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**ACMA BEYOND 2020—A SPECTRUM
MANAGEMENT STRATEGY TO ADDRESS THE
GROWTH IN MOBILE BROADBAND CAPACITY**
COMMUNICATIONS ALLIANCE
SATELLITE SERVICES WORKING GROUP
SUPPLEMENTARY SUBMISSION
DECEMBER 2015

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INTRODUCTION

Communications Alliance welcomes the opportunity to provide this supplementary submission in response to the Australian Communications and Media Authority (ACMA) *Beyond 2020 — A spectrum management strategy to address the growth in mobile broadband capacity* Discussion Paper (the *Discussion Paper*). It addresses satellite matters in the ACMA works program in more detail and has a greater focus on individual spectrum bands with the outcomes of World Radiocommunication Conference WRC-15 now taken into account.

This submission reflects the views of the Satellite Services Working Group (the SSWG) of Communications Alliance, a grouping of satellite-related companies active in the Australian market and includes satellite operators, satellite service providers, manufacturers and ground-segment installers. In providing this response we note that some of our members may be submitting their own responses. We also understand that the Australian Mobile Telecommunications Association (AMTA) will be providing a submission on aspects concerning the mobile spectrum bands. This submission does not represent the views of Telstra or Optus.

At the time of the earlier Communications Alliance submission, a number of members of the SSWG noted that the timing of this review may be premature as current activities both nationally and internationally will influence the spectrum environment, including other Government and regulatory reviews and of course, the outcomes of the World Radiocommunication Conference, WRC-15. Communications Alliance notes that there is still a deal of uncertainty associated with current regulatory reviews that needs to be borne in mind.

Executive Summary

This submission highlights the following bands of specific interest to the SSWG:

- the 1518-1559 MHz MSS downlink band and the potential interference from IMT systems operating in the 1427-1518 MHz band.
- the 1980-2010 MHz and 2170-2200 MHz bands to be retained for MSS use in Australia.
- the use of the 3575-3700 MHz band for mobile broadband to be reconsidered in light of developments at WRC-15 and the lack of harmonised IMT identification in this band.

In addition, the SSWG also notes the work being done in the implementation of Earth Stations in Motion operating in the 19.7-20.2 GHz and 29.5-30 GHz bands and the importance for an appropriate technical framework to be in place.

The SSWG has identified many areas of interest to the satellite community and to the ACMA that are a part of future WRC studies. Communications Alliance looks forward to constructively engaging with the ACMA on these spectrum-related activities during this next study period leading up to WRC-19.

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>.

BANDS OF SIGNIFICANCE TO THE SATELLITE INDUSTRY

1.5 GHz band

This band was identified as a candidate band for mobile broadband in *the Discussion Paper* and likely to be considered under the ACMA's mobile broadband strategy. The 1.5 GHz band was under consideration for potential International Mobile Telecommunications (IMT) identification under Agenda Item 1.1 of WRC-15.

These considerations include the 1427-1518 MHz band, which is adjacent to the 1518-1559 MHz Mobile Satellite Services (MSS) downlink band. MSS operators are concerned about potential interference from IMT systems to MSS systems. Studies were proposed by satellite operators at the final JTG meeting prior to WRC-15 which are outlined in the ITU-R CPM-15/2 Report (see section 1/1.1/4.1.2.9). Also, some studies have been undertaken in CEPT project team ECC PT1. While the studies are not yet complete, some members feel that some technical restrictions may be needed on IMT to ensure compatibility with the MSS. If this is the case, then one option would likely consist of a guard-band between IMT and MSS and an out-of-band emission mask.

An outcome of WRC-15, contained in RESOLUTION 223 (Rev WRC-15) was to invite the ITU-R:

'to conduct compatibility studies in order to provide technical measures to ensure coexistence between MSS in the frequency band 1518-1525 MHz and IMT in the frequency band 1492-1518 MHz'

As a result, whilst the ACMA had identified that the impact on aeronautical telemetry services and fixed services may need to be considered, the potential impact on the MSS may also need to be considered together with the provision of any technical measures that may be required.

1980-2010 MHz and 2170-2200 MHz bands

These MSS S-band segments have been embargoed (Embargo 23) since April 1996, and are currently available on an interim basis for television outside broadcasting (TOB) and were identified by the ACMA as candidate bands for mobile broadband in *the Discussion Paper*.

The ACMA will now further consider this band under its mobile broadband strategy noting potential interest in access to the band, in some geographic areas, for mobile satellite service applications.

The SSWG believes that Embargo 23 should now be reviewed and that these bands should be retained as MSS bands for use in Australia.

The 1980–2110 MHz and 2170–2200 MHz bands are allocated on a co-primary basis to the Mobile and MSS services internationally and are used or planned to be used by MSS systems in many countries. For example, Inmarsat is one of two MSS operators selected to provide MSS services in Europe. The Inmarsat 2 GHz MSS satellite ('Europasat') is currently under construction, planned for launch in 2016. This system is aimed primarily at provision of services to airlines, including in-cabin Wi-Fi for airline passengers.

The Europasat satellite will not provide coverage of Australia but as aeronautical services are global by nature, the spectrum should remain available for future growth of the service. This

system and developments by other MSS operators for systems in these bands are illustrative of the exciting new MSS systems that are in the process of being deployed. Services similar to those provided by Europasat or other MSS services can be expected to be deployed in Australia as part of an international footprint in the future.

