**Replanning the 2 GHz band: Review of the 2 GHz Television Outside Broadcast Frequency Band Plan**

Response to submissions

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Executive summary

On 17 December 2021, the Australian Communications and Media Authority (ACMA) commenced a [public consultation](https://www.acma.gov.au/consultations/2021-12/replanning-2-ghz-band-review-2-ghz-television-outside-broadcast-frequency-band-plan-consultation-452021) on a review of the [Television Outside Broadcast (1980–2110 MHz and 2170–2300 MHz) Frequency Band Plan 2012](https://www.legislation.gov.au/Details/F2012L00731) (the 2012 TOB band plan). This band plan specified the purposes for which these frequency bands may be used.

The consultation included a proposal for 2 new band plans to replace the 2012 TOB band plan:

* A draft 2 GHz mobile-satellite services (MSS) band plan to create arrangements   
  for the introduction of MSS in the 2 GHz band (1980–2010 MHz paired with   
  2170–2200 MHz), including a transition period for television outside broadcast (TOB) services to cease operating in the band.

a draft TOB band plan to deal with the remaining frequencies (2010–2110 MHz and 2200–2300 MHz) which remain planned for ongoing TOB services with no change to existing arrangements.

We received 14 submissions to the consultation, which closed on 28 February 2022.

Respondents raised 3 key issues in their submissions:

* Concerns that the draft TOB band plan changed arrangements for services in the bands 2010–2110 MHz and 2200–2300 MHz (for example, earth stations), contrary to our objective of no change to arrangements in these bands.
* Shortening or extending the TOB transition period.

Revisiting the planning decision to introduce MSS in the 2 GHz band and instead dedicate half of the available spectrum to direct air-to-ground communications.

After considering the issues raised in the consultation, we intend to implement planning outcomes to support the introduction of MSS in 2 GHz.

To implement these arrangements, on 23 June 2022 we revoked the 2012 band plan and made the following new frequency band plans:

the Radiocommunications ([Mobile-Satellite Service](https://www.legislation.gov.au/Series/F2022L00843)) (1980–2010 MHz and 2170–2200 MHz) Frequency Band Plan 2022 (the 2 GHz MSS band plan)

the Radiocommunications ([Television Outside Broadcasting](https://www.legislation.gov.au/Series/F2022L00842)) (2010–2110 MHz and 2200–2300 MHz) Frequency Band Plan 2022 (the new TOB band plan).

The new TOB band plan includes revisions to ensure there are no changes to previous arrangements in the band, including for ongoing TOB services.

We are [now consulting on](https://www.acma.gov.au/consultations/2022-06/proposed-updates-channel-arrangements-72-ghz-band-ifc-192022) planning arrangements in the 7.2 GHz band to prepare for migration of TOB services.

# Introduction

## Background

On 17 December 2021, we commenced a [public consultation](https://www.acma.gov.au/consultations/2021-12/replanning-2-ghz-band-review-2-ghz-television-outside-broadcast-frequency-band-plan-consultation-452021) on a review of the 2012 TOB band plan. This band plan specified the purposes for which the frequency bands 1980–2110 MHz and 2170–2300 MHz may be used.

The review is part of our work to [implement our decision](https://www.acma.gov.au/consultations/2020-07/replanning-options-2-ghz-band-consultation-232020) to replan the 2 GHz band (1980–2010 MHz and 2170–2200 MHz) for MSS. The review detailed our proposal to revoke the 2012 TOB band plan and replace it with 2 new frequency band plans, namely:

* the 2 GHz MSS band plan, which deals with the 2 GHz band as replanned for MSS

the new TOB band plan, dealing with the remaining frequencies that are not affected by the 2 GHz band review and remain planned and licensed principally for TOB use.

The key issues addressed in this consultation were:

* transition timelines for TOB services to vacate the band for introduction of MSS by:
* 29 February 2024 in regional areas
* 28 February 2026 in metropolitan areas
* geographical boundaries of metropolitan areas

allowing some sporting and event venues in regional areas where TOB services are used regularly (‘designated areas’) to continue operation until 28 February 2026.

