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Implementation of planning outcomes in the 1.9 GHz band

Outcomes paper

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Introduction

In November 2025, we released the *Implementation of the 1.9 GHz band planning outcomes* consultation paper that proposed new arrangements for railway mobile radio (RMR) and short-range wireless broadband (SR WBB) services in the 1900–1920 MHz frequency range (the 1.9 GHz band).

This paper sets out our implementation decisions, after consideration of the submissions received in response to the consultation paper. We have decided to implement new RMR and SR WBB arrangements by:

- Drafting a new Radiocommunications Assignment and Licensing Instruction (RALI), RALI MS51, to provide the licensing instructions and coordination criteria for RMR services in the 1900–1910 MHz frequency range.
- Amending RALI FX19, to include licensing instructions and coordination criteria for SR WBB in the 1900–1920 MHz frequency range.
- Making the Radiocommunications (Cellular Mobile Telecommunications Devices) Class Licence Variation 2026 (No.1) that amends the Radiocommunications (Cellular Mobile Telecommunications Devices) Class Licence 2024 (the cellular mobile class licence) to include operational conditions on RMR mobile stations.
- Making the Radiocommunications (Transmitter Licence Tax) Amendment Determination 2026 (No.2) that amends the Radiocommunications (Transmitter Licence Tax) Determination 2025 to include taxes applicable to licences that authorise RMR base stations and SR WBB stations in the 1.9 GHz band.

In developing the new arrangements for RMR and SR WBB in the 1.9 GHz band, all coexistence assessments with co-channel and adjacent channel services have been based on theoretical analysis rather than actual implementation information. This is particularly the case for RMR, given the limited number of international deployments. The approach endeavours to balance spectrum efficiency against potential interference. We will continue to monitor the implementation of these new services and the effectiveness of provisions in RALIs MS51 and FX19 to ensure they provide the optimal coordination requirements.

Discussion of responses

The submission period for the consultation paper closed on 13 March 2026. We received 4 public submissions and one confidential submission in responses to the consultation paper. The 4 public submissions (available on the ACMA website) were received from:

- Australian Mobile Telecommunications Association (AMTA)
- Australasian Railway Association (ARA)
- Optus
- Telstra.

We also received some additional material from AMTA after the consultation period closed. This is also included on the ACMA website at the bottom of the consultation landing page.

A summary of key issues raised in submissions, and our response to these issues, is provided in the Summary and response to submissions section. The outcomes of the

consultation and implementation of these are outlined in Outcomes of consultation section.

