with 5G rollout plans for the 3.3-3.8 GHz range globally.

1. Are these guidelines appropriate? Why?

**NO RESPONSE**

1. Are there any other issues that affect the usability of an area-wide licence that should be taken into account when defining the licence area?

**NO RESPONSE**

1. If point-to-point licences are affected by replanning activities in the 3.6 GHz band, are the options identified for point-to-point licences suitable? Are there any alternative options that should be considered?

**NO RESPONSE**

1. Is the 5.6 GHz band a viable option for wireless broadband systems?

**NO RESPONSE**

1. Under what circumstances should apparatus- and class-licensed arrangements be considered for the 5.6 GHz band?

**NO RESPONSE**

1. If apparatus licensing arrangements are developed for wireless broadband systems in the 5.6 GHz band, are the notional arrangements proposed in Appendix 3 suitable?

**NO RESPONSE**

1. If point-to-multipoint licences are affected by replanning activities in the 3.6 GHz band, are the alternative options identified suitable? Are there any alternative options that should be considered?

**NO RESPONSE**

1. The ACMA seeks comment on the suitability of the current west coast earth station protection zone located near Mingenew, WA, for long-term satellite service use. Are the current regulatory arrangements effective?

**NO RESPONSE**

1. In the event FSS earth stations are affected by replanning activities in the 3.6 GHz band, the ACMA seeks comment on:
2. Any issues surrounding the development and establishment of an east coast earth station protection zone; particularly on what factors would be necessary to make it an attractive option for earth station operations.
3. Whether there are any views on potential candidate locations to consider.
4. Whether there should there be more than one earth station protection zone on the east and west coasts of Australia.
5. If the identification of a central Australia earth station zone should be considered.

**NO RESPONSE**

1. Are the approaches for amateurs, radiolocation services, class licensed devices and TVRO systems suitable?

**NO RESPONSE**

1. Are there any other options for incumbent services, not identified in this paper, which should be considered?

**NO RESPONSE**

1. Should any of the sharing arrangements discussed in this section be considered for implementation in the 3.6 GHz band? Why or why not?

**GSA response:**

We do not see the need to implement the sharing arrangements discussed in the consultation paper when progressing the re-farming of the 3.6 GHz and in Area 3 as outlined by ACMA in Option 3c. Both CBRS and LSA are sharing solutions that were developed to address a very specific coexistence issue in a certain country / region and this is not comparable with the situation for the 3.6 GHz band in Australia as outline in the ACMA consultation document.

It is obvious from the ACMA’s Highest Value Use Assessment that a re-farming for area-wide licensing to occur across Area 3 maximises the overall economic welfare, as the potential re-farming benefits from selecting this geographic area option are significantly greater than the incremental costs that would be incurred.

A re-farming of the 3.6 GHz band for MBB services in Area 3 will enable the continued use of the band in significant parts of Australia outside of Area 3 under realistic usage and coexistence conditions. This, together with the possibility of re-locating certain users to the 5.6 GHz band results in a situation where no sharing arrangements need to be put in place for the MBB service in the Area 3 as sufficient alternatives are available for the continued operation of the other services. Not only are sharing arrangements not required, they would also reduce (most likely to a significant extent) the economic benefits of using the band for MBB services and would thus materially reduce the overall economic welfare of the regulatory solution.

Furthermore, taking into account the considerable interest and momentum that we see globally for 5G deployments in the 3.3-3.8 GHz range, we believe that a “us-it-or-share-it” approach is not practicable as we expect extensive 5G deployments across the vast majority of Area 3 over the next couple of years which will not leave sufficient room for a possible continued use by incumbent services. These should instead be moved into regions outside of Area 3 and/or into the 5.6 GHz band to facilitate most spectrally-efficient 5G deployments in contiguous areas (within Area 3) and to ensure that the option that maximises the increase in overall economic welfare materialises.

1. Are there any other sharing arrangements that should be considered?

**GSA response:**

As outlined in our response to Question 16 above, we do not see the need for any sharing arrangements to be considered when ACMA is moving forward with the re-farming of the 3.6 GHz band for MBB services in Area 3.

1. Are there any other replanning options that should be considered?

**NO RESPONSE**

1. Which replanning option should be implemented in the band? Why?

**GSA response:**

GSA is of the view that Option 3c should be implemented in the band. Exclusive national licences have been a key underpinning of the phenomenal success of mobile services, and give the mobile operators certainty that they can deploy their networks when and where there is demand from their customers. 3.6GHz bands is vital for MBB deployment to provide both capacity and coverage including connecting remote unconnected areas and people. Given the ACMA’s assessment of the benefits and costs of the different options, we support Option 3C, which gives spectrum licence for Area 3 high demand areas, and point-to-multipoint apparatus licences outside Area 3 which could be sufficient for low demand areas.

1. In the event an area-wide licensing option is implemented, in which of the defined areas (that is, Area 1, 2, 3 and Australia-wide as defined in Appendix 6) should these arrangements be implemented? Are the current area definitions appropriate? If not, what area should be defined?

**GSA response:**

As outlined in our responses to the various Questions above, we are of the view that Area 3 as defined in the ACMA consultation document addresses the most likely area of high demand for 5G/MBB services and we support the concept of Option 3c to re-allocate the 3.6 GHz band in Area 3 for the issue of spectrum licences.

1. If Option 4a is implemented, what frequencies and areas should be re-allocated for the issue of spectrum licences? How much spectrum should remain subject to site-based apparatus licensing arrangements? Should different amounts be considered in different areas?

**NO RESPONSE**

1. If Option 4b is implemented, what frequencies and areas (that is, incumbent apparatus licence services) should remain subject to site-based apparatus licensing arrangements?

**NO RESPONSE**

1. Comment is sought on the ACMA’s preferred option (Option 3c) for the 3.6 GHz band.

**GSA response:**

We agree with the ACMA’s conclusion and support Option 3c as the preferred option for the 3.6 GHz band to realise the highest value use for this and enable the band for a timely deployment of 5G systems in line with developments in other countries and regions globally as outlined in our responses to the various Questions above.

1. *The* [*GSA (Global mobile Suppliers Association)*](https://gsacom.com/) *develops strategies and plans, and contributes studies and technical analysis to international, regional and individual country policy-makers and regulators to facilitate the timely availability of spectrum for use by mobile network operators. GSA has a focus group for spectrum topics for technical and regulatory matters of radio spectrum pertaining to the successful evolution of International Mobile Telecommunication (IMT) and associated radiocommunication systems and comprises a team made up of spectrum and regulatory affairs specialists from GSA Executive Member and GSA Member companies. The GSA Spectrum Group is participating in the study work leading up the World Radiocommunication Conference meeting in 2019 (WRC-19). In addition GSA reports regularly on global spectrum harmonisation efforts and developments including auctions, assignments, allocations, and re-farming activities.* [↑](#footnote-ref-1)
2. See <https://www.fcc.gov/document/fcc-opens-inquiry-new-opportunities-mid-band-spectrum-0> for further details [↑](#footnote-ref-2)
3. For further details see the White Paper, “The future of IMT in the 3300-4200 MHz frequency range” as recently published by the Global mobile Suppliers Association (GSA) – [www.gsacom.com](http://www.gsacom.com) [↑](#footnote-ref-3)
4. See <https://cept.org/ecc/topics/spectrum-for-wireless-broadband-5g> for further details [↑](#footnote-ref-4)