Omnispace Australia has an operational satellite Earth station at Ningi (QLD) and has entered into discussions with the ACMA concerning the use of the MSS S-band, particularly for providing services to rural and remote Australia. The ACMA has opened these bands for interim use for TOB while the band is embargoed for MSS use in Australia.

If these bands were to be made available for terrestrial mobile systems, there would be potential for interference to MSS S-band satellite networks from terrestrial mobile operations in the band. ITU-R working parties 4C and 5D have instigated sharing studies on compatibility between IMT and MSS and while the studies are not complete, the preliminary results show the possibility of harmful interference. If terrestrial mobile systems were to be deployed in Australia in this band, harmful interference could occur to MSS S-band satellite networks. Therefore the ACMA should take the outcome of these studies into account when considering its plans for future terrestrial mobile services in these bands.

An outcome of WRC-15, contained in RESOLUTION 212 (Rev WRC-19) was to invite the ITU-R:

'to study possible technical and operational measures to ensure coexistence and compatibility between the terrestrial component of IMT (in the mobile service) and the satellite component of IMT (in the mobile service and the mobile-satellite service) in the frequency bands 1980-2010 MHz and 2170-2200 MHz where those frequency bands are shared by mobile service and the mobile-satellite service in different countries, in particular for the deployment of independent satellite and terrestrial components of IMT and to facilitate development of both the satellite and terrestrial components of IMT'

For the above reasons and developments, the SSWG believes that the ACMA should reconsider this band insofar as the ACMA's intentions with a mobile broadband strategy is concerned.

3575-3700 MHz band

This band was identified by the ACMA as a candidate band for mobile broadband in *the Discussion Paper* and likely to be considered under the ACMA's mobile broadband strategy. The band is embargoed in major cities pending a review of arrangements.

The 3600–3700 MHz band was under consideration for potential IMT identification under Agenda Item 1.1 of WRC-15.

The ACMA also identified the 3575–3700 MHz band as being at 'stage 1'. The SSWG notes that part of this band is currently being used to receive satellite downlink signals at a gateway earth station in Perth, and this will continue for the foreseeable future. Any use of this band by terrestrial mobile systems would need to consider the impact on this earth station and others operating in this band in Australia. Given the very large separation distances that would be required for IMT systems to avoid causing interference to FSS earth stations, and the poor coverage possible by mobile systems in this relatively high frequency band, the SSWG does not believe that this is an attractive band for mobile systems.

An outcome of WRC-15, was to confirm the need to protect C-Band FSS services in some regions of the world. The lower 200 MHz of C-band (3400-3600 MHz) was identified for IMT in

Regions 1 and 2, and in Region 3 two additional countries (including Australia) added their names to a footnote allowing potential IMT use of this 200 MHz of spectrum. The remainder of Region 3 is subject to 'No Change', including no change to pre-existing co-primary allocations to the Mobile Service in the 3500-4200 MHz band.

A position of 'No Change' was also adopted in the 3600-4200 MHz band, including the pre-existing co-primary allocation to the Mobile Service in Region 3, except in Region 2 where a footnote was agreed identifying IMT in the USA, Canada, Colombia and Costa Rica in the 3600-3700 MHz band. In addition, the Conference declined to consider a proposal for IMT systems in the C-band uplink frequencies (5925-6425 MHz).

In light of these developments and the comments above, together with the lack of harmonised IMT identification (and consequent lack of attraction to suppliers and vendors) the ACMA may wish to re-consider reviewing its position that the 3575-3700 MHz band be considered for potential mobile broadband use.

Other matters of interest

Earth Stations in Motion

Broadband extends beyond terrestrial services. Two resolutions of the WRC-15 Conference of particular interest to the satellite industry and the SSWG in particular are RESOLUTION COM5/2 (WRC-15) which deals with Earth Stations in Motion (ESIMs) in the 19.7-20.2 GHz and 29.5-30 GHz bands and provides regulatory guidance for the implementation of ESIMs. RESOLUTION COM6/17 refers to future studies of ESIMs in 17.7-19.7 GHz and 27.5-29.7 GHz during the WRC-19 study period.

These outcomes are of significance to the developing technical framework which the ACMA will be creating for ESIMs.

Future IMT studies with the WRC-19 Study Period

New Agenda Item 1.13 for the forthcoming study period calls for studies of 24.75-27.5 GHz and bands above 37 GHz for future IMT studies. These bands are especially suited to broadband communications. See WRC RESOLUTION COM6/20.

Other future WRC studies

A number of other new Agenda Items in the WRC-19 study period are of interest to the satellite community and the ACMA. These include the (new) Agenda Items 1.5, 1.6, 1.8, 1.10, 1.14, 9.1.1, 9.1.3, and 9.1.7.



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**COMMUNICATIONS
ALLIANCE LTD**

Level 12
75 Miller Street
North Sydney
NSW 2060 Australia

PO Box 444
Milsons Point
NSW 1565

T 61 2 9959 9111
F 61 2 9954 6136
E info@commsalliance.com.au
www.commsalliance.com.au
ABN 56 078 026 507