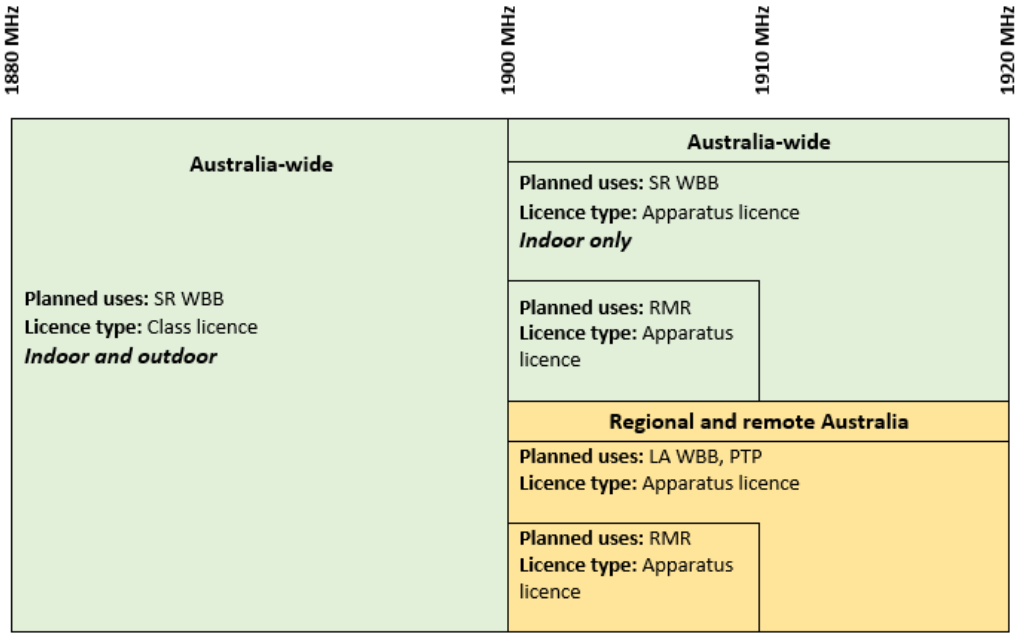
Background

We released the Exploring future use of the 1.9 GHz band discussion paper in November 2021. That consultation closed on 11 February 2022. The paper examined domestic and international considerations for the future use of the 1.9 GHz band and invited views on possible changes in planning arrangements for the band.

We later released the Replanning of the 1880–1920 MHz band options paper in November 2022. That consultation closed on 17 March 2023 with 11 responses received from industry and interested parties.

The Replanning of the 1880–1920 MHz band outcomes paper was released in November 2023. That paper outlined the implementation decisions and strategy for the 1.9 GHz band. Figure 1 illustrates the resultant service allocations for the 1.9 GHz band.

Figure 1: 1.9 GHz band allocation of services



In June 2024, we made the Radiocommunications (Cordless Communications Devices) Class Licence 2024 (the CCD class licence), which includes the provisions for Digital Enhanced Cordless Telecommunications New Radio (DECT NR) devices in the 1880–1900 MHz frequency range.

Summary and response to submissions

This section contains a summary of the submissions received in response to our proposals in the consultation paper. This section also includes our response to the key issues raised in those submissions, and details where we have decided to vary the arrangements for RMR and SR WBB services.

Coexistence between RMR and 2 GHz band base station receivers

Question 1

(a) Should we adopt the enhanced selectivity requirements in ETSI TS 103 807 for coordination of Future Railway Mobile Communication System (FRMCS) with 2 GHz band base station receivers?

(b) What would be the impact to 2 GHz band spectrum and PTS licensees if ETSI TS 103 807 was adopted in Australia?

(c) Do existing 2 GHz band base station receivers already meet the enhanced selectivity in ETSI TS 103 807?

Five submitters provided views on the application of the 'enhanced selectivity' specification (as per ETSI TS 103 807) when coordinating RMR base station transmitters with 2 GHz band base station receivers. All submitters supported the need to adopt the enhanced selectivity specification. However, there were varying views on how and when it should be implemented:

- One submitter noted that the enhanced selectivity specification is adopted in Europe and is necessary for practical coexistence between RMR base station transmitters and 2 GHz band base station receivers.
- Submissions from the telecommunications sector provided comments that while modern 2 GHz band base stations will meet the enhanced selectivity specification, some existing base stations will not. Additionally, while Mobile Network Operators (MNOs) do progressively upgrade base station equipment as needed (and updated base stations will meet the enhanced selectivity specification), individual MNOs are at different stages of their upgrade programs. Feedback from this sector also noted concern about the introduction of coordination arrangements in RALI MS51 that would result in increased costs and resourcing impacts to 2 GHz band licensees.
- One submitter noted that the coordination of RMR base station transmitters with 2 GHz band station receivers should include receivers operating at any frequency within the 2 GHz band, not just in the lower 10 MHz portion of the band as proposed in the consultation paper. This is because 2 GHz band receivers that comply with relevant 3GPP standards have the same level of immunity from blocking interference (caused by a RMR base station transmitter) irrespective of what part of the 2 GHz band the receiver is operating in.
- One submitter suggested that the requirement to coordinate with base station receivers within large distances (up to 70km when enhanced selectivity is not used) and across the

entire 1920–1980 MHz frequency range would result in the need to coordinate with a large number of 2 GHz base stations receivers.

ACMA response

All responses supported, or did not object to, the adoption of enhanced selectivity specification for coordination of RMR base station transmitters with 2 GHz band base station receivers. However, there were different views about how and when it should be applied.

We are of the view that the adoption of the enhanced selectivity is important to ensuring coexistence between RMR and 2 GHz band services. Without the enhanced selectivity, successful coordination would be more complex and (particularly in metropolitan areas) may require larger separation distances and/or compromised operating parameters in some cases. Noting that new, and some existing, 2 GHz band base station receivers will already meet the enhanced selective specification, we are of the view that incorporating enhanced selectivity in the coordination process is a viable means of ensuring coexistence.

