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# AUSTRALIAN TELECOMMUNICATIONS ALLIANCE
# SATELLITE SERVICES WORKING GROUP
# SUBMISSION

To: Australian Communications and Media Authority

Re: Automatic Frequency Coordination-assisted spectrum sharing in the 6 GHz band

30 January 2026

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# 1. AUSTRALIAN TELECOMMUNICATIONS ALLIANCE

The Australian Telecommunications Alliance (ATA) is the peak body of the Australian telecommunications industry. We are the trusted voice at the intersection of industry, government, regulators, and consumers. Through collaboration and leadership, we shape initiatives that grow the Australian telecommunications industry, enhance connectivity for all Australians, and foster the highest standards of business behaviour. For more details, visit www.austelco.org.au.

For questions on this submission, please contact Mike Johns, m.johns@austelco.org.au.

# 2. INTRODUCTION

The Australian Telecommunications Alliance Satellite Services Working Group (SSWG) appreciates the opportunity to make a submission in response to the Australian Communications and Media Authority (ACMA) consultation on the *Automatic Frequency Coordination-assisted spectrum sharing in the 6 GHz band Discussion Paper* (November 2025).

The SSWG welcomes the opportunity to provide ACMA with our views as to how to best enable the introduction of additional and updated RLAN services in the 6 GHz band in Australia whilst preserving and protecting existing satellite operations in the band.

The SSWG supports ACMA's decision to introduce arrangements for low powered (LP) RLAN in 6425 – 6585 MHz via the Low Interference Protection Device (LIPD) class licence 2025[1]. Since the SSWG members operate GSO FSS uplinks from Australia in this frequency range, RLAN systems under the LIPD class licence operating on a non-protected basis with respect to other services is seen as a viable solution.

The SSWG also notes mention in the Discussion Paper of the upper 6 GHz frequency range and provides some preliminary comments on this band at the end of our submission.

This submission does not necessarily represent the views of nbn or Telstra, who are lodging their own submissions.

# 3. RESPONSES TO QUESTIONS IN THE DISCUSSION PAPER

The SSWG would like to provide the following responses to the questions posed in the Discussion Paper. Each issue raised by ACMA is produced under the corresponding heading in italics, followed by the SSWG response as numbered paragraphs.

[1] https://www.legislation.gov.au/F2025L01047/asmade/text

## 3.1 SUPPORTING ADOPTION OF AFC

*Issue for Comment 1: Do you support the adoption of an AFC framework in Australia to enable outdoor standard-power operation in the 6 GHz band? What are the key benefits and concerns? In particular, who would the main beneficiaries be, and what would be the implications for consumers in the telecommunications market?*

3.1.1 The SSWG may support introduction of standard power RLAN (36 dBm EIRP (4W)) under an AFC framework only in certain parts of the 6 GHz band where incumbent MSS feeder links are not at risk of interference, noting that in Australia, part of the 6 GHz is used by licensed gateways to communicate with sensitive GSO satellite receivers employed as feeder uplinks to support critical L- and S-band MSS services. These MSS feeder links in Australia provide, amongst other things, backhaul for the Global Maritime Distress and Safety System (GMDSS), aviation safety services (AMS(R)S), and GNSS augmentation (SBAS), which require protection from and timely elimination of interference. Further details are provided in 3.4 and 3.5 of this submission.

## 3.2 CHANGES BROUGHT ABOUT FROM AFC

*Issue for Comment 2: How might AFC change the way WISPs and other communications service providers operate, particularly in terms of supporting greater spectrum efficiency or service innovation?*

3.2.1 The SSWG has no view on this at this stage.

## 3.3 ALTERNATIVES TO AFC

*Issue for Comment 3: Are there any alternatives to AFC that could support dynamic and efficient frequency assignments in the 6 GHz band?*

3.3.1 The SSWG has no information to provide on this topic.

## 3.4 MODELS IN OTHER JURISDICTIONS

*Issue for Comment 4: Would established models in other jurisdictions such as the US and Canada, or aspects of these models, be appropriate for the Australian radiocommunications environment?*

3.4.1 Since the USA and Canada have been operating AFC in the 6 GHz band only for a short time, the density of deployment may not be high enough for interference to incumbent satellite services to be evident. In addition, the use of the 6 GHz band by satellite services in the US is different to Australia. Further details are provided in 3.7 of this submission.

3.4.2 The SSWG emphasises that large-scale deployments of outdoor, standard-power RLAN systems in the 5.925 – 6.425 GHz band can materially elevate interference levels at Fixed-Satellite Service (FSS) receiving satellite stations. The primary concern is aggregate interference, arising not from any single access point (AP) but from the cumulative effect of many individually compliant devices operating concurrently under similar geometries.