## Submissions

The consultation closed on 28 February 2022. We received 14 submissions from the following organisations, which are available on the [ACMA website](https://www.acma.gov.au/consultations/2021-12/replanning-2-ghz-band-review-2-ghz-television-outside-broadcast-frequency-band-plan-consultation-452021):

Australian Broadcasting Corporation (ABC)

* Australian Subscription Television and Radio Association (ASTRA)
* Capricorn Space
* Centre for Appropriate Technology Satellite Enterprises (CFATSE)

Communications Alliance Satellite Services Working Group (SSWG)

CSIRO

Department of Defence

Fleet Space Technologies

Free TV Australia

Kepler Communications

Omnispace Australia

Optus

SkyFive–Pivotel (joint submission)

Viasat Australia.

# Consultation responses

## Overview

Several respondents raised concerns that the new TOB band plan proposed changes to arrangements for services in the bands 2010–2110 MHz and 2200–2300 MHz (for example, earth stations), contrary to our objective of no change to arrangements in these bands. As these changes were unintentional, we have revised section 7 of the new TOB band plan to clarify that it supports the same services in these bands, as specified in the 2012 TOB band plan.

Two respondents commented on the proposed transition timeframes for TOB services to vacate the 2 GHz band. One sought a delay to transition, while another recommended the timeframes be reduced.

We also received a request to revisit our decision to replan the 2 GHz band for MSS, and instead dedicate half of the available spectrum for direct air-to-ground communications.

Each of these issues is addressed below.

## Issues

### New TOB band plan

One of our aims in developing the new TOB band plan was to simplify and streamline it to align with contemporary legal drafting practices. In doing so, there were some inadvertent changes to arrangements for earth stations and other services supported by the 2012 TOB band plan. This mainly related to the provision in the 2012 plan that states in addition to the services specified in the band plan, any other service listed in the Australian Radiofrequency Spectrum Plan 2021 (ARSP) for this band may also   
be operated.

The intention of the new TOB band plan is to give effect to the same arrangements in 2010–2110 and 2200–2300 MHz as specified in the 2012 TOB band plan. Accordingly, we have revised section 7 in the new TOB band plan to clarify that there is no change to existing arrangements. This includes ensuring there is support for earth stations operating outside of Perth on a primary basis (as is the case in locations such as Tidbinbilla, Mingenew and New Norcia) and ensuring other services specified in the ARSP are still supported under the new band plan. We note there continues to be administrative policy guidance ([RALI FX 21](https://www.acma.gov.au/publications/2019-09/instruction/rali-fx21-television-outside-broadcasting-services) and [Embargo 23](https://www.acma.gov.au/publications/2019-10/rules/embargo-23)) on use of these bands for TOB purposes.

### Transition timing

One respondent requested a delay in commencement of the transition period for TOB services to vacate the band until alternative arrangements in the 7.2 GHz band are settled. They also noted the transition will result in considerable costs for affected operators, and that certainty of access to alternative spectrum should be assured prior to the start of the transition period.

Another respondent proposed the timeframes be expedited for introducing MSS in the 2 GHz band.

#### ACMA response

We retain the view that the transition timeframes announced with our replanning decision in January 2021 (5 years in metropolitan areas and 3 years elsewhere) strike the right balance between the interests of incumbents and allocating the spectrum for new MSS. The specified periods will allow incumbent TOB operators to relocate to alternative spectrum at a time that aligns to the extent possible with their equipment replacement lifecycles.

Providing earlier access in regional and remote areas will support initial MSS deployment in areas that are likely to benefit the most from new services with minimal impact on TOB.

As noted in the consultation paper, we consider the majority of services in the 2 GHz band can be accommodated in the 7.2 GHz TOB band (7100–7425 MHz), which has similar arrangements to the 2 GHz band. The 7.2 GHz band has a number of channels that are specifically identified for shared non-exclusive usage, similar to the arrangements for the 2 GHz band. With current arrangements in the 7.2 GHz band intended to support analog technologies, we are reviewing channel arrangements to reflect current digital technologies in use. Our intention is to develop a single channel plan that replaces current interleaved channelling arrangements.