We have developed provisions for the coordination of RMR base station transmitters and 2 GHz band base station receivers that will:

- Emphasise the expectation that RMR and 2 GHz band licensees collaborate early to share relevant characteristics of existing and future equipment. This will provide licensees with knowledge of which existing 2 GHz band base stations do, or do not, meet the enhanced selectivity specification.
- Allow the maximum coordination distance to be set based on whether the 2 GHz band base station receiver meets the enhanced selectivity specification. This will help to reduce the number of stations that will need to be coordinated with.
- Provide an avenue for enhanced selectivity to be used in coordination when collaboration and negotiation between licensees fail. This means that an Accredited Person (AP) can apply the enhanced selectivity specification when coordinating a new RMR transmitter against an existing 2 GHz band receiver if the RMR licensee has provided written notice to the 2 GHz band licensees (including the necessary calculations and station details) 2 years before the coordination is undertaken. This will provide time for affected 2 GHz band licensees to assess the risk of interference and decide if they need to implement any further mitigations (such as upgrading their hardware).

This coordination process is detailed in Section 3.5 of RALI MS51.

We also agree that all registered 2 GHz band base station receivers operating in the frequency range 1920–1980 MHz should be included in the coordination process. This takes into account the operating characteristics of these receivers and is consistent with the notional receiver parameters in the Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers—2 GHz Band) 2023 (RAG Rx). We have also decided to refer directly to the RAG Rx for the 2 GHz band protection requirements instead of reproducing them in the RALI MS51, so that any future changes to the RAG Rx would automatically be incorporated into RALI MS51.

While the maximum coordination distances specified in RALI MS51 (70 km and 5 km) may result in a large number of 2 GHz services that require coordination (particularly in metropolitan areas), these were derived on an assumption of worst-case parameters and are the upper-bound of where coordination may be needed. Licensees or APs can determine more refined (smaller) coordination distances by applying the actual RMR base station

operating parameters and deployment configuration (e.g. RMR base stations would typically be designed to point along railway tracks). This will help reduce the number of 2 GHz band receivers that that will require more detailed coordination. The overarching requirement is that existing 2 GHz band base station receivers are afforded the protection as specified in RALI MS51.

While we acknowledge that this will, in some cases, result in a significant coordination burden in metropolitan areas where there are already a large number of 2 GHz band base stations, this is a necessary part of spectrum management and assuring that the 1.9 GHz band can be used for RMR. We will monitor the implementation of these arrangements and may consider refinements if appropriate.

Coexistence between RMR and 1800 MHz GHz band base station transmitters

Question 2

Do stakeholders agree that the frequency separation between FRMCS receivers and 1800 MHz spectrum and PTS-licensed transmitters is sufficient to support coexistence without the need for defined coordination requirements?

Submitters indicated that while the likelihood of interference from an 1800 MHz band base station transmitter to a RMR base station receiver was minimal, interference could occur in some rare worst-case scenarios.

One submitter agreed that due to the good blocking performance of RMR base station receivers (as per 3GPP TS 38.104) the main interference mechanism would be unwanted emissions from 1800 MHz base station transmitters falling into the 1900–1910 MHz frequency range.

That submitter also indicated that actual unwanted emissions from 1800 MHz band transmitters (falling into 1900–1910 MHz) would be lower than the limit on spectrum licences. The submitter suggested that when an RMR licensee is assessing interference potential from existing 1800 MHz band transmitters, a ‘non-enforceable’ emission level of -40 dBm/MHz could be used.

ACMA response

In reviewing the potential for interference, we reconfirmed that the worse-case scenario would see the potential interference risk occur when base stations are located approximately 240 m or less apart. If real-world characteristics are assumed, the separation distance between transmitter and receiver would likely need to be less that 200 m before interference could occur. We characterise such small separation distances as co-site scenarios, where potential interference is expected to be managed by the affected licensees and/or site manager. This is in line with common practice in other RALIs.

We maintain the view that specific coordination provisions are not needed between 1800 MHz band base station transmitters and 1.9 GHz band RMR base station receivers.

General comments on the draft RALI MS51

Question 3

Are there any comments on the proposed draft RALI MS51?