3.4.3 Evidence from both the U.S. record and European studies underscores this risk. SES/Intelsat filings to the U.S. FCC's 6 GHz proceeding[2] raised the concern that aggregate interference from unmanaged standard-power outdoor RLAN deployments can exceed acceptable interference margins at FSS satellite receivers. SES/Intelsat therefore proposed an aggregate received power benchmark of –142 dBW per 40 MHz channel at the earth-station antenna as an operational threshold to guide AFC-based authorisation. The FCC referenced these concerns directly in its Report & Order (FCC 20-51)[3] and introduced an additional vertical-emission safeguard: for standard-power devices, EIRP at elevation angles above +30° must not exceed 21 dBm. The SSWG considers this restriction an essential baseline measure to reduce the aggregate interference probability toward FSS receivers and recommends that ACMA adopt this parameter as a minimum requirement.

3.4.4 European analyses provide further validation. ECC Report 302[4] and CEPT Report 73[5] conducted extensive compatibility studies using per-device EIRP assumptions of no more than 30 dBm, which is lower than the 36 dBm standard-power limit under consideration by ACMA in the discussion paper. Even under these reduced power assumptions, some study scenarios showed non-negligible interference coupling to FSS uplinks, particularly in situations involving high AP densities and for cases that considered higher ratio of outdoor versus indoor deployment. The resulting conditions adopted by CEPT are presented in ECC decision (20)01[6] which are limited to low-power indoor and very low power outdoor AP.

3.4.5 For Australia, based on international experience in this band where FSS uplink in the 6 GHz band (5925 – 6425 MHz) support high-availability broadcast, enterprise, and international connectivity services, the SSWG recommends that ACMA adopt the following minimum technical and operational measures:

1. Mandatory AFC control for all outdoor standard-power RLAN devices.
    - The AFC must govern frequency, power, and transmitter authorisation and prohibit operation where and when conditions are not met.
2. Transmitter limits aligned with international best practice and strengthened for vertical emissions.
    - Maximum 30 dBm EIRP along with 23 dBm/MHz PSD for standard-power APs.
    - Vertical-angle constraint: For elevation angles greater than 30°, EIRP must not exceed 21 dBm, consistent with the FCC R&O.
3. AFC aggregate-monitoring and device-logging capability.
    - The AFC must evaluate cumulative interference toward each protected FSS earth station.
    - Authorisations must be denied or scaled back when aggregate levels approach –142 dBW per 40 MHz (proposed operational threshold).
    - The AFC must maintain geolocation, timestamp, EIRP, antenna elevation, device height, and operator records for all authorised devices to support interference investigation and mitigation.

[2] SES&Intelsat comments to FCC ET Docket No. 18-295: https://www.fcc.gov/ecfs/document/10216041166103/1
[3] FCC Report and Order: https://www.fcc.gov/document/fcc-opens-6-ghz-band-wi-fi-and-other-unlicensed-uses-0
[4] ECC Report 302: https://docdb.cept.org/document/10170
[5] CEPT Report 73: https://docdb.cept.org/document/13858
[6] ECC decision (20)01: https://docdb.cept.org/document/16737

## 3.5 SPECTRUM ALLOCATION TO AFC

*Issue for Comment 5: How much spectrum should be made available under AFC, and what bandwidths should be allocated to support individual AFC service offerings? Should part or all of the 6 GHz spectrum available for RLAN use be made available for AFC-enabled access by standard power devices, or is there a case for arrangements supporting a range of power levels above VLP/LPI and below/including standard power?*

3.5.1 The SSWG could support standard power RLAN with AFC operating outdoors in the lower 6 GHz band (5925 – 6425 MHz) with conditions as per the above recommendations in 3.4 of this submission which would provide 500 MHz of RLAN bandwidth for this application. This demarcation is consistent with Ofcom's recent decision[7] for RLANs in this frequency range. In addition, the SSWG could support standard power RLAN with AFC in the higher 6 GHz band 6585 - 6875 MHz with conditions as per the above recommendations in 3.4 of this submission, which would provide an additional 290 MHz of bandwidth for standard power RLAN to operate outdoors.

3.5.2 The SSWG proposes that RLAN operation in the frequency band 6425 – 6585 MHz should remain restricted to operate under the LPI/VLP for indoor and outdoor as defined in the current *Low Interference Protection Device (LIPD) Class Licence 2025*. This approach would make additional RLAN channels available to universities, hospitals, schools, conference centres, TAFE colleges, enterprise level deployment, mines, remote communities and large agricultural businesses. Subject to suitable conditions on RLAN operations to protect satellite services and ACMA taking swift compliance action to rectify interference should it occur, the SSWG believes that RLAN operation on a No Interference / No Protection basis would also enable the future development of satellite services in the band.