Accordingly, we are developing changes to planning arrangements in the 7.2 GHz band to prepare for migration of TOB services during the 2 GHz transition period. This involves amendments to [RALI FX3](https://www.acma.gov.au/publications/2019-09/instruction/rali-fx3-microwave-fixed-services) by modernising channel arrangements in the 7.2 GHz band to accommodate additional TOB use.

We are now consulting on [proposed amendments to RALI FX3](https://www.acma.gov.au/consultations/2022-06/proposed-updates-channel-arrangements-72-ghz-band-ifc-192022).

### Reconsider planning decision

A respondent requested reconsideration of our planning decisions for the 2 GHz band, arguing that direct air-to-ground communications (DA2GC) services should have access to 2 x 15 MHz of dedicated, exclusive spectrum in the lower half of the band. Use of complementary ground component (CGC) infrastructure by the European Aviation Network was provided as an example. It was requested that greater emphasis should be given to complementary ground component and DA2GC services before finalising the 2 GHz band plan and establishing it as an MSS band.

#### ACMA response

Our decision to replan the 2 GHz band for MSS was announced in the   
[2 GHz outcomes paper](https://www.acma.gov.au/consultations/2020-07/replanning-options-2-ghz-band-consultation-232020) of January 2021.

The decision includes development of a framework that supports CGC infrastructure, including support for DA2GC. This provides the opportunity for a DA2GC service to be provided if desired by a licensee.

We are aware of use of CGC infrastructure by the European Aviation Network. This is a combined MSS/CGC network with the licensee being an MSS satellite operator – similar to the approach being introduced by the ACMA.

Our intention is to provide flexibility to allowing the licensee to decide on the viability of such systems, including deployment of CGC equipment. We maintain the view expressed in the 2 GHz outcomes paper that MSS is the appropriate primary use of the band. This view was based on our assessment of proposed replanning options against a set of desirable planning outcomes identified for the band in our   
[2 GHz options paper](https://www.acma.gov.au/consultations/2020-07/replanning-options-2-ghz-band-consultation-232020) (July 2021). When assessing options, both qualitative and quantitative factors (through a cost-benefit analysis) were considered in an integrated manner.

As a result of this analysis, MSS with CGC was identified as most likely to maximise the public benefit from use of the 2 GHz band, and was our preferred option. We see no justification to divert from this course of action and provide dedicated spectrum   
for DA2GC.

The 2 GHz outcomes paper noted that we would include arrangements in planning the 2 x 25 MHz MSS segment to support deployment of a CGC, including DA2GC services, where a licensee wishes to supplement its MSS.

At this stage, we have not made provision in the 2 GHz MSS band plan to allow for operation of CGC and DA2GC services. Arrangements for these services need not be finalised until closer to licence allocation (anticipated around mid-2023). As advised in the consultation paper, we propose to address this in a later update to the 2 GHz MSS band plan to allow time for further consideration of the best approach.

Since we have not previously implemented planning arrangements for these services, we need to consider whether:

there should be any restrictions, such as allowing access only for MSS licensees who have deployed an active satellite service

this is best achieved under a frequency band plan, or through the licence allocation process.

We will seek further views from stakeholders on these matters.

# Consultation outcome

After considering the issues raised in the consultation, we intend to implement planning outcomes to support the introduction of MSS in 2 GHz.

To implement these arrangements, on 23 June 2022 we revoked the 2012 TOB band plan and made the following new frequency band plans:

the 2 GHz MSS band plan

the new TOB band plan.

The new TOB band plan includes revisions to ensure there are no changes to previous arrangements in the band, including for ongoing TOB services.

We are [now consulting on](https://www.acma.gov.au/consultations/2022-06/proposed-updates-channel-arrangements-72-ghz-band-ifc-192022) planning arrangements in the 7.2 GHz band to prepare for migration of TOB services.

## Next steps

Under the 2 GHz MSS band plan, TOB services are required to vacate the band for introduction of MSS by:

* 29 February 2024 in regional areas

28 February 2026 in metropolitan areas and designated areas.

As a consequence, we will update the ACMA planning instruments [Embargo 23](https://www.acma.gov.au/publications/2019-10/rules/embargo-23) and [RALI FX21](https://www.acma.gov.au/publications/2019-09/instruction/rali-fx21-television-outside-broadcasting-services) to reflect these timelines.