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Via email to: freqplan@acma.gov.au

Re: Replanning the 2 GHz band Options paper

Dear Nevio

Communications Alliance welcomes the opportunity to comment on the ACMA *Replanning the 2 GHz band Options paper*.

The SSWG strongly agrees with the ACMA's preliminary preferred option that would allow the implementation of a regulatory framework for Mobile Satellite Services (MSS) with a Complementary Ground Component (CGC). The SSWG is of the view that MSS is the highest value use of the 2 GHz bands, taking into account technical, economic and demographic considerations.

MSS with a Complementary Ground Component¹ in the S band (2 GHz band)² are an integral part of 5G implementation plans. National regulatory authorities and standards bodies have recognised 5G as a network of networks in order to meet the needs of users, wherever they are. Accordingly, harmonised technical standards and national regulatory frameworks are being developed to effectively manage the use of spectrum for different applications and maximize spectrum efficiency.

For a country as vast as Australia, with so much of its territory having inadequate terrestrial mobile coverage, connectivity using mobile satellite services is of critical importance. The S-band is unique, because the band has been globally allocated on a primary basis to the MSS, mobile service (MS) and fixed service (FS). This provides an opportunity for a combined MSS/CGC to offer instant and reliable global communications anywhere on the planet delivering social, economic, public safety and humanitarian benefits to government, enterprises and consumers.

2 GHz MSS with a complimentary ground component will provide mobile communications everywhere, unconstrained by population density or terrain. This means farmers, miners, tourists and emergency services workers, among others, need never be without reliable communications. The addition of the 2 GHz bands to those available for the MSS in Australia will provide competition and additional choice in the market, driving user affordability.

¹ Also known as a complementary terrestrial component or ancillary terrestrial component.

² 1980-2010 MHz (earth-to-space) and 2170-2200 MHz (space-to-earth) globally and 2010-2025 MHz (earth-to-space) in Region 2.

The availability of interoperable devices, alongside the expanding suite of cloud-based applications, as well as voice and data continues to create demand for MSS and networks are increasingly employed as the connectivity solution for Internet-of-Things (IoT) and Machine-to-Machine (M2M) communications networks. Administrations should move to establish a national regulatory framework facilitating the operation of MSS/CGC now to meet users' needs.

In determining whether a market-based assignment is appropriate, the ACMA should take into consideration the very high investment needed to launch and operate an MSS constellation.

Some background on MSS/ATC

The S-band frequencies are globally allocated for the mobile satellite service, the fixed service and the mobile service. Administrations in North America (i.e. United States, Canada and Mexico), and in Europe through Decisions of the Conference of European Postal and Telecommunication (CEPT) administrations and the European Commission, have leveraged this co-primary allocation to improve efficiency and manage spectrum more effectively by adopting MSS/CGC regulatory frameworks and licensing operators.³ Administrations in Latin America and Asia are also recognising the benefits fully integrated CGC bring to the MSS business plan.⁴ These countries are leveraging the attributes of MSS/CGC to bring connectivity and access to 5G services throughout their geographies.

To advance the use of the S-band, 3GPP has developed standards harmonising the technical characteristics of LTE and 5G base station and user equipment standards in 2 x 90 MHz of spectrum between 1920 and 2010 MHz and between 2110 to 2200 MHz, covering the MSS spectrum plus the adjacent 2 x 60 MHz of terrestrial IMT spectrum, driving economies of scale in network and radio equipment and user terminals. Deployment is on-going using these standards in several countries.

Option 3 is the preferred option

The SSWG agrees with the ACMA's views on the band. The band is currently being used in Australia for Television Outside Broadcast (TOB), which is a very inefficient use of the band as TOB is a very 'thin' application and because it is a uniquely Australian allocation. The SSWG believes there are numerous spectrum alternatives available for TOB, as well as additional technical alternatives to provide similar services, e.g. via existing and future FWA, satellite and Mobile Broadband technologies.

The SSWG is of the view that the ACMA should allow for maximum flexibility in the deployment of various MSS applications in the band. MSS systems originally designed for the S-band were based on business plans that prioritised voice communications. However, one of the reasons that there are more S-band MSS systems being currently developed is that technological

³ DECISION No 626/2008/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 June 2008 on the selection and authorisation of systems providing mobile satellite services (MSS). U.S. Federal Communications Commission, REPORT AND ORDER AND NOTICE OF PROPOSED RULEMAKING, Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands, IB Docket No. 01-185, available at: <https://docs.fcc.gov/public/attachments/FCC-03-15A1.pdf>. Spectrum and Licensing Policy to Permit Ancillary Terrestrial Mobile Services as Part of Mobile-Satellite Service Offerings, Industry Canada, December 2014, available at: <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08174.html>.

⁴ Brazilian telecommunications regulator Anatel's Public Consultation N° 15/2019, 29 April 2019, available at: <https://sistemas.anatel.gov.br/SACP/Contribuicoes/TextoConsulta.asp?CodProcesso=C2219&Tipo=1&Opcao=andamento>; New Zealand Radio Spectrum Management Policy and Planning Department (within the Ministry of Business, Innovation and Employment), Re-planning options for frequency bands within 170-2300 MHz, Discussion Document (Question 12), March 2020, available at: <https://www.rsm.govt.nz/assets/Uploads/documents/consultations/2020-1710-2300-mhz/2019-20-discussion-document-options-for-1710-2300-mhz.pdf>

advances have made available a much broader range of applications that can be provided by MSS, including voice, data, IoT, UAVs and air-to-ground services. Therefore, the SSWG emphasises that flexibility is more important than making an allocation to a specific application as this will allow for a robust development of new applications for MSS/CGC. Limiting the band to an application rather than a broader service does not promote efficient use of spectrum and creates an artificial boundary for the band. Indeed, the SSWG notes that setting aside spectrum for discrete applications has not been successful in the past, for example Digital Short Range Radio (DSRR) in the 900 MHz band.