3.5.3 However, introduction of standard power RLAN for outdoor use in the 6425 – 6585 MHz frequency band, even with the use of AFC, poses a significant risk of harmful interference to critical safety-of-life services provided by sensitive GSO satellite receivers used by feeder uplinks in that band. The 6425 – 6585 MHz frequency band in Australia is used to provide essential feeder links for the MSS L-band Global Maritime Distress and Safety System (GMDSS), aviation safety services (AMS(R)S), and GNSS augmentation (SBAS). These services require absolute protection from interference and timely elimination of interference.

3.5.4 The SSWG specifically emphasises that GSO satellite receivers have a view of about one-third of the Earth's surface, consequently, an AFC system designed for operate within Australia may not account for the aggregate interference caused by the high density of standard-power outdoor devices deployed across the entire visibility of the satellite. Therefore, any RLAN AFC should prohibit the operation of standard power RLAN for outdoor use in this frequency range.

## 3.6 GEOGRAPHIC AND SPECTRUM SEGMENTATION

*Issue for Comment 6: What degrees of geographic and spectrum segmentation should be considered when planning for individual AFC system deployments? For example, would planning for localised, self-contained areas or multiple sub-bands foster competition in the market for the provision of AFC services, or would that come at too much of a cost to spectrum efficiency (through the need for guard bands/spaces)?*

[7] Ofcom's consultation: Expanding access to the 6 GHz band for commercial mobile and Wi-Fi services - Next steps for Wi-Fi

3.6.1 The SSWG believes that geographic segmentation for planning individual AFC system deployment needs careful consideration. As mentioned previously, a single GSO satellite receiver may receive interference from RLAN systems Australia wide requiring that the GSO satellite receiver characteristics be known by all AFC systems.

3.6.2 MSS operators have or are planning feeder links in the band (both uplinks and downlinks) and the protection of their receivers is important. Equally the ability to site new MSS feeder uplinks and downlinks as required by the engineering design is also important.

## 3.7 GOVERNMENT AND INDUSTRY ROLES AND RESPONSIBILITIES

*Issue for Comment 7: What are the respective roles and responsibilities for industry and government in realising an AFC regime? Should AFC be operated by industry under government-set rules or should government play a more direct role in providing AFC services?*

3.7.1 Noting that AFC is a reasonably new method of spectrum management globally and especially for Australia, and the consequences of the AFC system malfunctioning could be significant, the SSWG would propose that the government develop detailed regulatory arrangements and performance criteria, to govern industries involvement in the provision of the AFC services. Australian AFC systems should be trialled in a managed way to evaluate performance and applicability to Australian conditions before rolling out systems Australia wide. The ACMA should continue to monitor the experiences of USA, Canada and any other Administrations that operate AFC systems in order to improve the performance of Australia's system(s).

## 3.8 ROLE OF DATABASES

*Issue for Comment 8: What role should databases such as the ACMA's RRL or other coordination mechanisms, such as those administered by the ACMA but used by accredited assigners, play in the process?*

3.8.1 Australia's AFC should use as many of the coordination mechanisms available including the ACMA's RRL. The ACMA's RRL should be the baseline for licensing records. The ACMA's RALIs, ITU-R Recommendations and other coordination mechanisms should be used to develop the rules for the coordination assessments. The AFC system should provide error messages and warnings to the AFC operators if the assessments identify anomalies. The ACMA should consider the need for Network Control and Monitoring Centres (NCMC) for RLAN systems requiring AFC in order to immediately inhibit RLAN transmissions on harmful interference being reported.

## 3.9 TIERED ACCESS MODEL FOR STANDARD POWER RLAN DEVICES

*Issue for Comment 9: What is the need for, and potential structure of, a tiered access model for incorporating standard power RLAN devices in the 6 GHz band?*

3.9.1 As an example, the SSWG members use the 6425 – 6575 MHz frequency band to provide feeder uplinks from gateway stations in Australia and elsewhere. Some of these feeder uplinks, which are an application of the FSS, are used to support L-band MSS services which are used for safety and critical communications on land, on ships and on aircraft. For that reason, the SSWG would

support tiered access models to provide priority to the interference protection of incumbent non-AFC apparatus licensed earth receive and space receive stations.

## 3.10 LICENSING

*Issue for Comment 10: With respect to licensing, should individual AFC-coordinated devices be registered on the RRL or covered by broader system-wide licensing arrangements, or are there other authorisation models that we should consider?*

3.10.1 The SSWG acknowledges that there needs to be a balance between 'command and control' via individual apparatus licences and area-wide licences within a significantly large geographic area that would either create uncertainty for coordination or inefficient use of spectrum through overly conservative criteria. The SSWG would support ACMA's proposal that each RLAN device be coordinated through the AFC rather than requiring its own ACMA licence. As pointed out in ACMA's paper: 'this would require AFC operators to maintain up-to-date localised databases for coordination among both its own subscribers and other nearby licensed services.' Noting the need for AFC operators to maintain complete and accurate databases on these devices, class licence arrangements should be considered.