Submitters supported the introduction of the new RALI MS51. However, a number of comments and proposals were provided, including:

- The term 'Railway mobile radio (RMR)' should replace 'Future railway mobile communication system (FRMCS)' as RMR is not technology-specific and the FRMCS specification has not yet been finalised.
- One submitter queried the taxes that would be associated with underground RMR stations, given that underground stations would not impact the spectrum usage above ground. That submitter also queried if each underground RMR station would need to be registered in the RRL.
- Clarity was requested on how RALI MS51 describes the application of the 'no interference/no protection' condition for RMR mobile stations (operated under the cellular mobile class licence) and 2 GHz band mobile stations (operated either under a spectrum licence or the cellular mobile class licence). The submitter was concerned that the no interference/no protection condition doesn't apply consistently to all mobile (RMR and 2 GHz band) mobile stations in the commentary in RALI MS51.
- Clarification was requested on how to interpret and use the map of railway lines within Australia (sourced from the Digital Atlas website) contained in Appendix A to RALI MS51. This map includes 10 operation statuses[1] of railway lines and the submitter requested that RALI MS51 clearly state which of these operational statuses are required for the purposes of coordination. This submitter also noted that not all planned railway lines are represented in the Digital Atlas and questioned how these could be included.
- One submitter suggested that RALI MS51 should include additional instructions on how prospective licensees of proposed new PTP, BWA and 2 GHz band receivers could determine if the potential interference from an existing RMR base station transmitter is acceptable.
- One submitter queried the proposed role of the ARA in approving access and assigning spectrum for RMR services, citing potential resourcing limitations within ARA to fulfill this role and questioning where other entities may be better placed to undertake it.
- One submitter raised concerns regarding the requirement for an RMR base station to be located within 100 m of a railway line. They indicated that there may be scenarios where this will not be the case, for example at a depot where a base station may cover a wider area and be located more than 100 m from the prescribed railway line.

ACMA response

In response to comments received, we have decided to implement the following changes:

- The term 'Railway mobile radio (RMR)' has replaced 'Future railway mobile communication system FRMCS' in RALI MS51.
- Licensing criteria for underground RMR stations have been included in RALI MS51, consistent with arrangements for PTS-licensed services in other frequency bands. This will allow underground stations to operate via a special condition included on the licence that allows any number of underground stations to operate without the requirement to

[1] These are: Operational, Proposed, Under Construction, Disused, Closed, Unknown, Other, Abandoned and Dismantled.

register on the RRL, as long as they meet the prescribed power limit at the entrance to the underground space.

- We have added text in RALI MS51 to clarify that the 'no interference/no protection' criteria applies consistently to all mobile stations.
- We have added text in RALI MS51 to clarify which railway line operational statuses in the Digital Atlas map are to be used in the application of this RALI. Additionally, we have added the ability for rail operators to provide us with geospatial data on railway lines not currently included in the Digital Atlas.
- We have decided not to provide additional criteria for coordination of new PTP, BWA and 2 GHz band receivers. Licensees should undertake their own assessments of interference risk to proposed receivers. This is consistent with the scope and purpose of this and other RALIs.
- We maintain the view that an 'industry-led' approach for coordinating access to the band for RMR services will lead to greater utilisation of the band. The ARA will undertake this role from the commencement of RALI MS51. However, we will continue to monitor the effectiveness of this arrangement and may reassess the ARA's role in the future as broader rail reforms are progressed. For clarity, the ARA's role is to help ensure that access to the band by the rail industry is provided in a coordinated manner, given that only 10 MHz of 1.9 GHz band spectrum is available for RMR services. Technical coordination in accordance with RALI MS51 will be undertaken by an AP as per normal process.

Licensing options and taxes for RMR services

Question 4

Are there any comments on the proposed licensing options and taxes for FRMCS?

Two submitters responded to this question, both supporting the inclusion of new licensing options and taxes for RMR. One submitter requested that the following be considered:

- A complete dispensation from taxes for services contained within a tunnel/underground. The submitter suggested that given the underground stations will have no impact on the spectrum utility above ground, there should be no taxes on underground stations.
- A reduction in the tax amount for services above ground. Given that RMR networks will be implemented to support public transport, and won't provide a service to the general public over a broad area, the submitter suggested that the proposed taxes should not be based on the surrounding population, or that a smaller HCIS block size could be used to better represent the coverage of an RMR network.