MSS/CGC networks not only retain all the benefits of MSS, derived from their expansive geographic coverage and resilience, but also deliver additional value for governments, enterprise and consumers, including, but not limited to:

- improved coverage, eliminating line-of-sight blockages between users and the overhead satellite.
- the ability to develop device capabilities for each component as well as a single device with capability for both components to meet users' needs.
- increased spectrum efficiency by utilising the CGC component to provide broadband connectivity to a greater number of users simultaneously without sacrificing the ubiquitous benefits provided by the satellite component.
- interoperable terrestrial and satellite communication networks, enhancing network resilience and enabling application of the most appropriate technology for a given application including, for example, public safety and disaster response or agriculture.

The SSWG notes the Technical Framework for the adjacent '2 GHz MS Band' and the fact that the framework was made in 2017. Noting the current 'hard' Level of Protection of -96 dBm/5MHz, the SSWG believes coordination between CGC and MSs is not necessary as the two services are mutually exclusive and any potential interference would have a very low probability. As an issue requiring future attention, the SSWG flags that the ACMA should investigate probabilistic interference scenarios upon renewal of these spectrum licences.

Allocation

The value to the community of providing connectivity to the otherwise mobile user in exploration, mining, agriculture, fisheries, emergency services, transport, logistics and tourism is high, as the recent Australian bushfires have shown. Reaching these users is expensive as much of the cost of launching and operating a network capable of supporting these Australians means that an MSS operator would have already expended considerable resources leading up to spectrum allocation.

The SSWG believes that there are certain policies that the ACMA should implement with regards to the regulatory framework for MSS/CGC, including:

- assign at least 2 licences of paired spectrum, preferably 15 MHz each.
- MSS remains primary and CGC is ancillary to the MSS.
- the MSS operator manages the use of the frequencies for CGC within its assignment to achieve spectrum efficiency and prevent CGC interference with MSS operations.
- MSS coverage should be nationwide.

The SSWG submits that the price of the spectrum allocation should have empathy for the high cost of marginal services to many important Australians. An open market-based allocation cannot do this as terrestrial operators do not favour thin markets.

The SSWG does not believe an auction for this spectrum would be efficient, due to the multiple price and regulatory pressures borne by MSS operators and the linkage between Australian and international spectrum allocations.

Issues for comment

The following responses are to the questions posed by the ACMA in the Options Paper.

1. The feasibility of the timing of any potential commencement of replanning.

The SSWG observes that replanning is feasible immediately. Certainty of spectrum access is vital for MSS operators when making investment decisions. Once the band is planned, other services could be cleared over a medium timeframe as the MSS and CGC are brought into service.

2. The case for action and desirable planning outcomes for the 2 GHz band, including the supporting appendices.

The desirable outcome is an allocation of 2 x 15 MHz (paired) to MSS with a Complementary Ground Component allowing two MSS operators to enter the market. This will provide Australia wide service with no blackspots and maximum throughput from the band.

3. The proposed band replanning options, including appropriate values for frequency segment breakpoints as well as any alternative options.

The SSWG supports *Option Three* with two allocations of 15 MHz (paired) to MSS. The SSWG believes that statistically there should be no interference issues between MSS and MS in adjacent bands and that CGC can be coordinated using the '2 GHz Unacceptable Levels of Interference' Determination.

4. Variations to the proposed options and implementation considerations.

The SSWG does not believe that allocating spectrum to an application, in this case IoT is suggested, is efficient. MSS is capable of carrying IoT and the most efficient use of the spectrum is as two contiguous 15 MHz (paired) allocations to MSS.

5. Discussion and outcomes of the assessment of options, including the cost-benefit analysis and its assumptions.

The SSWG supports the ACMA's conclusion that the highest value use of the band is for MSS with the caveats discussed above.

6. The ACMA's preliminary preferred option.

The SSWG supports the ACMA's conclusion that the preferred option is to allocate the band to MSS however we believe the highest value from the band will be derived from two paired allocations of 15 MHz as discussed above.

Summary

The SSWG thanks the ACMA for the opportunity to comment and commends the ACMA for its work in the replanning of the 2 GHz band. In summary, the SSWG:

- supports the ACMA's identification of *Option 3* as its preliminary preferred option for replanning the 2 GHz band.
- believes a discrete IoT allocation would be inefficient and is too limiting.

- observes that a complementary Ground Component must exist in conjunction with MSS.
- does not believe and auction is a viable method of allocating this spectrum.

With respect to allocating spectrum, the SSWG believes that a direct method to a qualified operator would be best and the SSWG would be prepared to further work with the ACMA to develop such a method.

Yours sincerely,



John Stanton
Chair, SSWG

About Communications Alliance

Communications Alliance is the primary telecommunications industry body in Australia. Its membership is drawn from a wide cross-section of the communications industry, including carriers, carriage and internet service providers, content providers, equipment vendors, IT companies, consultants and business groups. Its vision is to provide a unified voice for the telecommunications industry and to lead it into the next generation of converging networks, technologies and services. The prime mission of Communications Alliance is to promote the growth of the Australian communications industry and the protection of consumer interests by fostering the highest standards of business ethics and behaviour through industry self-governance.

For more details about Communications Alliance, see:

<http://www.commsalliance.com.au>