## 3.11 ACCREDITATION, AUDITING AND COMPLIANCE

*Issue for Comment 11: What processes and safeguards would need to be established to accredit, audit and ensure ongoing compliance of industry-led AFC operators? What type of rules should be imposed on prospective AFC operators and how should those rules be codified?*

3.11.1 ACMA must implement a system ensuring ongoing compliance of AFC operators, that includes suitable accreditation measures, scheduled and unscheduled (spot check) audits, deterrent penalties and robust enforcement procedures. Any system implemented must be adequately resourced to ensure effective and efficient compliance.

## 3.12 TECHNICAL AND ADMINISTRATIVE FEATURES

*Issue for Comment 12: What technical or administrative features (e.g., real-time geolocation, exclusion zones, device registration, database accuracy and latency) will be critical to the successful implementation of AFC?*

3.12.1 Several technical features are critical to protecting sensitive satellite receivers, including:

- Satellite Characteristic Integration: Because a single GSO satellite receiver can detect interference Australia-wide, its specific technical characteristics must be integrated into all AFC coordination calculations.
- Compliance and Standards: There must be mandated standards for position accuracy to prevent devices from operating outside of assigned parameters.

3.12.2 In that sense, as per our recommendations in 3.4 of this submission, AFC should be capable of aggregate-monitoring and device-logging:

- The AFC must evaluate cumulative interference toward each protected FSS earth station.

- Authorisations must be denied or scaled back when aggregate levels approach –142 dBW per 40 MHz (proposed operational threshold).
- The AFC must maintain geolocation, timestamp, EIRP, antenna elevation, device height, and operator records for all authorised devices to support interference investigation and mitigation.

### 3.13 DATA INTEGRITY, OWNERSHIP AND UPDATE MECHANISMS

*Issue for Comment 13: How should data integrity, ownership, and update mechanisms be managed in AFC systems? Are ACMA's existing systems (such as the RRL) sufficient, or would changes or new systems be required to support real-time coordination?*

3.13.1 The SSWG has no view on this at this stage.

### 3.14 MARKET EXPECTATIONS

*Issue for Comment 14: What is the expected market for the provision of AFC services in Australia?*

3.14.1 'Wi-Fi 6' with its broadband channels will enable reticulation of high-speed satellite broadband available from the new and emerging generation of satellites.

### 3.15 STANDARDS

*Issue for Comment 15: What standards or other mandatory specifications should be prescribed to ensure AFC enabled devices comply with operational rules (for example, GPS accuracy, firmware requirements, revalidation intervals)? What are the implications for manufacturers and operators?*

3.15.1 Refer to 3.4 and 3.12 of this submission for comments on Standards needs.

## 4. PRELIMINARY COMMENTS ON THE *UPPER 6 GHZ* FREQUENCY RANGE

4.1.1 The SSWG notes the references in the Discussion Paper to the upper 6 GHz band, specifically to spectrum between 6585 MHz and 7100 MHz (and to 7125 MHz) and wishes to table the following preliminary comments:

- In our 16 July, 2024 submission to the ACMA's *Future use of the upper 6 GHz band options* paper, we advised that some of our members operate space-to-Earth feeder links in the 6875 to 7075 MHz band in the *Australian Radiofrequency Spectrum Plan 2025*, under International Radio Regulation No. 5.458B and that these licensed downlinks, which are currently in regional and remote locations, will require ongoing protection from harmful interference.
- We further noted in our submission that the feeder downlinks were part of non-GSO MSS networks and that the sensitive gateway receivers would be potentially vulnerable to

interference from near sited, un-coordinated, co-band terrestrial transmitters such as RLANs operating under the LIPD rules (with or without AFC implementation) or from IMT WBB.

- We now note that Figure 2 on page 11 of the current Discussion Paper, titled '*6 GHz band – use and regulatory status in Australia*', and which claims to provide 'an overview of how the band is currently used and which segments are under consideration for AFC', makes no mention of the licensed non-GSO MSS feeder downlinks.

4.1.2 The SSWG wishes to reinforce our previous comments on the importance of fully protecting non-GSO MSS feeder downlink terrestrial receivers operating in the 6875 to 7075 MHz frequency band from near sited terrestrial transmitters and looks forward to participating in any future ACMA activity relating to the possible introduction of AFC to the upper 6 GHz band.

Ends

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