ACMA response

We note the proposals in relation to taxes for underground services and the potential use of a smaller HCIS block size to calculate licence tax rates for rail services. We currently do not have the ability to implement these potential changes in our current licensing system. However, we may consider such proposals in the future if systems allow.

As detailed above, we have included provisions for tunnel/underground services in RALI MS51. These provisions allow an operator to deploy underground stations under the same licence that authorises above ground stations, with no additional taxes if the

underground stations are located within the same HCIS Level 2 block as the above ground stations.[2]

Proposed changes to the cellular mobile class licence

Question 5

Are there any comments on the proposed changes to the cellular mobile class licence?

No responses were received.

ACMA response

We have amended the cellular mobile class licence as per our proposal in the consultation paper.

Proposed changes to RALI FX19 to support the introduction of SR WBB services

Question 6

Are there any comments on the proposed amendments to RALI FX19?

There were some reservations expressed regarding the introduction of SR WBB services and their potential to cause interference. While submitters supported the analysis provided in the consultation paper, there were concerns expressed that the characteristics used in the analysis did not represent a possible worst-case scenario. The main concern was with the building penetration loss of 20 dB assumed in the consultation paper, with submitters suggesting that a value of 5 dB would be more representative of typical Australian buildings and recognises that SR WBB stations could be located near a window.

Some submitters noted that the draft update to RALI FX19 did not include reference to the potential for interference to 2 GHz base station receivers from indoor SR WBB transmitters. These submitters proposed that RALI FX19 be updated to included coordination criteria to manage this interference scenario.

Another submitter suggested that RALI FX19 cross-reference the BWA-to-RMR coordination arrangements in RALI MS51.

ACMA response

We have included references to RALI MS51 in the updated version of RALI FX19.

While the 20 dB building penetration loss assumed in the consultation paper is consistent with the European Union studies[3] and previous analysis undertaken by the ACMA of a similar nature, after further consideration we have amended our calculations for the coordination distance to use a building penetration loss of 14 dB.[4] This has resulted in a larger coordination distance for proposed SR WBB stations in RALI FX19. However, APs may use a real world-informed value when undertaking coordination, as per normal practice.

We have included a section in RALI FX19 that discusses coexistence between SR WBB transmitters and 2 GHz band base station receivers. Our assessment is that while the risk of

[2] The underground stations are required to meet operational criteria in RALI MS51.
[3] ECC Report 314 uses a building penetration loss range from 13–20 dB.
[4] Based on ITU Recommendation ITU-R P. 2109-5/2040 for a medium loss assuming a non-thermally efficient building.

interference is low and therefore coordination is not required, SR WBB operators should ensure they do not cause interference to 2 GHz base station receivers, given that SR WBB operate on a no interference/no protection basis.

Licensing options and taxes for SR WBB services

Question 7

Are there any comments on the proposed licensing option and taxes for SR WBB services?

One submitter provided support for the licensing option proposed for SR WBB services. No comments were received on the proposed taxes for licences that authorise SR WBB stations.

ACMA response

We have implemented the licence type and taxes for SR WBB as proposed in the consultation paper.

Possible changes to RALI FX3

Question 8

Are there any comments on the proposed amendments to RALI FX3?

RALI FX3 details arrangements for fixed point-to-point links in the 1.8 GHz (1700–1900 MHz) and 2.1 GHz bands (1900–2300 MHz). No responses were received about the potential need for changes to RALI FX3 consequential to the new arrangements set out in this paper.

ACMA response

We will consider making consequential changes to RALI FX3 to reflect the new arrangements for RMR and SR WBB services discussed in this paper as part of our next review of RALI FX3.

Outcomes

We have decided to implement arrangements for RMR and SR WBB services in line with our proposals in the consultation paper but with the variations discussed in this paper. This section outlines those changes.

RALI MS51

Changes made to RALI MS51 that vary from the version we consulted on are as follows:

General amendments

- The term 'Railway mobile radio (RMR)' has replaced 'Future railway mobile communication system FRMCS'.
- In section 2.5, the text regarding the no interference/no protection condition for mobile stations has been amended to:

  > If interference does occur, the ACMA encourages licensees to cooperate to find a resolution. Devices that operate under the cellular mobile class licence (i.e. mobile and remote stations) and devices exempt from registration under 1800 MHz band spectrum licences (i.e. spectrum licensed mobile stations) operate on an NINP basis. This means that in the event interference is caused by a remote or mobile station transmitter (authorised by either the cellular mobile class licences or the spectrum licence), it is the responsibility of the licensee authorised to operate the mobile/remote station to resolve the issue.

- Minor editorial changes.

Coordination with 2 GHz band receivers

Amended section 3.5 (extract from RALI MS51)

Existing 2 GHz band spectrum licensed and PTS apparatus licensed base station receivers operate in the frequency range 1920–1980 MHz. The Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers—2 GHz Band) 2023 (the Rx RAG) contains the notional receiver performance levels for 2 GHz band spectrum licensed receivers. However, to aid coexistence between RMR and 2 GHz base station receivers in Europe, an enhanced selectivity specification has been developed as detailed in ETSI TS 103 807.

While not all existing 2 GHz base stations operated in Australia will meet this enhanced selectivity, the ACMA expects that new base station deployments will. This means that as operators deploy new base stations, either at a new site or to upgrade a base station at an existing site, the number of base stations that meet the enhanced selectivity will increase naturally over time. To account for this, there will be a need for collaboration between RMR and 2 GHz band operators to ascertain the operating parameters of deployed 2 GHz band base stations receivers and to establish a timeline for upgrading base stations that do not yet meet the enhanced selectivity.

The ACMA expects that licensees will work in a collaborative manner to find mutually beneficial solutions to achieve coexistence, however we have included a 'fall-back notification' option for when enhanced selectivity can be assumed for coordination purposes if a collaborative approach fails to reach agreement. We will also continue to monitor the effectiveness of these arrangements and may consider changes if necessary.

Coordination is required for proposed RMR transmitters within the distances and frequency separations from 2 GHz band receivers specified in Table 8. Collaboration with 2 GHz band licensees to ascertain which existing base stations receivers meet the enhanced selectivity performance (for receivers licensed/registered before [RALI commencement date]) will aid in reducing the number of receivers that will need to be coordinated with.

Table 8: Distance and frequency ranges where spectrum licence/PTS receiver coordination is required

	Distance from an existing 2 GHz band spectrum or PTS licensed receiver	Spectrum licensed and PTS receiver frequency range[1]
2 GHz band receivers licensed/registered before [RALI commencement date]	70 km	1920–1980 MHz
2 GHz band receivers licensed/registered after [RALI commencement date]; or Receivers that the 2 GHz band licensee has confirmed meets the enhanced selectivity performance of -30 dBm/ 10 MHz; or Receivers that the RMR operator has provided written notification to the affected 2 GHz band licensee 2 years prior to the assignment of the RMR transmitter*	5 km	1920–1980 MHz

**Notification needs to be provided to all licensees that have a 2 GHz band receiver licensed/registered within 70km of the proposed location of the RMR transmitter. Notification must identify which receivers would fail coordination (without enhanced selectivity), the calculations (assumptions and results) used to identify which base station receivers would fail coordination and the details of the planned RMR service that will help the 2 GHz band licensee to determine what action, if any, to take. These details must include the location and operating parameters of the proposed RMR transmitter and the date that the transmitter will commence operating. If the RMR station details change, a new notification must be provided to the 2 GHz band licensee (resetting the notification period).*

[1] Includes receivers with an occupied bandwidth fully or partially within this cull range.

Coordination is deemed to pass if the calculated signal from the proposed RMR transmitter either:

a) does not exceed -30 dBm/10 MHz at the input connecter of the receiver for 2 GHz band receivers licensed/registered after [RALI commencement date]
b) does not exceed the protection criteria specified in the RAG Rx for 2 GHz band receivers licensed/registered before [RALI commencement date]
c) does not exceed -30 dBm/10 MHz at the input connecter of the receiver for 2 GHz band receivers licensed/registered before [RALI commencement date] and the RMR operator has provided written notification to the affected 2 GHz band licensee 2 years prior to the assignment of the RMR transmitter
d) if the affected 2 GHz band licensee has provided written agreement that supports the proposed RMR transmitter assignment.

When making assessments against the protection criteria in the RAG Rx, the following receiver sensitivity values are to be used:

- For receivers with an occupied bandwidth ≤ 20 MHz: -96 dBm. This sensitivity value is based on the reference sensitivity value from 3GPP TS38.104 (-102 dBm) + 6 dB.
- For receivers with an occupied bandwidth > 20 MHz: -89 dBm. This sensitivity value is based on the reference sensitivity value from 3GPP TS38.104 (-95 dBm) + 6 dB.

Provisions for underground operation of RMR

New section 2.6 (extract from RALI MS51)
RMR stations in underground locations such as tunnels will likely be a part of the RMR network. Due to the service being located underground, the potential for interference to/from above ground services is low. No formal coordination with these services is considered necessary, provided **Special Condition C23** is attached to any licence issued. There is no limit on how much of the 1900—1910 MHz band can be used in an underground environment under these conditions.

Coordination among multiple underground licensees in the same location is considered a site management issue and should be resolved by relevant licensees and/or the underground site manager. **Special Condition C23** limits the above ground emissions and requires that underground stations operate on a ‘no interference and no protection basis’.

When applying for a licence, or including underground RMR services on an existing PTS licence, an above ground RMR transmitter position indicating the nominal location of the underground facility, must be ascribed. Multiple underground devices may be operated under any licence issued, without a requirement for registration, provided the requirements of **Special Condition C23** are not exceeded.

Other parameters that should be used on any licence applications are:

- EIRP: 10 µW
- Antenna ID: 80219
- Antenna height: 1.5 m
- Antenna azimuth: omni directional.

For an existing PTS licence that does not support underground communications (i.e. no Special Condition C23), the licensee may apply to vary their existing licence to support underground transmitters using the procedure as above.

Amended Section 4.8
Section 4.8 has been updated to include the special condition text for underground services.

Special Condition C23 must be applied to all spectrum accesses associated with PTS licences in the frequency range 1900—1910 MHz that will deploy devices underground.

Special Condition C23

A person must not operate a:

a) radiocommunications transmitter that is, or is part of, a station other than a registration exempt station otherwise than in accordance with section 8 of the *Radiocommunications Licence Conditions (PTS Licence) Determination 2024* (PTS LCD); or
b) registration exempt station otherwise than in accordance with sections 9, 12 and 13 of the PTS LCD.

In this condition, ***registration exempt station*** has the same meaning as in the PTS LCD and also means a base station:

a) that is, or incorporates, one or more radiocommunications transmitters (a relevant transmitter); and

b) that is located in an underground space; and

c) for which each relevant transmitter:

   (i) is operated with a radiated true mean power not greater than 10 micro watts per occupied bandwidth, when measured at an opening above ground that connects to the underground space; and

   (ii) is operated on a frequency specified in this licence for the operation of a radiocommunications transmitter; and

   (iii) if this licence specifies an emission designator for emissions made by a radiocommunications transmitter – is operated in accordance with that emission designator; and

d) if a radiocommunications receiver is part of the station – the receiver is operated on a frequency specified in this licence.

Railway line identification

Amended Appendix A to add the below text (extracted from RALI MS51)
The railway lines listed on the above database, illustrated in Figure A1, have different operational statuses. Table A1 provides guidance on the railway line operational status that requires protection.

Table A1: Railway lines to be protected based on operational status

Operational status	To be protected
Operational	Yes
Proposed	Yes
Under construction	Yes
Disused	Yes
Closed	Yes
Unknown	Yes
Other	Yes
Abandoned	No
Dismantled	No

A.1 Additional railway lines

As new railway lines are designed and built, there may be occasions where the railway lines provided by the Digital Atlas Australia are not up to date. To address this, additional railway lines (in a KML format) are included on the ACMA website. These railways lines are to be used for the purposes of this RALI.

Rail authorities should provide details of new or proposed railway lines to the ACMA as soon as possible, for inclusion in this RALI.

RALI FX19

Changes made to RALI FX19 that vary from the version we consulted on are as follows:

- A reference to the coordination requirements for BWA and RMR set out in RALI MS51 has been included.
- The coordination distance for new SR WBB services has been increased to 28 km.
- Considerations for coexistence between SR WBB and 2 GHz services has been included.